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Selected aspects of irony comprehension
in Polish monolingual and Polish-English
bilingual children: A comparative study

Wybrane aspekty rozumienia ironii przez
jednojęzyczne dzieci polskie
i dwujęzyczne dzieci polsko-angielskie:
Badanie porównawcze

Rozprawa doktorska napisana
na Wydziale Anglistyki
Uniwersytetu im. Adama Mickiewicza w Poznaniu
pod kierunkiem prof. TAMIU Anny B. Cieślckiej

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OŚWIADCZENIE

Ja, niżej podpisana

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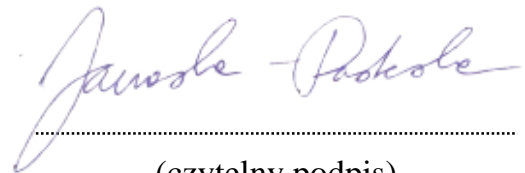
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Introduction

Children's comprehension of ironic utterances is a research topic that has received a considerable amount of academic interest. Research conducted in the monolingual context has identified and explored three major aspects relevant to the study of irony comprehension; these are recognition of speaker belief, intent, and attitude (Creusere 1999; Harris and Pexman 2003; Pexman et al. 2005; Glenwright and Pexman 2010; Pexman et al. 2019). Of the three, the ability to correctly recognise speaker belief has been found to constitute an important early step in children's path towards acquiring a fully-fledged ability to make sense of ironic utterances (Pexman and Glenwright 2007; Pexman 2008; Glenwright and Pexman 2010; Nilsen et al. 2011; Aguert et al. 2017). Speaker intent recognition, in turn, has been postulated to be the most challenging task children are faced with when understanding irony (Filippova and Astington 2008). Finally, researchers' conceptions of speaker attitude recognition have undergone a major shift, as early research (Andrews et al. 1986) employed it as a comprehension measure whereby a correct comprehension had to entail an acknowledgement of the ironic speaker's invariably negative attitude. With the advent of studies into the multiple pragmatic goals that can be attained, and the many attitudes that can be expressed with irony (Kreuz and Long 1991; Long and Kreuz 1991; Dews et al. [1995a] 2007¹), developmental scholars' attention started to revolve around the question of children's ability to appreciate two major functions of irony: to criticise and to be humorous (Dews et al. 1996; Harris and Pexman 2003; Pexman and Glenwright 2007).

¹ Note that the date of the original publication of Dews and colleagues' article is given in square brackets. In further discussion of the article, it will be referred to as Dews et al. (2007), which is the edition used by the current author. The year of the original publication will only be given again when necessary, for the sake of clarity. The same convention will be used for all re-issued publications used by the author.

Fascinating as they are, these problems have been largely overlooked by bilingualism research. Studies comparing mono- and bilinguals' ability to understand various types of pragmatic meanings are a relatively recent phenomenon and are still scarce (Siegal et al. 2009; Antoniou and Katsos 2017; Antoniou et al. 2020; Antoniou and Milaki 2021). This is somewhat surprising given the growing body of research pointing to the existence of a bilingual advantage for a number of skills and abilities, including mentalising (Goetz 2003; Farhadian et al. 2010), executive functioning (Carlson and Meltzoff 2008; Bialystok 2015; Javan and Ghonsooly 2018), perspective taking (Yow and Markman 2011a; Yow and Markman 2011b; Fan et al. 2015), and repairing communication breakdowns (Comeau et al. 2007). Many studies have also found bilinguals to have superior language awareness (Ricciardelli 1992; Bruck and Genesee 1995; Campbell and Sais 1995; Verhoeven 2007; Davidson et al. 2010; Kuo and Anderson 2010). Thus, it might be the case that a similar advantage exists for irony comprehension.

Recent research has found a positive effect of “increased bidialectalism (...) on the speed of processing irony” (Antoniou and Milaki 2021: 713); however, the study was conducted with adult participants. As research comparing the performances of mono- and bilingual children on irony comprehension is still scant, the current study sought to investigate whether a bilingual advantage exists for children's ability to understand different types of ironic utterances.

Chapter 1 lays the groundwork for studying irony, as it introduces the major theoretical approaches that have been proposed in order to account for irony comprehension. The discussion opens with an outline of the different definitions and accounts of irony and an appreciation of how ubiquitous a phenomenon irony is. Subsequently, the focus is shifted to the pragmatic goals that can be attained via irony. What follows is a presentation of major theories of adult irony comprehension.

Chapter 2 offers a review of empirical approaches to irony. It opens with a synopsis of factors that have been found to impact irony processing. As many of these have been identified by research conducted with children, the discussion zooms in on irony skills in young individuals. The chapter introduces and elaborates on, three key aspects that have been identified as central to the study of irony comprehension in children. These three are recognition of speaker belief, intent, and attitude. The relevant research findings concerning each of the three aspects are discussed in detail. The focus here is on areas of contention, and on questions that are yet to be answered.

Chapter 3 introduces the topic of bilingualism. The complexity of the phenomenon, as well as its multiple understandings and definitions are addressed. The scope of the analysis then moves on to factors which previous research has identified as relevant to the study of the phenomenon. Finally, the discussion focuses on the costs and rewards of bilingualism. Here, research findings are reported from studies which compared the performances of mono- and bilingual individuals on various tasks measuring metalinguistic awareness, verbal abilities, cognitive flexibility and executive function, mentalising skills, communication skills, and cognitive reserve. Finally, the recent academic debate concerning publication bias is touched upon, and its implications for the study of bilingual advantages are analysed.

Chapter 4 combines the two major foci of the dissertation, leading the discussion towards irony comprehension in bilinguals. As bilingual research into irony processing is scarce, major findings concerning bilingual figurative processing are presented first. Subsequently, insights gleaned from various strands of research are analysed which demonstrate how irony differs from other types of non-literal language. Further, the focus of the review is placed on empirical findings concerning irony comprehension in bilingual individuals. Relevant research conducted with adult participants is discussed first. Then, studies into bilingual children's understanding of irony are presented and their implications are given. The chapter closes with an elaboration of the major issues in this research area that have yet not been satisfactorily addressed.

Finally, Chapter 5 presents the empirical study that has been designed in order to shed more light on mono- and bilingual children's irony comprehension. The study investigates three major aspects of irony understanding: recognition of speaker belief, recognition of speaker intent, and appreciation of speaker attitude, in three groups of mono- and bilingual participants: younger children, older children, and teenagers. Participants were presented with ironic stimuli belonging to five speech act types and answered a series of comprehension questions. The obtained data were analysed quantitatively and qualitatively. Chapter 5 presents the analyses that were performed, reports the obtained findings, and discusses them against the backdrop of the relevant research. Finally, limitations of the study are discussed, and further research directions are outlined.

Chapter 1: Introducing irony: Major theoretical approaches to irony comprehension

1.1. Introduction

The primary goal of the analysis undertaken in Chapter 1 is to introduce the phenomenon of irony, which is at the heart of the present author's research pursuits. A multidimensional picture will be sketched here – such that could give full credit to the complexity of the investigated problem, without missing out on any of the important aspects that make up its unique nature. The discussion will open with a brief presentation of irony as an object of scientific enquiry, whereby the author will acknowledge both the scope of the research topic, as well as its long-standing history. Further, an attempt will be made at providing a definition of the problem under investigation, trying to answer three fundamental questions: the “where”, the “what”, and the “why” of irony. Here, issues pertaining to the pervasiveness of irony in regular discourse will be discussed, as well as the many forms that irony can take and the levels at which it operates, together with the communicative goals it may serve. At this point, the critical concepts will be defined – such that will be pursued in the subsequent chapters of the current analysis. Having done this, the author will proceed to review the major theories that have been proposed in order to account for the processes underlying irony comprehension in adults. Here, the discussion will be structured so as to demonstrate how the particular approaches originated, developed, and gave way to newer theories, devised in order to explore the issues that have not been properly addressed earlier. Special emphasis will be laid on those points that the author will be expanding on later, in the following chapter of the present analysis, where empirical findings into irony comprehension and perception will be presented and discussed.

1.2. Neither new nor narrow: Irony as a field of study

The phenomenon of irony has been studied for centuries (Banasik-Jemielniak and Kałowski 2022); its recognition and consideration date as far back as the earliest attested philosophical works (Colston and Gibbs Jr 2007: 3). Philosophy, however, is by no means the only discipline that has entertained the topic of irony over the course of history. “[A] myriad of theoretical classifications of irony” have been offered (Banasik-Jemielniak and Bokus 2019: 1220). The phenomenon has been discussed and researched from many and – often – distant scientific perspectives, among which are literature studies, cultural studies, anthropology, and the many subdivisions of psychology: from cognitive, through social, to clinical (Colston and Gibbs Jr 2007: 3). It is to be noted at this point that a heritage this rich does not easily yield itself to an exhaustive portrayal and aiming at such is way beyond the scope of the present analysis. This is not least because different fields of study tend to have varying foci when scrutinising the same phenomenon, and the more so when the object of study happens to be highly diversified, as is the case with irony. Thus, while numerous attempts have been made in order to define what it actually is that “constitutes an ironic utterance, (...) limited agreement” (Banasik-Jemielniak and Bokus 2019: 1220) has been reached, to say the least. To provide an example, scholars working within the domain of rhetoric perceive irony as a figure of speech which expresses a meaning that is directly opposite to the intended one, while those doing literary criticism focus on irony as a mode of pointing to motives and sentiments opposite to those articulated (Kaufer 1977: 90). At the same time, it has to be remembered that the phenomenon of irony does not have to come about at a single sentence level, but may as well permeate a passage or a whole text (Winner 1988: 25). Moreover, as Richards (2008: 52) points out, the figure can even cover a “whole life”; she illustrates this claim with the example of Socrates, who – according to Quintilian [95] (2001) – was dubbed an “eiron” owing to his frequent activity of assuming the mask of an ignorant man amazed at the alleged wisdom of his interlocutors. The scope of irony is but one of the many dimensions at which particular occurrences of the phenomenon can differ.² A more detailed analysis of the structural diversity of irony will be presented later. Now, having appreciated the breadth of the topic and having pointed to the

² The author is aware that “occurrence” is not the most felicitous term here: it is hard to speak of an occurrence when one refers to a phenomenon that permeates a whole text.

pervasiveness of irony as an object of study for various disciplines, let us move on to ponder what the reasons for this strange popularity might be.

1.3. Why bother about irony? On presence

Irony is not a marginal linguistic phenomenon (Kreuz 2020). Nonliteral language, such as irony, is involved in “a significant part of everyday verbal communication” (Banasik-Jemielniak 2022: 1). Gibbs Jr (2000: 1) quotes Kierkegaard (1965: 378), who – perhaps somewhat controversially – writes that “no authentic human life is possible without irony.” Dews and Winner (1999: 1580), drawing on the insight from Muecke (1969) and Booth (1974), point to the ubiquity of irony, stating that it occurs customarily in regular discourse and in all cultures that are known to us. One need not resort to philosophical or anthropological claims, though, to acknowledge the presence of irony, whether explicit or latent, in various aspects of human experience. Deciding on a particular definition of the phenomenon is of little importance at this point; applying too restrictive and particularised criteria, one runs the risk of missing out on the less salient instances. In line with this, Gibbs Jr (2000: 1) writes about “various forms of irony” being evident both in spoken and written language. It has to be noted, though, that only a few studies have so far ventured upon measuring the actual frequency of irony in diverse types of discourse. Dews and Winner (1999: 1580; Dews et al. 1995b) give estimations concerning modern television programmes, rating the incidence of irony at four cases every thirty minutes, the majority expressing criticism rather than approval. Kreuz et al. (1996) looked at the occurrence of irony in a very different context – that of present-day American literature – and established that readers encounter about one example of the phenomenon every four pages. However, Dews and Winner (1999: 1580) claim that such estimations do not give full credit to the pervasiveness of irony, failing to allow for its occurrences in regular spoken communication. This gap was filled by Gibbs Jr’s (2000: 1) seminal study, in which he analysed college students’ conversations and found that ironic utterances of different forms constituted as many as 8% of the conversational turns that he put to scrutiny. To conclude, even the scant approximations of the true incidence of the phenomenon that have so far been proposed show that irony is all over the place.

1.3.1. The types of irony

It has been pointed out that irony is a popular research topic; this is not least because it is so pervasive in everyday discourse. Before looking for the actual reasons for this popularity, let us first take a while to acknowledge the complexity of the phenomenon under discussion. It is vital to settle a few definitional issues at this point and to make clear what it is exactly that we have chosen to investigate.

Dynel (2019: 1) defines irony as “a polysemous term that covers a number of distinct phenomena.” Sperber (1984: 130) writes about at least four referents of the word *irony*: “attitudes (Socratic irony, Romantic irony), (...) a literary device (dramatic irony), (...) a figure of speech (verbal irony), (...) situations, and so on.” The most fundamental distinction, however, and one applied by the vast majority of irony researchers, is that between situational irony and verbal irony (Attardo 2000; Gibbs Jr and Colston 2007; Reyes et al. 2012). Situational irony pertains to cases in which “a state of the world is perceived as ironical” (Attardo 2000: 794); a lucid example given by Attardo (2000: 794) is that of a “fire station burning down to the ground.” Colston and Gibbs Jr (2007: 16) call situational irony “a lesser studied cousin of verbal irony”, for indeed the bulk of scientific debate has focussed on the latter and it is only recently that the former has begun to attract scholarly attention.³ It needs to be noted that there are scholars who adopt far more sophisticated approaches, further distinguishing other kinds of ironies (Reyes et al. 2012). Furthermore, various authors may employ the same terminology with different meanings intended. Thus, writing about situational irony, Muecke (1969: 99) lists as many as eleven terms that have been used to label the phenomenon: “Sophoclean irony, Tragic Irony, Dramatic Irony, Irony of Things, Irony of Fate, Irony of Chance, Irony of Life, Irony of Circumstances, Cosmic Irony, Irony of Events, [and] Irony of Character.” Clark and Gerrig (1984: 124), in turn, apart from verbal irony, or “the rhetoric device of irony”, distinguish between dramatic irony and irony of fate. Pexman and colleagues’ (2009) distinction is between verbal and nonverbal forms of irony; one of those belonging to the latter type is gestural irony. Kreuz and Glucksberg (1989), in turn, admit that the types of irony are many, but explicitly

³ The reason for this can be found in Muecke (1969: 99), who writes that “the ironies of ironic situations are, lexicologically speaking, very recent arrivals: it was not until the later eighteenth and the nineteenth century that they were recognized, accepted and named.” This does not mean, however, that ironic situations were not appreciated long before; the concepts of “tragic irony” or “irony of fate” are, after all, typically invoked in the context of ancient Greek tragedy.

mention just two: verbal irony and irony of fate which – on their definition – “refers to states of affairs” (Kreuz and Glucksberg 1989: 374) and could therefore be considered analogous to the more widely recognised concept of situational irony. The type of irony which is the main focus of the current thesis’ exploration is verbal irony, also labelled discourse irony (Kumon-Nakamura et al. [1995] 2007) or, simply, ironic language. As will evince from the further analysis, it does not constitute a uniform category, but is a multifaceted phenomenon, and one which can be viewed from various angles.

When exploring the essence of any given concept, it is quite crucial to be aware of the level of abstraction one is working at. Such, too, is the case with verbal irony: the phenomenon can be scrutinised from multiple perspectives and analysed within various frameworks. Thus, depending on the theoretical angle taken, we can distinguish between different levels of verbal irony; importantly, these levels do not need to be unique to it, but may also pertain to other linguistic phenomena. This inevitably implicates that an exhaustive elaboration of all these levels is far beyond the scope of the present discussion. Therefore, at this point we will limit the analysis so as to introduce only the most widely recognised typologies, including the one which has been chosen for the purposes of the empirical part of this dissertation. A more detailed account of several other typologies of irony will be provided in subsequent sections, where functions and theories of irony will be further discussed.

On the most basic level, both naive language users and scholars make a distinction between the phenomena of irony and sarcasm (Dynel 2019). In the framework adopted here, sarcasm is viewed as a particularly malicious form of irony – one which is directed at a particular target and meant to hurt; it needs to be borne in mind, though, that not all authors agree with this definition and that the two terms “are often used interchangeably” (Banasik-Jemielniak and Bokus 2019: 1218).⁴ Another type of verbal irony distinguished in the literature is banter, a quick exchange of witty remarks which are meant to entertain (Norrick 1993; Dynel 2008).⁵ It needs to be pointed out at this point that banter, working at the level of dialogic exchanges, is a discursive phenomenon. An important issue emerges here: there does not seem to be a limit as to the tier at which irony operates. Thus, there are

⁴ Bromberek-Dyzman (2011), for example, sees sarcasm as a form of irony whose aim is to convey mild criticism. More information on sarcastic irony will follow in section (1.5.1).

⁵ More on banter will follow in section (1.5.4).

not only ironic phrases, such as “nice try” said to someone who made no effort, or ironic clauses or sentences, but also whole ironic texts and discourses.⁶

Researchers want to capture at least a fraction of the multifariousness of irony; this is especially valid for irony production studies. Thus, for example, Recchia and colleagues (2010) look at children’s use of four types of verbal irony: sarcasm, hyperbole, understatement and rhetorical questions. Gibbs Jr (2000), in turn, has identified as many as five major irony types as used by the participants of his study – college students and their friends; apart from the four types investigated by Recchia et al. (2010), he has also found jocularity, in which “speakers teased one another in humorous ways” (Gibbs Jr 2000: 12). Examples of such differences are many; however, there seems to be one major problem with typologies of this kind: the pinpointed types of irony do not seem to be mutually exclusive. For instance, an utterance may employ hyperbole and be jocular at the same time. Therefore, analysing them as separate entities is likely to yield skewed results. It is for this reason that arriving at a precise categorisation of irony types, with elements operating at the same level of abstraction and distinguishable by means of a single differentiating criterion, is of such importance for psychopragmatic research.

The type of irony that seems to have been most widely studied in traditional pragmatic explorations is declarative assertions, i.e., those assertions which can be perceived as either true or false (Haverkate 1990; Kumon-Nakamura et al. 2007). The bulk of psychopragmatic research has focussed on a subcategory of this type: counterfactual statements, which typically take the form of a positively phrased utterance meant to communicate a negative evaluation (Ackerman 1982, 1983; Demorest et al. 1984; Capelli et al. 1990). Some studies (Dews et al. [1995a] 2007; Hancock et al. 2000; Harris and Pexman 2003) also examined negative counterfactuals – those in which a negative comment communicated a positive evaluation.⁷ It needs to be remembered, though, that these are but two subtypes of irony, and therefore the scope of such analyses was far from exhaustive. After all, irony can be communicated by various kinds of utterances: not only assertions, but also requests, offers, or expressions of judgement or evaluation, among others. Further, irony need not be communicated in the declarative form; there are also ironic commands, exclamations or questions. Kumon-Nakamura et al. (2007) point out that irony can be expressed

⁶ A classic example of an ironic text is Jonathan Swift’s (1729) essay known as *A modest proposal*, in which the author presents his solution to the problem of the impoverished Irish, suggesting that they should sell their children to be served as food for the rich.

⁷ A more detailed account of the praising type of irony is provided in section (1.5.2).

by means of all five speech act types, as distinguished by Searle (1969): assertives, directives, commissives, expressives and declaratives.⁸ Analysing ironic expressions from this angle has at least two major advantages: taken together, speech acts constitute a closed category, and, moreover, they operate at the same level of abstraction. In this sense, an analysis of ironic utterances as belonging to one of these five types is free from the risk of category overlap. This is the main reason why this very typology has been chosen for the purpose of the research described in Chapter 5. It has to be admitted that this systematisation is by no means a universal one, but it does belong with those which have enjoyed considerable scholarly attention. Above all, it has assets which – in the present author’s view – make it superior to other taxonomies that have been developed so far: it is exhaustive within the limits of the relevant level of abstraction, and it has mutually exclusive components. Thus, it enables one to perform a conclusive analysis of the problem being investigated.

1.4. On the potency of irony

The ubiquity and versatility of irony are by no means the sole reasons for its being an important object of study. Karsetter (1964: 162) points out that “irony has been used at times with great effectiveness” and writes about “its potential as a persuasive instrument.” Littman and Mey (1991: 148f.) write about just three major types of reasons for using irony: humour, social hedging, and instruction. Harris and Pexman (2003: 147), however, propose that there are a number of social functions that verbal irony can serve. In a similar vein, Banasik-Jemielniak and Kałowski (2022: 80) note that “[e]fficient irony use can serve a wide range of pragmatic goals.” Along the same lines, Kreuz and Long (1991) and Long and Kreuz (1991, as quoted in Kumon-Nakamura et al. 2007: 60) emphasize the broad scope of communicative purposes which can be attained via irony. In their study, participants were asked to enumerate the communicative goals of irony, and the most popular

⁸ Still, it is Eggs (1979) and Haverkate (1990) who were among the first to point out that the scope of irony should not be restricted to assertives. Haverkate (1990), however, excludes declaratives from his analysis, claiming that “they are performed by means of performative formulas, to which no sincerity condition applies” and are therefore “incompatible with ironic interpretation” (Haverkate 1990: 89). While Kumon-Nakamura et al. (2007) did not sample declaratives in their experimental stimuli, they did state explicitly that “[w]hen a declaration alludes to a violated norm or expectation and when it violates the felicity condition that a declaration can only be made by someone with the authority to make it, then a declaration may communicate irony” (Kumon-Nakamura et al. 2007: 91). More on that will follow in section (1.6.5).

three were emphasizing a point, being humorous, and being derogatory. The reasons for using irony that followed were just as diverse: expressing emotion, alleviating personal or social discomfort, provoking a reaction, getting attention, managing conversation and, finally, dissembling. It is precisely the effectiveness and the versatility of irony that make it such a fascinating and important object of study. To capture the essence of a phenomenon so multifarious is a true challenge – such that many a scholar would not let pass.

1.5. Why use irony at all?

Previous sections have shown how many different reasons there are which prompt speakers to choose irony over other means of conveying information or attitude to their interlocutors. As has become clear by now, not all of the communicative goals of irony signalled in the above review are similar in nature, and they do not necessarily have to refer to the same aspects of communication. Indeed, it may happen that one and the same ironic utterance is employed for two very different – and sometimes even opposite – purposes. The most common uses of irony are discussed below.

1.5.1. When irony is meant to hurt: Sarcasm

Most pragmatic theorists of irony, including Sperber and Wilson (1986), have tended to claim that ironic utterances express evaluations which are predominantly of negative nature. A similar, but somewhat stronger, view is held by Garmendia (2010: 397), who contends that “irony is always critical.” The researcher goes even further than that, postulating that it is precisely this criticism that makes it possible to distinguish irony from the related phenomenon of metaphor. Controversial though this claim is – after all, it dates as far back as 1995 when Dews and colleagues (2007) demonstrated that irony could actually convey positive attitudes – one cannot deny that criticism can be expressed with great effectiveness via the vehicle of irony.

At this point, before going into any further detail, we need to draw attention to the existence of a terminological distinction which has a long tradition and is widely, though not universally, recognised in the literature on irony. Psycholinguistic and pragmatic work

is ripe with various definitions of sarcasm and irony; in some of these, the two phenomena converge to a certain degree, while in others, a fine line is drawn between them. Muecke (1969: 54), for example, points out that “some sarcasms are not ironical at all and others scarcely or minimally ironical”, but at the same time admits that “[s]arcasm has been called the crudest form of irony.” Still, there are authors who – such as Gibbs Jr (1994b) – use the terms *sarcasm* and *irony* interchangeably, as synonyms. Notably, though, the same author has written that “it is possible to make sarcastic remarks without being ironic” (Gibbs Jr [1986] 2007: 174). Kreuz and Glucksberg (1989: 374) make a point that, despite the abundance of disparate views on the issue, “there is a consensus in the literature that in using sarcastic irony, people utter what is blatantly false in order to convey a negative and truthful comment on some topic.” The authors define “sarcastic irony” as “sarcasm expressed by verbal irony” (Kreuz and Glucksberg 1989: 374). This elucidation, however, does not provide sufficient criteria for distinguishing between sarcasm and irony. One may agree that “sarcasm is suspected whenever a remark is blatantly counterfactual” (Kreuz and Glucksberg 1989: 384), but it must be remembered that a great number of irony investigations take counterfactual statements as model examples of irony. Thus, counterfactuality cannot be considered the criterion differentiating between the two phenomena. The solution to the problem seems to have been found by Lee and Katz (1998). Drawing on Kreuz and Glucksberg’s (1989) work, they posit that sarcasm always has a particular victim of ridicule, while irony has no specific target.⁹ The authors illustrate this distinction with the following example (Lee and Katz 1998: 1):

(1) *What a sunny day!*

Uttered in stormy weather, this comment could be either ironic or sarcastic, depending on what it brought to mind. If the speaker merely expressed a nostalgic wish for some sunshine, this would be a case of irony. If, however, the remark alluded to or – even less so – evoked associations with a particular weather forecaster’s prognosis that the day would be

⁹ Lee and Katz (1998) argue that Kreuz and Glucksberg (1989) actually make this distinction, which seems to be an overinterpretation. What Kreuz and Glucksberg (1989) have found in their experiments is that “[r]emarks in the context of an identifiable victim were more likely to be interpreted as sarcastic than were identical remarks in the absence of a victim” (Kreuz and Glucksberg 1989: 379) and that the availability of an explicit victim is among the cases in which sarcasm is “judged to be sensible and appropriate” (Kreuz and Glucksberg 1989: 384). A more detailed analysis of Kreuz and Glucksberg’s (1989) claims and findings will be offered in section (1.6.4).

sunny, then the utterance would be sarcastic, the inept forecaster being the target of ridicule.

Apart from bringing this useful distinction to scholarly attention, Lee and Katz (1998) tested it empirically in two experiments. Participants, all of whom were undergraduate students, were divided into two groups, each of which was given several text passages to read; *nota bene* some of the passages were selected from the materials used by Kreuz and Glucksberg (1989). The undergraduates were supposed to perform a simple task: to rate a target expression on how good an example it was of sarcasm in the case of the first group, and of irony in the second group. It turned out in the first experiment that manipulating ridicule influenced only the ratings of sarcasm, leaving the ratings of irony unaffected. The results of the second experiment seem even more interesting, as the correlation between ridicule and sarcasm was significantly greater than the one between ridicule and irony. This indicates that mocking a particular person is far more important in sarcasm than it is in irony, which corroborates Kreuz and Glucksberg's (1989) claim that the presence of an identifiable target makes people more likely to judge sarcastic comments as reasonable.

Indeed, sarcasm is "a form of irony in which the criticism is sharper, [and] clearer" (Garmendia 2010: 416), and it is very likely to be so because of the readily identifiable victim. For the same reason, sarcasm could be deemed a riskier means of expression than irony; after all, as is pointed out by Glenwright and Pexman (2010: 432), "the target who has a personal stake in the subject of criticism may perceive speaker attitude as being particularly hurtful rather than playful." What is more, as was demonstrated by Toplak and Katz (2000: 1481), sarcastic speech – when viewed from the perspective of speaker intent – is perceived as "more insincere, impolite, humorous, mocking, offensive, aggressive, anger-provoking, non-instructional, unclear", while the speaker seems to be more self-satisfied. Also, targets reproached via sarcasm feel themselves more criticized. In short: speakers are sarcastic when they intend to be verbally aggressive, while victims find such criticism to be more severe than that expressed directly – which means that sarcasm does hurt. This is but one of the many reasons which make sarcasm a very effective communication tool.

After this recapitulatory remark, let us now make a clarification vital to the purposes of the present thesis. As has been written above, the distinction between irony and sarcasm is generally acknowledged in the relevant literature, but it is not a universal one. For example, Gibbs Jr (1994b), as already pointed out, treats the notion of sarcasm synonymously with that of irony in his comprehensive exploration of the psycholinguistic research on fig-

urative language. So do Eisterhold and colleagues (2006) in their study of entire ironical exchanges.¹⁰ More than that, certain analyses devoted to figurative language leave sarcasm out altogether – such as Roberts and Kreuz’s (1994) examination. It could be the case that such authors tacitly assume that “irony” is a superordinate term, encompassing the instances of sarcasm in its semantic field, and that their analyses pertain to the phenomenon in its broad understanding; it might as well be the case, however, that they have failed to acknowledge if not the very existence, then the idiosyncrasy of sarcasm. It must be remembered that – unless the tenets of a scientific examination are explicitly stated – one who makes unwarranted assumptions as to the author’s premises runs the risk of arriving at an inaccurate conclusion, to say the least. For this reason, the author of the present thesis would like to make her approach to terminology explicitly clear. In the current work, (verbal) irony is taken to be the general, or broader, term. The terms *sarcasm* and *sarcastic irony* are used synonymously to refer to the hurtful subtype of irony which is directed at specific targets, an approach that is in line with the distinction attributed to Kreuz and Glucksberg (1989) by Lee and Katz (1998).

1.5.2. The mystery of positive irony

Having made the terminology clear, let us now come back to our discussion of the functions of irony. It has been postulated in the previous section that irony can convey criticism effectively. Indeed, most ironic utterances have the surface form of a positive message, while they in fact carry a negative evaluation. There is, however, a type of irony in which the opposite takes place: a surface-level rebuff is meant to communicate praise. Let us illustrate this with an example of a speaker who, having just eaten a delicious meal prepared by a friend famous for her cooking talent, utters the following comment:

(2) *You are such a terrible cook!*

¹⁰ The authors use the names “irony” and “sarcasm” interchangeably, making their stance on the issue clear and explicit: “[w]e assume (...) that it is impossible to differentiate, on theoretical grounds, between irony and sarcasm” (Eisterhold et al. 2006: 1240).

Taken literally, this utterance would express criticism, but it is in fact an ironic compliment on the receiver's kitchen skills.

Ironic praise, also known as asteism (Attardo 2000), has been demonstrated to be less frequent than ironic criticism (Dews et al. 1995b; Schwoebel et al. 2000).¹¹ Gibbs Jr (2000) reports the results of his study in which – out of all the utterances which were classified as sarcastic¹² – a far lower number was constituted by those stated negatively to communicate a positive message.¹³ Moreover, there are studies whose results indicate that ironic compliments are more difficult to process than ironic criticisms; this effect has been found for children. To be precise, young participants have been demonstrated to be more apt at gauging the belief of an ironic speaker in ironic criticism than in ironic praise (Hancock et al. 2000; Harris and Pexman 2003; Pexman and Glenwright 2007). Given the fact that, linguistically, ironic compliments do not differ from ironic criticisms in any structured way (Nakassis and Snedeker 2002: 10), the asymmetry between these two kinds of irony becomes even more interesting. The problem has been addressed by several researchers who have proposed different theories to account for it. Let us begin our analysis with the oldest explorations.

To Grice ([1978] 1989), the asymmetry issue does not seem to exist. This stems from his approach to the nature of irony in general: he claims that irony is always meant “to reflect a hostile or derogatory judgement or a feeling such as indignation or contempt” (Grice 1989: 54). This does not mean that this author has failed to acknowledge the existence of negatively phrased comments which convey a positive meaning; it is to the contrary – he provides and analyses an example of an utterance of this kind (Grice 1989: 54):

(3) *What a scoundrel you are!*

¹¹ Under this name, positive irony is seen as a rhetorical figure, or a figure of speech – therefore, the term is not typically used in psycholinguistic research. It does, however, appear in pragmatics-oriented literature (Berrendonner 1981; Mizzau 1984; Attardo 2000).

¹² It has to be remembered that the definition of sarcasm that Gibbs Jr (2000: 12) applied in his study was different from the one adopted here; under his approach, sarcasm covered utterances “where speakers spoke positively to convey a more negative intent”; as can be seen, no mention is made of the need for a specific target of ridicule. Still, one can notice that ironic praise is exactly the opposite of what Gibbs Jr (2000) defined as “sarcastic”, and it is therefore somewhat surprising that the two phenomena were not mutually exclusive within his framework.

¹³ Of all sarcastic utterances, only “15% presented negative statements to convey positive message” (Gibbs Jr 2000: 19), as opposed to the majority (69%) of positive statements conveying a negative meaning.

Such a comment made to a person with whom the speaker is friendly could be perceived as an instance of positive irony; on Grice's (1989) account, however, utterances of this type are not considered ironic but playful. Moreover, they would not be deemed appropriate unless there was at least minimal justification for such direct address – for instance, the person in question might have done something that some people, though not the speaker, do not approve of. Thus, what others would classify as positive irony, Grice (1989: 54) lists as playfulness – a phenomenon that he considers to be distinct from irony. Consequently, there could be no talk of the asymmetry issue within his framework. While it would have been logically possible for him to compare the incidence of irony and playfulness, such a research topic is by no means obvious: a big difference in the occurrences of two separate phenomena is necessarily less striking than the same difference in the occurrences of two varieties of a single kind. Hence, researchers who considered negative utterances with a positive meaning to belong to the category of irony were more likely to appreciate the existence of a discrepancy in the incidences of the two irony types and, further, to look for the reasons for such a state of affairs. We owe a lot of what we now know about irony to attempts at resolving the asymmetry issue.

An appealing, though perhaps somewhat inconsistent, approach to the problem was adopted by Sperber and Wilson (1981; Wilson and Sperber 1992). When introducing their notion of “relevance”, they analyse just the type of irony in which the expression uttered by the speaker is accompanied by “ridicule or scorn” (Wilson and Sperber 1992: 76), that is ironic criticism. When going into more detail, however, the authors acknowledge the existence of what they call “a strange asymmetry in the uses of irony” (Sperber and Wilson 1981: 312), noting that one is far more likely to encounter an expression which is positive on the surface but conveys a more negative evaluation than an expression in which the reverse takes place. Pointing out that the traditional meaning-reversal approach cannot account for the phenomenon, Sperber and Wilson (1981: 312) present their explanation, in which they refer to conventional rules of behaviour that are accepted in a given society.¹⁴ By virtue of being generally known and frequently called upon, these standards are readily

¹⁴ Traditional models of irony comprehension viewed the intended ironic meaning as the opposite of an utterance's literal meaning. A more detailed discussion of this problem and its implications will follow in section (1.6.1), which looks at the standard pragmatic model.

available to be echoed.¹⁵ Negative evaluations, in contrast, tend to be more specific, as they usually concern a particular person or situation. This, in turn, makes them far less likely to be mentioned. Sperber and Wilson (1981: 312) sum it up the following way: “it is always possible to make ironical mention of the norm (...) [, but] there must be past doubts or fears to echo if the mention of a critical judgement is to count as ironical.”

A similar solution to the problem of asymmetry is offered by Kreuz and Glucksberg (1989), who also utilise the idea of referring to norms, but whose elucidation seems to be more exhaustive than Sperber and Wilson’s (1981). These authors claim that positive statements which communicate criticism are more frequent than negatively expressed praise because they do not require that the speaker should refer directly to some previous status quo; instead, such expressions may – as Kreuz and Glucksberg (1989: 374) put it – “implicitly allude” to societal norms and standards of behaviour. It is crucially important to note that these standards are almost always of positive character, and it is for this very reason that there is no possibility of negative statements making analogous implicit allusions. Thus, in order to be understood, ironic compliments require explicit antecedents.

A very different interpretation of the asymmetry issue is proposed by Giora (1995), according to whom irony consists in indirect negation. Her explanation of the problem is simple: if we assume that irony involves implicit negation, then it follows that a negatively stated ironic utterance should be more difficult to process than a positively phrased one, since the negation is doubled – and double negation means greater complexity.

Garmendia (2010) looks at the asymmetry problem from an altogether different angle. As has already been signalled, this author holds a somewhat controversial view that “every ironic speaker intends to criticize” (Garmendia 2010: 403). This idea seems quite surprising when we consider the phenomenon of positive irony. The point put forward by Garmendia (2010), however, is that even such instances of irony communicate criticism.¹⁶ She illustrates her claim with the following example (Garmendia 2010: 400):

¹⁵ The notion of echoing is among the most significant concepts for a group of theoretical approaches which are known under the label of “echoic theories of irony”. These, together with other major accounts, will be elaborated on in section (1.6).

¹⁶ When referring to positive irony, Garmendia (2010) often writes the term in inverted commas, or premodifies it with epithets such as “alleged”, or “so called”; moreover, the subsection of her paper in which she analyses some instances of the phenomenon is entitled “False positives” (Garmendia 2010: 405). The author goes so far as to claim that many researchers support the notion of positive irony just “because some examples that appear to be ironic praise cannot be explained otherwise” (Garmendia 2010: 399). Garmendia (2010: 418) makes it explicitly clear in the end notes of her analysis that her use of the term “criticism” never involves positive connotations.

- (4) *Andy has taken an exam. He repeatedly tells Tim that he made a mess of it. The day when he goes to see what his grade is, Tim is with him. They both see that Andy has received an A.*
Tim: You definitely made a mess of it.

According to the author, the speaker's utterance must carry some other meaning apart from communicating praise of Andy's performance on the exam; if this wasn't so, the message would not be informative. Additional implicatures must follow which were intended by the ironic speaker. Knowledge of the context is very helpful, if not crucial, in deciphering what these might be. Garmendia (2010: 406) gives a few possible ideas: that Tim finds Andy's grievances boring, that he will not attach weight to Andy's words, and that Andy was being nonsensical. She then goes on to propose that all of the listed meanings were conveyed by the speaker's ironic retort. It must be admitted that, within so broadly understood content, one can indeed easily identify the criticism that at first glance seemed to be lacking in Tim's comment. However, to the best of the present author's knowledge, whether such a wide interpretation of ironic utterances of this type is shared by more language users remains to be tested experimentally.

Somewhat more recently, a similar perspective on positive irony has been proposed by Dynel (2018a). The author considers this type of irony a myth; on her account, the majority of such utterances are "tantamount to non-ironic humorous (truthful or overtly untruthful) utterances" (Dynel 2018a: 47) which are not ironic, though often mistaken as such. What Dynel (2018a) considers to be more plausible examples of positive irony are utterances that have some kind of an antecedent. She postulates that while this type of irony entails both positive and negative evaluations, it is motivated by the negative evaluation (Dynel 2018a: 51). On this account, the speaker conveys a negative evaluation of the antecedent. Thus, as the author puts it, "positively evaluative irony is a myth" (Dynel 2018a: 51).

1.5.3. Irony as a tool for being polite

In the discussion of the asymmetry issue, one important theoretical contribution was deliberately omitted: the Tinge Hypothesis (Dews and Winner 1995; Dews et al. 2007). On this view, “the evaluative tone of the literal meaning of ironic utterances automatically colors the hearer’s perception of the intended meaning” (Dews and Winner 1995: 3). In the experiments conducted by Dews and Winner (1995) people perceived ironic insults as less derogatory than literal insults and the ironic speaker as less annoyed.¹⁷ Also, the speaker-target bond was viewed as affected less negatively than in the case of literal criticism. Interestingly, an analogous pattern of results was found in the case of ironic praise: ironic compliments were seen as less praising than their literal counterparts, the speaker seemed to be less appreciative, and the speaker-target bond was perceived as influenced less positively. Thus, irony was demonstrated to mute praise or criticism present in the literal, or surface, meaning. The conclusion crucial for this part of our analysis is that irony can be seen as a strategy for being polite – a claim which has only recently ceased being controversial, as the phenomena of irony and politeness were traditionally perceived as distinct, if not contradictory (Padilla García and Alvarado Ortega 2010).

Among those first to see irony as a strategy for being polite was Laura Alba-Juez (1994, 1995), who looked into the issue from the perspective of Brown and Levinson’s (1987) Politeness Theory. She was not the only one, however – an interesting observation concerning the politeness function of irony was made by Kumon-Nakamura and colleagues (2007): in one of their experiments, they included ironic over-polite requests among other experimental stimuli. It turned out that this type of requests was deemed “insulting but not rude” – as opposed to under-polite utterances, which were perceived as “not only insulting, but also rude” (Kumon-Nakamura et al. 2007: 86). Taken together, Kumon-Nakamura and colleagues’ (2007) data demonstrate that irony communicated via over-politeness is an effective way of conveying negative sentiments and even insulting others without appearing rude. Moreover, if the addressee does not recognise the irony intended in an over-polite utterance, then “neither rudeness nor insult is perceived, permitting a speaker to avoid losing face” (Kumon-Nakamura et al. 2007: 84).

¹⁷ It has to be remembered, though, that there exist studies whose results support a contrary claim – namely that ironic criticism intensifies the disapproval aimed at a given target rather than diluting it. Take, for example, the findings of Colston ([1997] 2007), who has shown that in many cases “ironic criticism is used precisely because it is particularly negative and critical” (Colston 2007: 335).

1.5.4. Irony as a way of bonding: Humour

It has been for at least a third of a century that researchers who study communication have appreciated the impact that teasing has on close relationships (Aronson et al. 2007: 169). The concept of teasing, in turn, is of great importance to the present analysis because – despite being neither identical nor synonymous with the object of our scrutiny – it is very closely related to irony. Kotthoff (2007: 274) gives examples of ironic acts which are performed teasingly, showing how the two phenomena can work together. She defines teasing as “a personally addressed jocular remark with a bite, often performed in front of a public” (Kotthoff 2007: 271). It must be remembered, however, that no single definition of the concept of teasing has been universally agreed on. Keltner and colleagues (2001) – in their review of studies that have looked into the problem – have managed to identify the major features of teasing that are generally acknowledged in the relevant literature. Apart from aggression, the authors pointed to what they called “more prosocial behaviours” (Keltner et al. 2001: 232), which included humour and play. Indeed, what many researchers consistently point to is that teasing constitutes a crucial component of various socialisation practices, especially those taking place between people who are close, such as romantic partners, parents and their children, as well as friends (Baxter 1992; Keltner et al. 1998; Gibbs Jr 2000; Aronson et al. 2007). One reason for this could be that teasing enables people to point out the undesirability of others’ behaviour in an indirect, and thus more subtle, way (Gibbs Jr 2000). Moreover, it makes it possible for people to build up their relationship via, as Gibbs Jr (2000: 8) put it, “the indirect expression of affection, shared laughter, and the messages that the act of teasing communicates.” The last point, taken from Baxter (1992: 357), refers to a particular property of teasing: it is a rather risky form of expression. This is so because it may easily be misinterpreted as an insult; such risk is far smaller when the interactants are familiar with one another (Lampert and Ervin-Tripp 2006: 51). Thus, what Baxter (1992: 359) points to is that when people tease, it also implies that they are close enough to do so without the danger of their relationship being negatively affected. A related point is made by Dynel (2008: 241), who writes that even those teases which on the surface level seem aggressive in fact aim for solidarity. Here, the author points to the phenomenon of “mock impoliteness” (Dynel 2008: 241), which holds between people who are intimate. Indeed, teasing is one way in which people communicate their closeness, affinity and knowledge of one another. In this way – as Kotthoff (2007: 274) points out – they can “af-

firm their identity as part of the in-group.” Among friends, irony makes it possible to cope with various social differences in a light way; those who are in “leave the domain of official face politics” (Kotthoff 1996: 315) to playfully reach a higher level of affinity. Interactants may go so far as to engage in a whole series of humorous retorts, or “multi-turn teases” (Dyner 2008: 241) – this phenomenon is known as banter (Norrick 1993; Dyner 2008). Its crucial distinguishing feature is that the humorous lines are exchanged very quickly, thus yielding similarity to “a match of verbal ping-pong” (Dyner 2008: 243).¹⁸

It must be noted at this point that differentiating between teasing and insulting – easy as it may be for the members of the in-group – is typically a daunting task to an outside observer, who is not acquainted with the common ground shared by the participants of the playful activity (Dyner 2008: 257). Keltner and colleagues (1998: 1231) point to the paradoxical nature of teasing, writing that it “criticizes yet compliments, attacks yet makes people closer, humiliates yet expresses affection.” It is for this very reason that the shared group identity plays such an important role; otherwise, the act of teasing could easily be misunderstood.¹⁹

As has already been indicated, teasing and humour have repeatedly been linked to irony (Dyner 2014b, 2014a; Garmendia 2014; Gibbs Jr et al. 2014); still, it has to be borne in mind that “[t]he study of (...) [these] playful forms is plagued by definitional problems” (Attardo 2001: 160). Reyes and colleagues (2012: 1) look at both irony and humour, labeling them as “two playful domains of language.” Hirsch (2011: 316), in contrast, draws a fine line between the uses of these phenomena. On her approach, a given comment can be classified as either ironic or humoristic depending on the combination of cues available. The author admits, however, that there exist cases of overlap. A yet different view is adopted by Boxer and Cortés-Conde (1997), who investigated the role of joking and teasing in social interactions. The researchers make it explicitly clear that they treat joking and teasing as two very distinct activities. In fact, they consider teasing to be “one of three humorous speech genres, the other two being (...) joking about an absent other; and (...) self-denigrating joking” (Boxer and Cortés-Conde 1997: 279). The authors oppose their perspective to that of Norrick (1993), who treats conversational joking as a superordinate cate-

¹⁸ For an excellent collection of articles on banter, see Jobert and Sorlin (2018).

¹⁹ Keltner and colleagues (2001: 229) point out that teasing can cause more disquieting ends, as when it puts people down, embarrasses, or – even – harasses them.

gory for teasing, word play, and verbal tools such as sarcasm and mockery (Boxer and Cortés-Conde 1997: 278).

It has to be remembered that, whatever terminology one chooses to adopt, the existence of a link between irony and humour is widely recognised in the relevant literature. Dynel (2019: 2) postulates that “the figure of irony may, but does not need to, display humorous potential.”²⁰ On Littman and Mey’s (1991: 149) account, on the other hand, all irony is believed to have a humorous component. Moreover, one of the commonly acknowledged aims of irony is to amuse (Garmendia 2010: 416).²¹ As regards the perception of ironic comments, these tend to be viewed as funny (Garmendia 2010: 416); it is perhaps for this reason that both humour and teasing have been used as indices of irony comprehension in many empirical explorations (Harris and Pexman 2003; Pexman and Glenwright 2007; Nilsen et al. 2011).

1.6. How do people understand irony? Major theories of adult irony comprehension

Having discussed the reasons why people decide to communicate their meaning via irony, let us now move on to see how it is that we create – and others understand – ironic messages. Researchers and theoreticians have put forward a number of theories which aim at elucidating the process of irony comprehension. All of these have varying implications, a lot of which are often quite irreconcilable. As will become clear from the further analysis, some of the fundamental questions concerning the processing of irony have, as yet, not received exhaustive and widely accepted answers. And still, one cannot forget that each of the theories proposed so far – despite being insufficient to account for all the intricacies of the problem – has broadened our knowledge of irony, shedding new light and bringing important issues to the scholarly discussion.

²⁰ For a detailed account of the relationship between humour and irony, see Dynel (2018b).

²¹ This property tends to be recognised even by those who highlight the critical function of irony, such as Garmendia (2010), who – similarly to Dynel (2018a) – opposes the very idea of positive irony.

1.6.1. The standard pragmatic model and its implications

The review of linguistic theories of irony opens with what is often referred to as the traditional pragmatic approach, or the standard pragmatic model, a view which has its origins in the work of Grice (1975, 1989) and Searle (1979). On this account, irony does not differ considerably from other types of figurative language, constituting “a violation of conversational norms rather than a more direct reflection of a figurative mode of thought” (Gibbs Jr 1994a: 436).

On Grice’s (1975: 45) view, when speakers engage in conversation, they cooperate, or adhere to the “cooperative principle”. They do so by observing four Conversational Maxims: Maxim of Quantity, Maxim of Quality, Relation, and Manner. Each of the maxims provides clear rules concerning different aspects of what conversational input should be like. Thus, first of all, a contribution should be just as informative as the purposes of a particular exchange require it to be (Grice 1975: 45), too much input being almost as bad as too little. Secondly, speakers should not lie, and neither should they share information for which they do not have evidence. Thirdly, they should be relevant. Finally, they should express their point briefly and in an orderly way, avoiding ambiguity and obscurity (Grice 1975: 46).

When they make sense of communicative acts, listeners believe that speakers obey the maxims; however, if they are to grasp all of their interlocutor’s message, they need to take into consideration more than the string of words that has been uttered (Grice 1975). Let us illustrate this with the following example:

(5) *Don’t you think we could eat something?*

At the surface level, this utterance is phrased as a question. If the hearers were to take it at its face value, a simple “yes” or “no” would suffice as an answer. And yet, we intuitively feel that in uttering these words, the speaker wanted to achieve something other than finding out whether the hearers did or did not think that the party could do with some food. The question was intended as an indirect request, an appeal to have a meal. Such utterances can only be understood if we assume that speaker meaning is more than a mere collection of words put together. Grice (1975) posits that, apart from what is said on the surface level, there is also a second element that makes up speaker meaning: the implied sense. This phe-

nomenon, referred to as “conversational implicature”, typically has a content which exceeds the one available superficially: “speakers may intend an illocutionary (i.e., communicative) effect that is not directly accessed via a word-by-word analysis of a sentence” (Creusere 1999: 214). Such an implicature can be generated in two ways: speakers can either invoke the particular conversational maxims or intentionally flout them (Creusere 1999: 214).

Analysed from the Gricean perspective, irony can be considered an example of the second way of implicature creation: it constitutes a clear violation of the Maxim of Quality, since the information available at the surface level of the utterance is not true.²² On the other hand, irony could also be viewed as flouting the Maxim of Quantity, because – taken at face value – ironic utterances do not seem to be particularly informative (Creusere 1999: 215).²³ Either way, in order to decode the intended message, the receiver needs to appreciate that the speaker has violated one or more maxims deliberately, creating an implicature.²⁴ Typically, this is possible by confronting the utterance’s literal meaning with the contextual cues available. On Grice’s (1975, 1989) and Searle’s (1979) view, it is only when this surface informational content has been rejected that the hearer can begin to look for an alternative interpretation, which, importantly, has to be the direct opposite of the literal meaning of the utterance. Hence, the account postulates that irony comprehension is a two-stage process.

Even though the standard pragmatic model gained wide scholarly recognition as the first systematic attempt at elucidating the processes underlying figurative language processing, it does have certain limitations. Creusere (1999: 217), in her metaanalysis of theories of irony comprehension, points to several shortcomings of this approach. One of these is its inability to account for the fact that adults can easily distinguish between irony and lies – after all, both phenomena entail breaking the Gricean Maxim of Quality. This issue is of particular relevance to the present analysis, as it has significant implications for developmental research: it has been demonstrated that the appreciation of ironic intent is often

²² Still, one needs to remember that the ironist’s intention is not to cheat or lie to the hearer. It is typically the case that the real message is clear to “at least some members of (...) [the] audience” (Creusere 1999: 215).

²³ As Creusere (1999: 215) notes, some researchers perceive irony as “an indirect informative device” (Kreuz and Glucksberg 1989; Dews et al. [1995a] 2007; Giora 1995). Viewed from this perspective, the role of irony consists in conveying important information about the speaker’s attitude (Kreuz and Glucksberg 1989; Giora 1995; Kumon-Nakamura et al. 2007).

²⁴ To be precise, whenever a speaker blatantly flouts a maxim in order to generate a conversational implicature, Grice (1975: 49) speaks of the maxim as “being EXPLOITED”.

problematic for the youngest users of language, who seem to be unable to distinguish between irony and deception (Demorest et al. 1984).²⁵ Creusere's (1999: 217) two other criticisms of the traditional model concern the informativeness of ironic comments and their relevance to a given dialogic exchange. As the author notes, newer accounts of irony processing have been advanced in order to address these and other issues that the standard pragmatic model has failed to clarify.

1.6.2. Echoic mention theory

A theory which was supposed to be more exhaustive than older approaches was proposed by Sperber and Wilson (1981).²⁶ According to the authors, the major asset of the new account is that it “explains why ironical utterances are made, and why they occasionally (but not always) implicate the opposite what they literally say” (Sperber and Wilson 1981: 296). In their analysis, the researchers present their criticism of the concept of figurative meaning, pointing out that even the notion of literal meaning is far from unambiguous: “[i]t is (...) quite typical for an utterance to have dozens, or even hundreds, of possible propositional interpretations” (Sperber and Wilson 1981: 298).²⁷ Despite the abundance of these literal senses, hearers seem to have no difficulty choosing the right one; contextual cues are believed to play a vital role here. Still, if apart from the literal options, hearers also had to filter through the possible figurative interpretations, disambiguation would no longer be such an easy task – and it has to be remembered that it is an integral element of the processing of every utterance. Thus, the concept of figurative meaning “becomes a real source of difficulty” (Sperber and Wilson 1981: 299); therefore, Sperber and Wilson (1981) propose to abandon it altogether. Moreover, the authors point out that the notion of figurative meaning cannot be effectively incorporated into Grice's (1975, 1989) standard pragmatic

²⁵ A detailed analysis of the major findings concerning children's comprehension of irony will be presented in Chapter 2.

²⁶ In their 1981 article, Sperber and Wilson (1981: 295–6) criticize two older accounts of irony; apart from the standard pragmatic model, they distinguish “the traditional semantic approach”, which encompasses the traditional attempts to define irony in reference to the concept of meaning: “[a]n ironical utterance is traditionally analysed as literally saying one thing and figuratively meaning the opposite” (Sperber and Wilson 1981: 295).

²⁷ As will be demonstrated, Sperber and Wilson's (1981) view of literal meaning is broader than that of their predecessors; the authors claim that every utterance has a number of different senses, and therefore the concept of an unequivocal literal meaning has no *raison d'être* within their framework (Sperber and Wilson 1981: 298-299).

model, since an implicature cannot possibly constitute an opposite to the literal, or surface, meaning of an ironic utterance (Sperber and Wilson 1981: 299). At this point, a further problem emerges: that of determining what the opposite of a literal sense is. Previous theories of irony did not specify how to attain this goal, and the task is by no means simple: even if one arbitrarily decided on a particular, narrowly defined literal meaning, there would still be cases in which finding an opposite to such a meaning would be impossible.²⁸ After all, irony is not a homogeneous phenomenon, and there are many fairly different kinds of utterances “that can be more or less loosely called ironical” (Sperber and Wilson 1981: 298).

Sperber and Wilson (1981: 302) claim to have identified a major regularity in this abundance of utterance-types: they posit that all instances of irony express a particular type of speaker attitude. If a regular literal sentence expresses an attitude, this attitude typically relates to the phenomenon that the utterance is about. The situation is dramatically different in the case of irony, where the attitude concerns the utterance itself. The authors illustrate this distinction with many examples; let us choose just two from their list (Sperber and Wilson 1981: 300 ff.) – one ironic and one literal, both uttered by someone caught in a downpour:

- (6) *What lovely weather.*
- (7) *What awful weather.*

While older approaches to irony would interpret both of these comments as referring to the weather, Sperber and Wilson’s (1981) account postulates the existence of a vital difference between the two. Unlike the utterance in (7), the ironic comment in (6) does not impart the speaker’s actual opinion of the atmospheric conditions or – more broadly – of the topic of the utterance (Sperber and Wilson 1981: 302). Here, the speaker conveys an opinion “ABOUT (...) [the] utterance, rather than BY MEANS OF it” (Sperber and Wilson 1981: 302). This “intuitive distinction”, as the authors call it, is claimed to be closely linked to “the distinction drawn in philosophy between the USE and MENTION of an expression” (Sperber and Wilson 1981: 303), where the former term concerns relating to what the expression is about, and the latter concerns relating to the expression itself. Further, Sperber and Wilson

²⁸ Sperber and Wilson (1981: 302) illustrate this point with the example of ironical questions.

(1981: 304ff.) draw two other important distinctions: one between mention of an expression and mention of a proposition, and the other between explicit and implicit mention. The first of these two differentiations has its grounds in the observation that mention does not necessitate repetition of a whole exact phrase; one may as well mention a proposition – that is, the content of an utterance.²⁹ The second distinction points to the fact that mention does not always have to be explicit: a concept may be mentioned implicitly, without any direct indication of being invoked. On Sperber and Wilson’s account, not all of the four above cases of mention are equally easy to identify; for instance, the only type claimed to be attainable in formal language is explicit mention of an expression (Sperber and Wilson 1981: 306). The remaining three kinds are far less evident, implicit mention of a proposition being the one most difficult to pinpoint. The researchers deem it likely that whole groups of this last type have been omitted or misconstrued, and they believe irony to be among these. They posit that irony constitutes a particular kind of echoic mention: “[t]he speaker mentions a proposition in such a way as to make clear that he [or she] rejects it as ludicrously false, inappropriate, or irrelevant” (Sperber and Wilson 1981: 308). Notably, the source message does not need to precede its echo directly – the two may actually be quite distant in time, and there even exist what Sperber and Wilson (1981: 307) call “anticipatory echoes”. There are a number of cues which help the hearer infer the speaker’s attitude to the proposition: “the speaker’s choice of words, his [or her] tone (doubtful, questioning, scornful, contemptuous, approving, and so on), and the immediate context” (Sperber and Wilson 1981: 307). To fully decode an ironic message, however, the hearer needs to acknowledge one more thing on top of the speaker’s disposition towards the proposition: he or she also has to be aware that the uttered words are an instance of mention, and not use. As soon as this – as Sperber and Wilson (1981: 308) put it – “double recognition” is made, automatic retrieval of the relevant implicature ensues.

The authors point out that their approach helps to clarify several further issues related to irony. One of these is the “ironical tone of voice”, which – on Sperber and Wilson’s (1981: 311) account – is a perfectly natural phenomenon, constituting one of the ways in which the ironic speaker manifests his or her attitude to the uttered words.³⁰ Similarly, changes in the speaker’s register or style are viewed as nothing out of the ordinary, given

²⁹ Here, Sperber and Wilson (1981: 304f.) illustrate their claim with the example of “free indirect style”, a kind of third-person narration in which the content of a character’s thoughts is presented, but reporting comments such as “she said” are optional (if inserted, then in the form of a parenthesis).

³⁰ A more exhaustive account of the role of tone of voice in irony perception will come in section (2.2.3).

that irony involves echoing a proposition, and especially such that is deemed ridiculous or unacceptable. Another important problem that is addressed by Sperber and Wilson's (1981) approach is the asymmetry in the occurrences of ironic criticism and ironic praise.³¹ The authors posit that one is more likely to encounter the former than the latter because ironic criticism does not require explicit antecedents; it echoes social norms and standards of behaviour which are generally agreed on, widely known in a given culture, and therefore readily available to be mentioned. In contrast, ironic praise requires an explicit source: "there must be past doubts or fears to echo if the mention of a critical judgment is to count as ironical" (Sperber and Wilson 1981: 312). Finally, the authors put forward a claim that their theory can easily predict whether an ironic comment will have a victim.³² They propose that an ironic comment is inevitably directed at the authors of the expression or proposition echoed – regardless of whether they really exist or are imaginary. Optionally, the ironic effect may be boosted if the comment is tinged with criticism or if the addressee fails to recognise the speaker's ironic goal.

1.6.3. Pretense theory

An account meant to be simpler, and yet to have greater explanatory power than Sperber and Wilson's (1981) echoic mention theory, was proposed by Clark and Gerrig (1984) and is known under the name of Pretense theory. One of the major sources that the authors of this approach drew from is Grice (1989). Interestingly, these researchers note there are certain similarities between Grice's (1989) account and Sperber and Wilson's (1981) theory – notably, it was Grice (1989: 53) who pointed to the existence of a close link between irony and "the expression of a feeling, attitude, or evaluation".³³ More important still, it was Grice (1989: 54), too, who claimed that "[t]o be ironical is, among other things, to pre-

³¹ The "asymmetry issue" was discussed in detail in section (1.5.2).

³² This issue of irony being directed at a target was addressed in more detail in section (1.5.1).

³³ As has been discussed earlier, one of the tenets of Sperber and Wilson's (1981) theory is that the informativeness of irony consists in conveying information about the speaker's attitude. These authors criticise older accounts, including the standard pragmatic model, which – in their view – if not neglected the problem of the informativeness of irony, then did not pay due attention to this issue. Sperber and Wilson (1981: 301) postulate that saying the reverse of the literal meaning cannot be informative, pointing out that if it were otherwise, speakers would have no reason to resort to irony to communicate their message.

tend.” This idea was the starting point for Clark and Gerrig (1984); the other source that the authors drew from was Fowler’s (1965) definition of irony:

Irony is a form of utterance that postulates a double audience, consisting of one party that hearing shall hear and shall not understand, and another party that, when more is meant than meets the ear, is aware both of that more and of the outsiders’ incomprehension. [It] may be defined as the use of words intended to convey one meaning to the uninitiated part of the audience and another to the initiated, the delight of it lying in the secret intimacy set up between the latter and the speaker. (Fowler 1965: 305f.; Clark and Gerrig 1984: 121f.)

The key concept in the above definition is double audience. When this idea is put together with the notion of pretense, hinted at by Grice (1978: 54), one arrives at pretense theory, which views the ironist as pretending to be an imprudent person talking to uninformed listeners (Clark and Gerrig 1984: 121). The speaker wants at least one member of the audience to recognise that he or she does not really mean the uttered words and is in fact mocking not only the person who would say such a thing, but also those who would accept a comment of this type. The listener who has understood all this can relish or, as Fowler (1965: 306) puts it, “delight (...) in the secret intimacy” established between him- or herself and the ironist; after all, they are both aware of the ignorance of others, and can therefore be seen as members of “the inner circle” (Clark and Gerrig 1984: 122).

A theory of irony thus formulated can easily account for a number of questions addressed more or less successfully by Sperber and Wilson (1981). The first of these is the issue of asymmetry between positive and negative irony, for which problem Clark and Gerrig (1984: 122) give a simple explanation. Drawing on Jorgensen and colleagues’ (1984: 115) work, the authors note that in making judgements, people customarily make use of “culturally defined criteria of excellence” (Jorgensen et al. 1984: 115) and success (Clark and Gerrig 1984: 122) – and this is especially relevant for those who are not particularly knowledgeable; such norms are the sole thing they can refer to. According to pretense theory, it is specifically this kind of individual that the ironic speaker is most likely to mimic (Clark and Gerrig 1984: 122).³⁴ Consequently, superficially positive comments are the ones more likely to dominate. Another problem that finds a natural explanation within Clark and Gerrig’s (1984) account is that of ironic tone of voice: the ironist assumes the voice of the person that he or she is pretending to be, often adding elements of caricature or exaggeration to make attitude more explicit (Clark and Gerrig 1984: 122).

³⁴ And not, for example, a dissatisfied expert.

Yet another issue addressed by Clark and Gerrig (1984) is the problem of victims of irony. Pretense theory predicts two types of such victims: one will be the person being mimicked, and the other – all those who failed to recognise the pretense. As the authors point out, mention theory is incapable of making this distinction (Clark and Gerrig 1984: 122).

Clark and Gerrig (1984) present even more cases which are problematic for echoic theory and for which their theory offers an elegant solution. This advantage stems from the fact that the key concepts in these two accounts are of different natures; the notion of pretense does not yield itself to an analysis in terms of the philosophical “use-mention” distinction pointed to by Sperber and Wilson (1981). To make this point, Clark and Gerrig (1984: 123) refer to Ryle’s (1950: 339) elucidation of pretense: “[a]ctors in speaking their parts before the audience are not, strictly, using their words. They are not being defiant, remorseful, loving, or desperate, but only pretending to be so. Their utterances cannot be classified as either ‘use’ or ‘mention’.” Further, Clark and Gerrig (1984: 123) point out that their concept of pretense can be successfully applied not only to all instances of ironic mention, but also to many other cases of irony which cannot be interpreted as such. As a lucid example of this, they take a literary piece of work – Jonathan Swift’s (1729) essay *A modest proposal*. In the text, the author presents his solution to the XVIII-century problem of the masses of destitute Irish children that their beggar parents could not provide for, as a consequence of which the children were seen as a great burden to the society. The idea put forward in the essay was simple: each such child should be turned into “four dishes of excellent nutritive meat” (Swift [1729] 2008: 8) and served to the rich. The argumentation is conducted “[m]ethodically, and with perfect seriousness” (Clark and Gerrig 1984: 123). Obviously, Swift’s (1729) work is ironic from its first lines to the very last sentence; Clark and Gerrig (1984: 123) even note that many deem it “a model piece of irony” and indeed, analysed from the perspective of pretense, the irony in the essay is perfectly clear and reasonable. If, however, one wanted to explain it by means of Sperber and Wilson’s (1981) theory, then the whole text would have to be considered echoic mention (Clark and Gerrig 1984: 123) which, in turn, leads us to the question of the source of such mention. It is hard to imagine for a text eight pages long to be a quotation, but it is still harder to imagine that someone could have believed in or uttered the whole spectrum of absurd ideas presented in the text. Moreover, as Clark and Gerrig (1984: 123) intelligently point out, eating children cannot be considered an element of “popular wisdom or received opinions” (Jorgensen et

al. 1984: 144). Furthermore, neither can it be placed among social norms, or “standards or rules of behaviour [which] are culturally defined, commonly known, and frequently invoked” (Sperber and Wilson 1981: 312). The only possibility to deal with Swift’s (1729) irony within the framework of mention theory would be to see it as an implicit echo, but if this is the case, then – as Clark and Gerrig (1984: 124) put it – “surely almost anything goes”, the more so as Sperber and Wilson (1981) did not provide any criteria for determining whether a given reference was acceptable as an implicit echo or not (Clark and Gerrig 1984: 125). Clark and Gerrig’s (1984) theory, in contrast, is precise in specifying what can constitute an object of pretense: “[i]ronists can pretend to use the words of any person or type of person they wish, just as long as they can get the intended audience to recognize the pretense and, thereby, their attitude toward the speaker, audience, and sentiment of that pretense” (Clark and Gerrig 1984: 125). Here, common ground shared by the speaker and his or her audience is critically important: it is only those listeners who have the necessary information that will be able to recognise the pretense. Importantly, the ironist will not disclose the pretense to the audience; he or she wants the listeners to discover it on their own (Clark and Gerrig 1984: 125).³⁵ Sometimes, as is the case with Swift’s (1729) essay, the author wants the audience to be taken in at first, only to recognise the pretense later, as it unfolds. This subtle “game of deception and discovery” (Clark and Gerrig 1984: 125) that the ironist plays with the listeners is an aspect altogether missed by mention theory. To sum up, “[m]entioning prior utterances (...) does not do justice to what the ironist is trying to do” (Clark and Gerrig 1984: 125).

1.6.4. Echoic reminder theory

An approach which was meant to combine the advantages of echoic mention theory and pretense theory, at the same time avoiding the pitfalls of these accounts, was proposed by Kreuz and Glucksberg (1989) and is known under the name of echoic reminder theory. The notion of “reminding” is closely related to that of “echoic mention”; the authors posit, though, that the latter term is too restrictive and that it does not draw due attention to the

³⁵ This was already pointed out by Grice (1989: 54): “while one wants the pretense to be recognized as such, to announce it as a pretense would spoil the effect.”

function of ironic expressions (Kreuz and Glucksberg 1989: 375).³⁶ Here, sarcastic expressions which use the literal sense of an utterance are a case in point.³⁷ Kreuz and Glucksberg (1989: 383) illustrate their idea with the example of a mother who is being exaggeratedly polite in order to convey a sarcastic message to her daughter:

(8) *“Would you very much mind if I asked you, please, to perhaps consider cleaning up your room sometime this month?”*

In saying this, the mother is making three communicative goals manifest at the same time: “[s]he is directly asking a question, indirectly making a request, and also being sarcastic” (Kreuz and Glucksberg 1989: 383). In Sperber and Wilson’s (1981) terms, a comment thus articulated cannot be considered an instance of “mention”: the literal meaning is not merely referred to; it is intended. Thus, the utterance belongs to the category of “use” and, by the same token, falls outside the explanatory scope of echoic mention theory. This is the point at which reminder theory offers a solution. Kreuz and Glucksberg (1989: 375) claim that, on hearing such utterances, the listener is reminded “not only of a shared expectation or cultural norm but also of a discrepancy between what is and what should be.” The sarcasm intended in (8) is successful because the standard expectation is that one should clean his or her room once in a while, and – moreover – that a daughter should obey her mother.³⁸

Another important observation made by Kreuz and Glucksberg (1989) is that even though all ironic utterances make reference to some previous events, not all reminders of this type are of the echoic kind: “not all antecedent events are actual or implied utterances” (Kreuz and Glucksberg 1989: 375). Once again, reminder shows itself as a broader category and, for this reason, the authors propose to treat echoic interpretation as a particular type of reminder. In this way, their theory can account for a wider array of phenomena: it does not merely focus on how language is utilised by the ironic speaker, but, above all, it looks at “how the communicative goal of expressing an attitude is accomplished” (Kreuz and

³⁶ Interestingly, Sperber and Wilson admitted in a later work that the term “mention” was not broad enough to capture all cases of ironic utterances: “[m]ention is a self-referential (...) use of language: it requires full linguistic or logical identity between representation and original (...) We have therefore abandoned the term ‘mention’ in favour of the more general term ‘interpretation’” (Sperber and Wilson 1986: 264).

³⁷ Here, “use” is meant in Sperber and Wilson’s (1981) terms.

³⁸ At this point, Kreuz and Glucksberg (1989: 383) draw on Brown and Levinson’s (1987) claim as to the factors which influence the level of politeness that a given communicative act has in a particular culture. Among the conditions relevant for requests, Kreuz and Glucksberg (1989: 383) list “the amount of imposition on the addressee and the social status differential between requester and addressee.”

Glucksberg 1989: 383). To attain such an ambitious goal, the theory cannot stop at the mere claim that ironic utterances refer to past events, but it has to go beyond the level of linguistic considerations and take into account human psychology. Thus, if ironic expressions are to be understood, the reference that they involve has to be detected by the hearer. The hearer, in turn, can only recognise the reference if he or she is familiar with the event referenced – in other words, the speaker and the hearer need to share knowledge; this, as Kreuz and Glucksberg (1989: 383) observe, has already been pointed out by Clark and Gerrig (1984). In contrast to the latter’s pretense theory, echoic mention theory does not attend to the issue of “shared relevant knowledge” directly, this being one of the reasons why the account cannot be deemed an exhaustive one.

Pretense theory, on the other hand, is shown to be ineffective for an altogether different reason. While Kreuz and Glucksberg (1989: 384) agree with Clark and Gerrig (1984) that “pretense theory is more powerful than echoic mention theory”, they still point to the possibility that the account may be too strong and too narrow at the same time. This is not least because the concept of “pretense” can “with little stretching”, as Kreuz and Glucksberg (1989: 384) put it, “be applied to all indirect speech acts.” The authors illustrate this with several examples, in one of which a speaker makes an indirect request for someone to open a window, formulating it as a commentary on the hot temperature in a room (Kreuz and Glucksberg 1989: 384):

(9) *It sure is hot in here!*

In no way is this utterance ironic, but it may well be claimed to involve pretense: wanting the window to be opened, the speaker may only be pretending to make an observation on the heat in the room. When one goes further into Clark and Gerrig’s (1984) theory to look at how the notion of pretense functions in ironic utterances, another problem emerges. As Kreuz and Glucksberg (1989: 384) point out, the requirement that the speaker should pretend three things at once – that he or she is someone else, believing in the expressed proposition and speaking to imagined listeners – is not only unconvincing, but also far from essential. The authors refer to the results of their experiments, which clearly show that counterfactuality detected in an utterance is enough for the listener to make presumptions as to the speaker’s sarcastic intent. If an explicit target or antecedents of other type are available for reference, then sarcasm is conceived of as applicable and suitable (Kreuz and

Glucksberg 1989: 384). Thus, to explain this kind of reminder-based reasoning, one need not resort to the concept of pretense. Accordingly, “on grounds of generality and of parsimony”, Kreuz and Glucksberg (1989: 384) claim reminder theory to be superior to pretense theory.

When they take all three theories into account, Kreuz and Glucksberg (1989) draw a fine line between their approach and the two older approaches. The major difference is that “[b]oth mention and pretense theory are theories of linguistic use” (Kreuz and Glucksberg 1989: 384), while the concept of echoic reminding is of psychological nature, which in turn gives this account the advantage of a broader perspective.³⁹ It is thanks to this shift in focus that reminder theory is able to account for the efficacy of ironic utterances which involve neither mention nor pretense. This, moreover, makes the approach a possible fundamental for a “psychologically testable theory of verbal irony” (Kreuz and Glucksberg 1989: 384).

1.6.5. Allusional pretense theory

An account of irony which was meant to have a broader explanatory scope than Kreuz and Glucksberg’s (1989) echoic reminder theory and to be more precise than Clark and Gerrig’s (1984) pretense theory was formulated by Kumon-Nakamura and colleagues ([1995] 2007), and is known as allusional pretense theory.⁴⁰ The motivation that the authors give for proposing a new view of irony is the inability of previous theoretical approaches to account for a number of clear cases of verbal irony. Their theory, in contrast, looks at a wide range of utterance types, and is therefore inclusive.

Kumon-Nakamura and colleagues (2007: 62) point to two major features of ironic utterances. The first is that such utterances are meant to be allusive, that is “they are intended to call the listener’s attention to some expectation that has been violated in some way” (Kumon-Nakamura et al. 2007: 62). This can be attained in various ways, one of which is

³⁹ Kreuz and Glucksberg (1989: 384) note that this has already been pointed out by Williams (1984), who compared mention and pretense theory with regard to their explanatory power for irony. In the final section of her paper, Williams (1984: 129) writes that “[p]erhaps, in fact, the distinction between the mention and the pretense theories is ultimately an issue for linguistic analysis and is not a matter for psychological test at all” and concludes that “it seems clear that the two theories in fact derive from the same traditional definition of irony.”

⁴⁰ Note the date of the original publication of Kumon-Nakamura and colleagues’ article, which is given in square brackets. In further discussion of the article, it is referred to as Kumon-Nakamura et al. (2007), which is the edition used by the current author.

either direct or indirect echoing of someone's beliefs or comments, as put forward by Sperber and Wilson's (1981) account. Thus, the notion of allusion is postulated to be a broader term than both echoing and reminding.

The second critical feature of ironic utterances is pragmatic insincerity (Kumon-Nakamura et al. 2007: 62). This means that such utterances "violate one or more of the felicity conditions for well-formed speech acts" (Kumon-Nakamura et al. 2007: 61). Felicity conditions were formulated by Austin (1962), whose description was further developed by Searle (1969, 1979). These requirements are the criteria that every utterance has to meet in order to function as a well-formed and acceptable speech act, and they pertain to four major areas: "the propositional content of an utterance, (...) the status of both the speaker and the hearer of the utterance, (...) the sincerity of the psychological state expressed or implied by the utterance, and (...) the perception of the speaker's sincerity by the hearer" (Kumon-Nakamura et al. 2007: 61). Whenever a speaker is seen as deliberately flouting the conditions for one or more of the aspects listed, pragmatic insincerity ensues. Importantly, it is this meaning that Kumon-Nakamura and colleagues (2007) refer to whenever they speak of "pretense" which, as we remember, is one of the two key terms in the name of their theoretical approach to irony. What is interesting, these authors' understanding of "pretense" is not very different from Clark and Gerrig's (1984) apprehension of the term, the latter claiming that the ironic speaker is "pretending to be an injudicious person speaking to an uninitiated audience" (Clark and Gerrig 1984: 121). Kumon-Nakamura and colleagues (2007: 93f.) posit that Clark and Gerrig (1984) use the concept of pretense with reference to propositions only, but if the scope of such use was broadened so as to cover all speech acts, then Clark and Gerrig's (1984) "pretense" would be identical to their "pragmatic insincerity".

Thanks to the interplay of its two major criteria for irony, allusional pretense theory can account for the irony in a number of varying expressions. In the first of their experiments, Kumon-Nakamura and colleagues (2007: 63) utilised a wide range of utterance types which represented "four major categories of speech acts: assertives, directives, commissives, and expressives." Assertives are utterances which describe some status quo; the authors divided this category into two main groups: counterfactual statements and true statements (Kumon-Nakamura et al. 2007: 63). An example of the latter group is the following comment uttered to a person who has a talent for cooking, but is boastful about it:

(10) *You sure know how to cook.*

The former category – that of counterfactual statements – has as many as three subtypes. The first of these comprises counterfactuals whose surface form is positive. Let us take the following words uttered by someone eating a disgusting meal as an example:

(11) *This certainly is delicious food.*

The second subtype is comprised of counterfactuals which have a negative surface form. The example given by Kumon-Nakamura and collaborators (2007: 63) is the comment below, made to a person who – despite claiming to have no culinary skills – has just prepared a delicious meal:

(12) *You certainly don't know how to cook.*

The final type of counterfactual statements is constituted by those which have a neutral surface form and is illustrated by Kumon-Nakamura et al. (2007: 63) with the following remark uttered to a person who produced a very short piece of writing:

(13) *This is a long paper.*

The second major type of speech acts discussed by Kumon-Nakamura and collaborators (2007) is directives – statements whose aim is to “get someone to do something” (Kumon-Nakamura et al. 2007: 63). Here, the authors employed both questions and over-polite requests. The example they give of a question is:

(14) *How old are you?*

addressed to an adult person behaving inappropriately for his or her age, while their example of an over-polite request is:

(15) *I'm sorry to bother you but I'm just wondering if it is at all possible for you to maybe consider turning the music down a little bit?*

uttered late at night to a loud and boisterous neighbour (Kumon-Nakamura et al. 2007: 63).

Commissives, the third major speech act type addressed by Kumon-Nakamura and colleagues (2007), are statements in which the speaker commits him- or herself to do something. A good illustration of an ironic commissive is the following:

(16) *I can go to the bar and order another small quiché for you.*

addressed to a person who has already gobbled up a large tart.

The fourth and last type of speech acts represented in Kumon-Nakamura and collaborators' (2007) experimental stimuli is expressives, that is, statements in which the speaker overtly manifests his or her feelings, such as:

(17) *Thank you for your help.*

said to a person who has in fact done nothing to help the speaker.

Declaratives, or declarations, as Kumon-Nakamura and colleagues (2007: 91) call them, constitute the fifth type of speech acts, and are "utterances that, simply by being uttered, accomplish something." Although the authors did not select any of these for the purpose of their experiment, they make it clear that declaratives, just as any other speech act type, can constitute a vehicle for ironic meaning. Two conditions have to be fulfilled here. Firstly, the utterance has to allude to a violated standard or a disappointed hope, in accordance with what the allusional pretense account postulates for all instances of irony. Secondly, the felicity condition has to be violated that a declaration should be made exclusively by a person in authority to do so (Kumon-Nakamura et al. 2007: 91). The authors give the following example as an illustration (Kumon-Nakamura et al. 2007: 91):

(18) *I dub thee Sir Galahad.*

The comment is uttered by a passer-by to a young gentleman who has flamboyantly thrust his cloak onto the ground so as to prevent the woman accompanying him from wetting her shoes in the puddle. The reason why this utterance is ironic is, first, because such behaviour is nowadays considered to be genteel to the point of ridicule; second, because the speaker is

by no means in position to grant knighthood to another – that is, he or she is pragmatically insincere (Kumon-Nakamura et al. 2007: 91).

The fact that allusional pretense theory aims to account for irony in such a wide spectrum of speech acts is an important innovation distinguishing this approach from previous theories which, albeit none of them explicitly stated this, focussed solely on assertives (Kumon-Nakamura et al. 2007: 62) – and specifically, on counterfactual statements. Drawing on the popularity of assertives among theoreticians of irony, one might come to expect that this type of utterances constitutes the prototype of irony and should, therefore, be perceived as the most ironic of all speech acts; it has been demonstrated, however, that this is not the case. In the first of Kumon-Nakamura and colleagues' (2007) series of experiments, the mean irony rating for assertives – 5.95 (the maximum, 7.0, being “definitely ironic”) – did not differ reliably from that for the combination of other utterance types, which was 5.36. In fact, it was expressives – insincere thanks – that were rated as most ironic of all, with the mean of 6.10 (Kumon-Nakamura et al. 2007: 66). Although these differences did not reach statistical significance, they nevertheless point to the fact that assertives may not be the epitome of irony that they previously were tacitly assumed to be. In consequence, one may postulate that the theoretical accounts of irony which focussed solely on this utterance type, consistently neglecting others, were – least to say – incomplete. With this respect, allusional pretense theory is, as its authors put it, “the more general and inclusive” approach (Kumon-Nakamura et al. 2007: 62).

Among the wide array of expressions that the allusional pretense account takes under scrutiny are, as has already been indicated, over-polite requests. One of the situations in which speakers are likely to employ irony in this manner is when they “ha[ve] to make a request when no request should have been necessary in the first place” (Kumon-Nakamura et al. 2007: 78) – for instance, when the speaker must repeat a request neglected by the addressee. In such a situation, apart from the content of the message, the speaker will also want to communicate his or her disappointment at being ignored. An under-polite request made in such circumstances would be considered rude; an over polite one, however, will most probably be interpreted as ironic, because “only over-polite requests are likely to be perceived as insincere” (Kumon-Nakamura et al. 2007: 79).⁴¹ It is this property of irony

⁴¹ Kumon-Nakamura et al. (2007) point out that one of the functions of irony is politeness: by pretending to be civil, the speaker can avoid a direct confrontation, and thus express his or her displeasure in a way which helps “maintain one’s own face, as well as the face of others” (Kumon-Nakamura et al. 2007: 78). The concept of “face” is understood in Brown and Levinson’s (1987) terms here.

that makes it such a useful tool for those who want to express their displeasure and, possibly, insult their neglectful interlocutor without appearing to be rude at the same time.

Apart from taking a wide spectrum of potentially ironic expressions under scrutiny, allusional pretense theory addresses the problem of the asymmetry of discourse irony, that is the fact that people can readily communicate irony by uttering a positive comment about a negative event, while the reverse – uttering a negative comment about a positive event – often verges on linguistic anomaly (Kumon-Nakamura et al. 2007: 72). Sperber and Wilson (1981: 312) claimed that this was so because of the positive character of norms and standards of behaviour shared by people in a given culture. As these norms are commonly known, they are also readily available to be mentioned in an ironic comment. This is not the case with negative expectations, which are specific to a given occasion or circumstance; if a speaker wants to make ironic reference to these, he or she first needs to make them manifest. Kreuz and Glucksberg's (1989) experimental findings confirmed this explanation – in their experiments, negative statements about positive events were correctly identified as ironic when they were preceded by explicit negative expectations. Kumon-Nakamura and colleagues (2007: 73) broaden the explanatory scope of this line of reasoning. If the mechanism involved in irony is not restricted to echoing, but is taken to be more general, as is the case with all instances of allusion, then it may as well be attained implicitly, by means of hinting at known standards of behaviour or common expectations. Thus, on the account of allusional pretense theory, “explicit negative antecedents should not be necessary for negative utterances to communicate irony” (Kumon-Nakamura et al. 2007: 73); any departure – either explicit or implicit – from the expected state of affairs should be sufficient for the utterance to be considered allusive. The authors verified this – as they call it – “implicit social norm hypothesis” (Kumon-Nakamura et al. 2007: 77) experimentally, and their findings have confirmed that negative comments about positive events can be ironic if they are preceded by negative expectations.

It is not only the asymmetry issue that Kumon-Nakamura and colleagues (2007) put to test; the authors tested the tenets of their theory in a series of experiments, and the results did indeed point to the key role of pragmatic insincerity and allusion to failed expectations – the two factors that the allusional pretense account foregrounds as critical for irony. The researchers posit that these elements are “important and perhaps necessary” (Kumon-Nakamura et al. 2007: 91f), admitting at the same time that they are insufficient if one wants to convey ironic meaning. Consequently, they propose two more such criteria. The

first of these is that the speaker should express the attitude that he or she has towards the object of the utterance (Kumon-Nakamura et al. 2007: 92). It is important that the ironist “care one way or another about the failed expectation” (Kumon-Nakamura et al. 2007: 92); if he or she is neither disappointed and nor perceived as such, then irony should not ensue. The second condition proposed by Kumon-Nakamura and colleagues (2007) is shared knowledge, the importance of which has already been pointed out by Clark and Gerrig (1984). The hearer can only decode the intended ironic message when he or she shares or is at least aware of the unfulfilled expectation or the breached standard. If this condition is not satisfied, irony will not be recognised even if the speaker intended to convey it (Kumon-Nakamura et al. 2007: 92). Interestingly, the authors point out that the mutual knowledge necessary for grasping ironic meaning may be established “during discourse itself” (Kumon-Nakamura et al. 2007: 93); they note, however, that this property is not unique to irony. What they claim to be unique to it is the fact that irony brings an unfulfilled hope, a failed expectation or a violated standard “into linguistic co-presence” (Kumon-Nakamura et al. 2007: 93).

1.6.6. Relevance theory

Relevance theory, proposed by Sperber and Wilson (1986) in their seminal book *Relevance: Communication and cognition*, is an altogether new approach not only to irony, but to communication, and its premises are radically different from those of traditional approaches. The major difference is that Relevance theory, in contrast to the classical code model, is an inferential model of communication (Wilson and Sperber 2002: 249). This has serious implications for how the relevance theoretic account explains the process of arriving at speaker meaning – including the meaning intended by an ironist. On the traditional view, decoding the speaker’s message could only be attained by “using an identical copy of the code” (Wilson and Sperber 2002: 49). The new approach, in contrast, posits that “communication can be achieved in ways which are as different from one another as walking is from plane flight” (Sperber and Wilson 1986: 3). Sperber and Wilson (1986: 3) include the processes of coding and decoding in these different ways, but they also consider “providing evidence for an intended inference” to be among such means for attaining communicative goals. The authors state clearly what it is that they believe to be the aim of inferential

pragmatics: it is to explicate how hearers arrive at speaker meaning by drawing on the evidence available (Wilson and Sperber 2002: 250).

On the relevance theoretic approach, every utterance raises expectations of relevance in the hearer; Wilson and Sperber (2002: 250) posit that these expectations are optimal, that is, they are sufficient to direct the hearer toward speaker meaning. Information is considered relevant when its processing within a context of background knowledge leads to what the authors call “a positive cognitive effect” (Wilson and Sperber 2002: 250), which amounts to affecting the hearer’s world view. An important issue here is efficiency: “cognitive processes (...) are geared to achieving the greatest possible cognitive effect for the smallest possible processing effort” (Sperber and Wilson 1986: vii).

Such a view of communication is by no means in conflict with Sperber and Wilson’s (1981) echoic mention theory; it is to the contrary – the latter fits very well into the former. In their 2012 book, the authors stated that the solution they offered thirty years before not only captured the essence of irony and the mechanisms governing it, but also answered a number of questions that traditional accounts “could only describe” (Wilson and Sperber 2012: 145). The researchers claim that the three “puzzling features of irony” (Wilson and Sperber 2012: 126) that the older approaches noted, but failed to account for, find a clear and straightforward explanation within echoic theory and, broader, the relevance theoretic framework. Let us, then, have a look at these three questions and at the answers proposed by Sperber and Wilson (1986; Wilson and Sperber 2002, 2012).

The first of the three issues is that of attitude as conveyed by ironic utterances. In their discussion of the topic, the authors make an observation that metaphor and irony are both traditionally viewed as “departures from a convention, norm or maxim of literal truthfulness” (Wilson and Sperber 2012: 127); this is so in spite of the fact that the two phenomena are radically different in the respect that one entails the expression of attitude, and the other does not. Wilson and Sperber’s (2012) key postulate is that “the ironical attitude is not a puzzling feature added to a specific kind of trope, it is constitutive of irony” (Wilson and Sperber 2012: 141). The very relevance of irony consists in conveying the dissociative attitude of the speaker to an attributed thought, and Wilson and Sperber (2012: 141) sum it up the following way: “[n]o irony without an ironical attitude, no ironical attitude without an echoed attributed thought as its object.”

The second important aspect of irony taken up by the authors is what Wilson and Sperber (2012: 127) label as “normative bias”: it is the fact that irony is predominantly used

to criticise.⁴² Here, again, the authors offer the same explanation that they gave thirty years earlier, in their seminal paper from 1981 (Sperber and Wilson 1981): social norms are typically positive and, therefore, always readily available to be echoed. Ironic praise, in contrast, requires explicit antecedents if it is to succeed.

The third problem analysed by the authors is that of the ironical tone of voice. Older approaches could not account for its existence, and neither could they do so for the inexistence of an analogous metaphorical tone of voice (Wilson and Sperber 2012: 128). Echoic theory, once again, offers a simple solution, linking the vocal tone to the kind of attitude that irony communicates. One needs to remember that this tone of voice is by no means an obligatory feature of irony; it may serve as an additional cue to help the listener recognise the speaker's intention – especially in cases when background knowledge may be insufficient to direct the hearer towards the interpretation desired by the ironist (Wilson and Sperber 2012: 123). As metaphor does not convey attitude and does not entail echoing, there is no need for it to be associated with any particular vocal tone (Wilson and Sperber 2012: 143). Thus, the double problem of the lack of a metaphorical tone of voice and the existence of an ironical one has found an explanation.

In the concluding paragraph of their chapter on irony, Wilson and Sperber (2012: 145) admit that, since the publication of their first article proposing echoic theory, a lot of research has been conducted on irony – “inspired or otherwise stimulated” by their work. They make their stance clear, however, that these attempts have been successful only when they derived from and developed the echoic account (Wilson and Sperber 2012: 145).⁴³

1.6.7. Irony as indirect negation

An alternative account of irony was proposed by Giora (1995). Its fundamental claim – one making it radically different from other approaches – is that irony does not have only one interpretation. Giora (1995: 240) contrasts her stance with both echoic and pretense theories, which construe of irony as entailing only that sense which is not expressed. On her account, irony comprehension “involves processing both the negated and implicated mes-

⁴² This issue was discussed in more detail in section (1.5.2).

⁴³ Having made this claim, the authors close their discussion with the following, refreshingly pawky, rhetorical question: “Aren't we modest?” (Wilson and Sperber 2012: 145).

sages, so that the difference between them may be computed” (Giora 1995: 239). Analysed from this perspective, the literal, or explicit, meaning is by no means a useless construct, as was the case in older theories; playing a vital role in the understanding of ironic messages, it cannot be discarded.

Such a view of meaning construal has inevitable consequences for more global aspects of irony comprehension. Since it involves activating and comparing two meanings, the processing of irony is necessarily a complex operation and will, therefore, take more time than the processing of the same utterance meant literally (Giora 1995: 239). Here, Giora (1995) supports her claim with reinterpreted experimental data from Gibbs Jr ([1986] 2007).⁴⁴ Although the conclusions he drew from the study were just the opposite – namely, that irony does not take longer to understand than nonironic utterances – Giora (1995) claims that his results can be reanalysed in an altogether different vein, so that they are consistent with the indirect negation view.

The first of the reservations that Giora (1995) has to former empirical explorations into irony concerns the popular method of comparing ironic utterances to their literal equivalents. The source of the problem here is that a literal comment, uttered in the same context as its ironic counterpart, will not be sufficiently informative, resulting in “discourse inappropriateness” (Giora 1995: 250); moreover, such a counterpart “usually involves explicit negation (which is more difficult to understand and prohibitive)” (Giora 1995: 254). Giora (1995: 251) claims that, to reliably measure the processing complexity of figurative and literal language, one should calculate “the difference between a literal and a nonliteral use of the same utterance in appropriate contexts.” She points out that the data obtained by Gibbs Jr (2007) can readily be analysed in this way and, having done that, concludes “that Gibbs’s findings may serve to support the traditional view that expects irony to be more difficult to understand than literal language” (Giora 1995: 252).

Further, Giora (1995) takes a closer look at another measure of processing difficulty that Gibbs Jr (2007) used in his experiment: this time, the problem concerned participants’ “paraphrase judgments of the target sentences” (Giora 1995: 253). Gibbs Jr’s (2007) results were that subjects took longer to rate the paraphrases of nonsarcastic than sarcastic comments. Giora’s (1995) interpretation of this finding differs substantially from the one offered by the author of that study; while he sees it as suggestive of the relative simplicity of

⁴⁴ Note the date of the original publication of Gibbs Jr’s article, which is given in square brackets. In further discussion of the article, it is referred to as Gibbs Jr (2007), which is the edition used by the current author.

irony processing, she claims that this pattern of results reflects “the double meaning of sarcasm” (Giora 1995: 253). Giora’s (1995: 253) line of reasoning is as follows: with ambiguous comments, it is easy to activate, or recognise the available second meaning; with univocal comments, however, there is no additional, previously prepared interpretation. Thus, the paraphrase of the latter group is likely to be more problematic and less effective than that of the former.

Giora (1995) finds further support for her view of irony in an analysis of “combined (paraphrase judgement and target sentence) reaction time” (Giora 1995: 253) data obtained by Gibbs Jr (2007). Here, again, she interprets the pattern of results as indicating that it is harder to process a sarcastic remark than it is to understand the same comment when used literally.

When she draws on Gibbs Jr’s (2007) results, Giora (1995) – apart from subjecting them to a major reanalysis – provides alternative explanations to a number of issues that have been addressed by earlier theoretical approaches. Among others, she invokes the rating data obtained by Gibbs Jr (2007) to reject Sperber and Wilson’s (1981) idea that irony is necessarily echoic. Also, she offers a new answer to the asymmetry issue, clarifying why it is so that people take longer to understand what she defines as negative irony – i.e., praise phrased as a surface criticism – than they do positive irony.⁴⁵ Giora’s (1995: 254) reasoning is simple: if irony involves implicit negation, then the comprehension of a negative ironic statement must be more difficult than that of a positive one since it entails making a “double negation”, and not just a single one.

Another case in which Giora (1995) offers an alternative explanation to Gibbs Jr’s (2007) data is when she looks at the results of his experiments which tested participants’ memory for sarcastic utterances. According to Gibbs Jr (2007), sarcasm has certain inherent features which make remarks of this type more memorable: it entails echoing commonly known standards of behaviour, and it, moreover, performs “a special role of relating speakers and hearers by the mention of a previously stated belief or attitude” (Gibbs Jr 2007: 188). Giora (1995: 254) presents an altogether different reason why recall of irony

⁴⁵ It is vital to point out that in this matter Giora’s (1995) nomenclature is critically different from the convention applied by the author of the present analysis, to whom positive irony is synonymous with ironic praise, and negative irony – with ironic criticism. Giora’s (1995) terminological choices were motivated by the surface form of the utterance: positive for ironic criticism, and negative for ironic praise. It is establishment of different points of reference (figurative/implicit/intended versus literal/explicit/surface meaning) that is the source of these terminological issues.

should be easier than that of nonironic utterances, and here, again, her argumentation is simple: “[a] marked message, particularly a humorous one, is more memorable than unmarked or redundant information.”

In her further discussion of “the relative difficulty” of understanding ironic utterances, Giora (1995) draws on the results of developmental studies, which demonstrate that children – especially pre-schoolers – experience problems comprehending irony.⁴⁶ Also, she points to an oddity which has repeatedly been noted in the literature: it is not only children who fail to grasp the meaning of ironic comments; adults may do that, too (Booth 1974; Demorest et al. 1984). Furthermore, there have been cases in which experts in the field had difficulty recognising ironic intent (Giora 1995: 255). Hence, the question may arise as to why people choose to use such a complex form of speech if there is a risk of them being misunderstood.

Giora (1995: 258ff.) gives several reasons for employing indirect instead of direct negation, the first being the communicative goal that irony serves: it is not only a highly informative tool, but also a smart and stimulating one. Further, indirectness enables the speaker to prevent manifesting the restrictive character of negation and, in this way, “to refrain from [making] explicitly negative utterances that might have unpleasant effect” (Giora 1995: 260). Thus, Giora (1995: 260) – similarly to authors such as Leech (1983) or Myers (1990), and drawing on Brown and Levinson (1978) – views irony as a “‘politeness strategy’ which enables the speaker to negate (i.e., deny, contradict, disagree, suggest the contrary, the opposite, a *less than* interpretation, etc.) by using an affirmative expression.” Importantly, the conflict, or “opposition” (Giora 1995: 260) caused by an ironic utterance is less explicit than would be the case if the negation was direct. As a last resort, the ironic speaker can always pretend that no unfavourable sentiment has been communicated; this, again, would not be possible with explicit negation. Giora (1995: 260) points out that it is the indirectness inherent in irony that has made this means of expression so popular among minority or nonconformist groups, enabling them to criticise authorities and challenge established norms in a veiled way.

Giora’s (1995: 262) conclusion to the claims reported above is simple: even though the processing of irony is more complex than that of its literal counterparts, speakers do choose this tool for particular communicative purposes which cannot be achieved other-

⁴⁶ A detailed analysis of the major findings of explorations into irony processing and perception in children will be conducted in section (2.3).

wise. Irony is unique, in that it equips the speaker with a possibility to hint at a typically preferable and more advantageous course of events – the one expressed in the affirmative, and available at the surface level of a given ironic comment (Giora 1995: 262).

1.6.8. Irony and graded salience

To give full credit to Giora's (2002) account of irony, one needs to take a step back and, first, to look at her view of a more general issue: that of figurative language comprehension. Only then can we get the full picture of how the author explicates the processes underlying the capacity for irony.

The starting point should be that Giora (1997, 1999, 2002) does not conceive of language processing in terms of the traditional dichotomy between literal and figurative language; rather than that, she views it as taking place on a continuum of meanings, ranging from salient to non-salient. A salient meaning is one which has been "coded in the mental lexicon" (Giora 2002: 490) and whose "interpretation can be directly computed from the lexical meanings automatically associated with entries before any extra inferences based on contextual assumptions have been derived" (Giora et al. 1998: 84). Such meanings have priority due to factors such as their conventionality, familiarity, frequency, and prototypicality (Giora 1997, Giora et al. 1998; Giora 1999; Giora and Fein 1999a, 1999b; Giora 2002). Which type of processing will be applied to a given linguistic item depends on the latter's salience: salient meanings enjoy absolute priority over others, and "[t]he most salient meaning of a word or an utterance is always activated" (Giora 1997: 200). When a novel understanding of a salient sense is required, a sequential process ensues: the initially activated meaning is rejected and reconstrued. What is important, "[t]he more salient the reinterpreted language, the more difficult it is to reject as the intended meaning" (Giora 1997: 200). As a consequence, the novel understanding is harder to procure, and its derivation calls for richer contextual cues. It needs to be pointed out here that this account of language comprehension pertains to all types of utterances, irrespective of whether they are figurative or literal. What implications, then, does it have for the processing of irony?

As an introductory remark, it must be made clear that the graded salience hypothesis is by no means in conflict with Giora's (1995) indirect negation view. Rather, the two proposals should be seen as complementary. Having acknowledged this, we may proceed to

consider what kind of meaning it is that would be most salient in the case of irony, for it is this meaning that will be activated first. Giora and colleagues (1998: 84) assume that “ironic interpretations are less salient than their literal meanings; hence, they should be derived after the literal meaning has been activated.” This preliminary assumption was addressed empirically (Giora et al. 1998; Giora and Fein 1999a).

Participants in Giora and collaborators’ (1998) series of experiments were instructed to perform a lexical decision task, i.e., to decide whether a presented string of letters was a word or a nonword. The stimuli were displayed after the presentation of a target sentence which was placed in a context which biased it either literally or ironically. In two of the three experiments, the authors used three different interstimulus intervals [henceforth ISIs] – that is, the “[t]he amount[s] of time that elapse[d] between the end of one stimulus and the beginning of the next stimulus” (Matsumoto 2009: 263). These were 150, 1000 or 2000 milliseconds. Overall results confirmed both the graded salience hypothesis and the indirect negation view. In literally biasing contexts, response latencies did not differ regardless of the duration of the ISI (150 or 1000 ms). In ironically biasing contexts, in turn, the length of the ISI did matter: it took participants much more time to perform the task when the ISI was 150 ms than when it equalled 1000 ms. This indicates that the salient literal meaning is the one activated initially and unconditionally, irrespective of context type. “[T]he less salient ironic meaning became available rather late – 2000 msec after offset of the ironic target sentence” (Giora et al. 1998: 97). Importantly, as predicted by the indirect negation account, the salient literal meaning of irony was retained in the late processing window; this, according to Giora (1995), has to be so to enable the hearer to compute the difference between the actual and the desired state of affairs – i.e., understand the ironic utterance.

The above results were replicated and supplemented by further empirical evidence from two related studies conducted by Giora and Fein (1999a). Here, an important distinction was drawn in the experimental stimuli between familiar and less familiar ironies, which made it possible for the authors to draw conclusions regarding the processing of these two types of ironic utterances. Overall, salient meanings were again demonstrated to be ones “always processed initially, regardless of contextual information” (Giora and Fein 1999a: 249). Interestingly, it turned out that familiar ironies primed their salient – though contextually inappropriate – ironic interpretations even in those scenarios that were literally biasing, which indicates that early stages of comprehension are not affected by contextual cues (Giora and Fein 1999a: 250). The authors’ conclusion is that “salient meanings, both

literal and nonliteral, are initially processed alike” (Giora and Fein 1999a: 252). A discrepancy, however, exists in the processing of utterances which differ with regard to their degrees of salience. Thus, for example, the comprehension of less familiar irony requires additional time: the expected ironic interpretation is not salient and needs to be derived after the salient literal meaning has been shown to be incompatible with the context. This, as Giora and Fein (1999a: 250) call it, “adjustment stage” takes place “at a later moment of comprehension – 1000 msec after the offset of the target sentence.” Yet, if a literal interpretation of the same comment was required, the whole process would stop at the level of the salient literal meaning, as it would be the one compatible with the context. The case is similar with familiar ironies: they do not require extra time because the intended ironic interpretation is available “directly, in parallel with the unintended literal meaning” (Giora and Fein 1999a: 253). This indicates that “[d]irect access (...) may be a function of meaning salience, rather than of context effects” (Giora and Fein 1999a: 253).

Giora’s (1997, 1999, 2002) view of comprehension processes as governed by the salience of a given item has yielded promising results and gained sound empirical support. What seems to be the major strength of this approach is its ability to explain the seemingly contradictory results of research into the temporal aspect of irony processing. While some data pointed to the direct access to figurative meanings (Ortony et al. 1978; Gibbs Jr 1980; Inhoff et al. 1984; Gibbs Jr 2007, to name but a few) and other to the priority of literal meanings (Blasko and Connine 1993), Giora (1997, 1999, 2002) showed that viewing comprehension from the perspective of the traditional figurative versus literal dichotomy might be a gross simplification.⁴⁷ It remains to be seen whether the concept of salience is the solution.

1.6.9. Implicit display theory

A radically different approach to irony was proposed by Utsumi (1996, 2000), whose academic background is not in the humanities, as was typically the case with proponents of previous theories, but in information engineering and electro-communications. This factor

⁴⁷ This is not the only problem, though. Sometimes even the very assignment of a given utterance to one of the two types of language is a daunting task. The situation is not helped by the fact that “few scholars ever attempt to define the terms ‘literal’ and ‘figurative’” (Gibbs Jr and Colston 2006: 837), which by the way does not deter others from using these names as labels for experimental stimuli.

plays a decisive role for the shape of the implicit display theory – intended as “a computationally feasible framework of irony”, it is the author’s “first step toward a full-fledged computational model of irony” (Utsumi 1996: 962). Accordingly, Utsumi (1996, 2000) makes frequent use of symbols, applies formal logic, and illustrates his claims by means of mathematical equations.

On Utsumi’s (1996, 2000) account, the key feature of irony is its implicitness. This is manifest as soon as one looks at the major claims of his theory, where verbal irony is seen as an utterance which “implicitly displays the fact that the situation is surrounded by ironic environment” (Utsumi 2000: 1784). For the purpose of the following analysis, it is now vital to introduce an important distinction made by Utsumi (1996, 2000), who differentiates between ironic environment, understood as a setting which prompts the use of verbal irony, and situational irony, which simply refers to ironic situations (Utsumi 2000: 1778).⁴⁸ Ironic environment, postulated by the author to be the prerequisite for the occurrence of verbal irony, has three features. Firstly, the speaker needs to hold a certain expectation which, secondly, has to fail. Thirdly, the speaker needs to have “a negative emotional attitude (...) toward the incongruity between what is expected and what actually is the case” (Utsumi 2000: 1783). The *modus operandi* of an ironic comment uttered in such circumstances is that it “implicitly display[s]” thus defined ironic environment (Utsumi 2000: 1778). The way in which implicit display is attained, in turn, is threefold. First, the ironic comment has to allude to the speaker’s unfulfilled expectation. Second, it has to involve pragmatic insincerity by deliberately flouting one of the pragmatic rules. Third, it has to communicate the speaker’s negative attitude towards the incongruity between the expectation and reality, and to do so in an indirect manner (Utsumi 2000: 1784f.). Utsumi (2000: 1787) provides a whole list of cues that can be employed in order to indirectly express such negative sentiments; these cues range from verbal ones, such as exaggerations, interjections and speech acts communicating insincere gratifying sentiments, through paralinguistic cues encompassing various prosodic features, to nonverbal signals such as particular facial expressions and bodily movements or other behavioural cues. Importantly, whenever an utter-

⁴⁸ Utsumi (1996, 2000) considers this distinction to be a fundamental one and lists some earlier studies of irony (Gibbs Jr and O’Brien 1991; Littman and Mey 1991; Gibbs Jr et al. 1995) which, admittedly, did recognise the significance of situation for verbal irony, but nevertheless made what he calls “a fatal mistake in that they confuse[d] situations which cause verbal irony (...) with ironic situations or situational irony” (Utsumi 2000: 1778).

ance is direct in displaying any of the three elements of ironic environment, then it cannot be considered ironic (Utsumi 2000: 1785).

Apart from claiming that irony is “characterised by the notion of implicit display” (Utsumi 2000: 1779), Utsumi (1996, 2000) postulates that it constitutes “a prototype-based category” (Utsumi 2000: 1779). Thus, the ironicalness of an utterance is always a matter of degree, with typical ironies being those which meet all three criteria for implicit display (Utsumi 2000: 1787). The author notes that it often happens in actual conversational exchanges that one or two of these conditions are not available to the hearer beforehand; more than that, in some cases it may even be impossible to recognise all three. Such a state of affairs will not prevent people from recognising irony, Utsumi (2000: 1788) posits, “as long as there is a possibility that the situation is surrounded by ironic environment”.⁴⁹

Let us now look at how the discussed theory views the whole process of distinguishing irony from non-irony. As has been indicated, Utsumi (2000: 1791) postulates that any given ironic utterance should meet two conditions: the implicit display condition and the ironic environment condition. The first of the two “is checked on the basis of the prototype-based view of irony” (Utsumi 2000: 1792) and entails assessing the ironicalness of the utterance, which, in turn, is operationalised as the similarity between the prototype and the utterance (Utsumi 2000: 1789). Once the implicit display condition has been fulfilled, the ironic environment condition is inspected. Here, hearers make use of the information on how the utterance has attained implicit display in the first place. It is for this reason that checking the ironic environment condition cannot but follow that of the implicit display condition (Utsumi 2000: 1792).

Utsumi (1996, 2000) admits that the reason why he formalised the above ideas on irony detection and comprehension was to propose a model which would be computationally feasible. Apart from that, however, his implicit display theory aims for psychological validity. Accordingly, its author makes certain claims concerning the processing of irony. The first of these is that ironic utterances which are highly prototypical, i.e., those with greater levels of ironicalness, “are perceived as more ironic and are processed faster” (Utsumi 2000: 1797). The second prediction concerns another type of ironic comments whose processing is claimed to be facilitated: those uttered in such a context that is easier to be recognised as ironic environment. This includes situations in which the speaker’s un-

⁴⁹ Still, such a situation has implications for estimating these utterances’ processing time which, necessarily, will be longer than that of more prototypical instances of irony.

fulfilled hopes or expectations are clear to the audience, which means that they have either been available before, or they have been made manifest by the very utterance (Utsumi 2000: 1797). Interestingly, Utsumi (1996, 2000) postulates that speakers, while making sense of an ironic utterance, need to retain its literal meaning as they “assess the degree of ironicalness and/or infer the speaker’s expectation in order to interpret the irony” (Utsumi 2000: 1802). Thus, he agrees on this point with the claims of Giora’s (1995) indirect negation theory. What he does not agree with, however, is how Giora’s (1997) graded salience hypothesis accounts for the temporal difference in the processing of literal and ironic remarks, his justification being that her approach “underestimates the important role of context in language comprehension” (Utsumi 2000: 1802). Utsumi (2000: 1802) is more inclusive in postulating that it is not only the previously computed literal interpretation, but also contextual information that enables the hearer to arrive at the ironic meaning.⁵⁰

1.6.10. Irony as relevant inappropriateness

The role that contextual information plays for irony comprehension is emphasised in yet another theory of irony. Salvatore Attardo, who discusses irony in terms of “relevant inappropriateness” (Attardo 2000: 793), posits that irony “is entirely dependent on context” and that its meaning is not given in the utterance, but has to be derived by the hearer (Attardo 2000: 814). This derivation is taken to involve two steps: the hearer first needs to recognise that a given comment is ironic to proceed to reconstruct the sense intended by the speaker. Both processes are possible thanks to the fact that the speaker and the hearer share a number of crucial presuppositions, but the key element in the first of the two is contextual inappropriateness. Here, Attardo (2000) draws on and extends Grice’s (1975, 1989) pragmatic theory, postulating the inclusion of a fifth maxim – “be contextually appropriate” (Attardo 2000: 817) – into the Cooperative Principle. On this account, “an utterance *u* is contextually appropriate iff all presuppositions of *u* are identical to or compatible with all the presuppositions of the context *C* in which *u* is uttered (...) except for any feature explicitly themat-

⁵⁰ This line of reasoning, as Utsumi (2000: 1802) points out, is consistent with the experimental results obtained by Giora and collaborators (1998) and, in his view, provides a more accurate account of the time difference.

tized and denied in *u*” (Attardo 2000: 818).⁵¹ To Attardo (2000), the inclusion of such a maxim is a way of accounting for ironic utterances which do not violate any of the four original maxims and therefore cannot count as ironical when considered from the traditional Gricean perspective. He claims that such comments “all entail an inappropriate utterance, given the context in which they occur” (Attardo 2000: 817) and points out that any instance of maxim flouting inevitably causes inappropriateness.⁵² Thus, the postulated concept can deal both with the cases of irony that were previously unaccounted for, and with those which were accounted for by implicature.

The notion crucial for the second of the two processes postulated by Attardo (2000) – that of meaning derivation – is “the principle of least disruption”, which as if urges the speaker to “limit his/her violation of the CP to the smallest possible conversational unit (...), and to try to link the entire CP-violating unit to the rest of the interaction” (Attardo 2000: 815). Thus viewed, the principle has important implications for how hearers arrive at ironic meaning. On Attardo’s (2000: 815f.) account, two major agents guide comprehension processes: the maxim of relevance and “the antiphrastic/antonymic assumption of irony” (Attardo 2000: 816); accordingly, hearers will expect the ironic utterance to be relevant, and its intended meaning – to revolve around the reverse of what has literally been said. The assumption of relevance that hearers are postulated to make as to the utterance is a significant element of meaning derivation: it is instrumental in reconstructing the intention of the ironic speaker (Attardo 2000: 822).

To recapitulate what has so far been reported, on Attardo’s (2000) account, then, an ironic utterance is one which is simultaneously relevant and contextually inappropriate. Further, the comment needs to be perceived as having been made deliberately, and the speaker as both being aware of the inappropriateness, and wanting at least some of the hearers to identify this (Attardo 2000: 817).⁵³ While “purposeful inappropriateness is a necessary and sufficient cause of irony in an utterance” (Attardo 2000: 806), one need not for-

⁵¹ This definition, as Attardo (2000: 818) points out, clearly indicates that the concept of appropriateness is truth-sensitive, which makes it fundamentally different from that of relevance. Thus, the two phenomena cannot be claimed to overlap, though Attardo (2000: 820) admits that “most frequently, the relevance of a sentence and its appropriateness go hand in hand, since saying something inappropriate will tend to render it irrelevant as well.”

⁵² Thus conceptualised inappropriateness is, as Attardo (2000: 820) admits, close to how Austin (1962: 19) understood the notion. In Attardo’s (2000) view, however, the term can refer to all types of speech acts, and not just performatives, as was the case in Austin’s (1962) analysis.

⁵³ Attardo (2000: 818) points out that there may be situations such as those noted by Clark and Carlson (1982), where the ironic speaker has two distinct audiences. In such cases, only one of the two is privy to the actual purpose of his or her utterance and, therefore, able to enjoy the irony.

get that apart from appropriateness, other rules can be flouted by an ironic utterance, too (Attardo 2000: 817).

As regards the explanatory power of his account of irony, Attardo (2000: 822) claims that the model is “at least as powerful as any of the (Neo-)Gricean theories”, but adds that the notion of inappropriateness, being an augmentation of the Gricean view, necessarily has a broader scope. Further, the proposal offers a clear perspective on the issue of the processing stages of irony. While it does not make a stand on what principle it is that decides which meanings are to be accessed first, Attardo’s (2000) model does state clearly that understanding irony is inevitably a two-stage process: otherwise it would not be possible to detect that the initially activated meaning was contextually inappropriate.⁵⁴

1.7. A dead end?

Having analysed the major theoretical approaches that have been proposed in order to account for the various phenomena related to irony comprehension, one is likely to conclude that our current state of knowledge is highly fragmentary: it resembles scattered puzzle pieces that seem impossible to be put together. One should not get discouraged, however; it is important to remember that the more heated and extensive the scientific debate, the more likely it is to broaden our understanding of the analysed problem.

It has been pointed out at the beginning of the current discussion that no single definition of irony has been universally agreed on, and that theoreticians have worked with understandings of the phenomenon that have sometimes been very distant. Given these fundamental definitional differences, it seems natural that the various authors cannot have reached the same conclusions or pointed to the same set of factors of importance; in short, the different perspectives taken cannot have yielded a single picture. It is important to view this wealth of interpretive options in terms of value rather than defect: the more possibilities are available, the more likely one is to find the right solution or solutions – for it may be the case that where researchers seek a single, all-encompassing answer, several answers are correct. Whether this is so may effectively be checked by means of experimental work.

⁵⁴ Attardo (2000: 823) deems it probable that the order of processing is determined by salience, as postulated by Giora (1997).

Thus, theoretical considerations find valuable support in the results obtained from empirical endeavour.

1.8. Conclusion

The aim of the present chapter has been to introduce the phenomenon of irony, which is at the centre of the present author's research interests, and which is the main focus of the empirical study described in Chapter 5 of the current discussion. The analysis commenced with an attempt at defining the object of research. This was undertaken by posing three fundamental questions related to the phenomenon: the "where", the "what", and the "why" of irony. In a pursuit to provide satisfactory answers to these problems, the author discussed how often irony is used, introduced its types and subtypes, as well as described the many communicative goals that it may serve. The author's understanding of the critical concepts pursued in the research described here has been introduced as well. Finally, an overview of a selection of pragmatic and psycholinguistic theories has been provided. These theories have attempted to explain how adult users of language make sense of ironic meaning. Particular emphasis has been put on several issues which are considered critical for any empirical attempt aimed at exploring the processing of irony. These, as well as other related problems, will be addressed from a fresh – experimental and developmental – perspective in the following chapter.

Chapter 2: Irony through the eyes of the child: Empirical approaches to irony

2.1. Introduction

The analysis performed in the second chapter of the current work will have two major foci. Firstly, the chapter will examine the various factors that have been found to influence hearers' understanding of irony. The discussion will not be limited to the agents that have been pointed to by theoreticians of irony, however, but will also encompass those that have remained unaddressed by the major accounts. The scope of the analysis will be broad, so as to include the factors which are related to the ironic message or its delivery, as well as those which pertain to the speaker and hearer – particular social characteristics which are linked with a greater likelihood of one's uttering, or understanding of, a given ironic remark. Subsequently, the chapter will present the current state of knowledge concerning the processes underlying children's comprehension and perception of irony – an empirical research field that the current experimental findings aim to advance. Here, the discussion will be centred on the critical elements of children's ability to make sense of ironic meaning. At this point, the author's goal will be twofold: apart from providing an overview of the relevant findings, a critical analysis of the experimental designs that have been employed will be offered. These methodological considerations have guided the choices that have been made in the course of designing the current study. The chapter will close with a brief presentation of directions for further research, whereby the author will advance some of the questions concerning children's processing of irony that have yet to be answered.

2.2. Factors in irony: What influences irony comprehension?

Taken together, theoretical approaches to irony have identified and proposed a wealth of factors that have potential significance for how readily hearers decode ironic meaning. While it is impossible to specify the exact contribution that each of these makes to the comprehension process, it needs to be noted that the relevance of a great many has been recognised for decades, given their consistent reappearance throughout the literature on irony. As regards those factors whose role has only recently been pointed to, their significance has already been empirically tested and confirmed. Needless to say, identifying further factors which facilitate, or, conversely, impede the understanding of irony, remains an important field of scientific inquiry in psycholinguistics, pragmatics, and related research areas.

2.2.1. Irony and affective valence

Our analysis of the factors relevant for irony comprehension begins with one whose significance has only recently been properly acknowledged. Bromberek-Dyzman (2012, 2014, 2015) claims that it is affective valence, rather than the traditional literal/figurative distinction, that is instrumental in shaping the processing trajectories of irony. On this view, “[a]ttitudinal content (...) is intended to shape the affective state of the hearer and prime the comprehension of the message” (Bromberek-Dyzman 2015: 215).

The fundamental role that affect, or “affective elements”, play for human experience has been noted as early as at the dawn of the XX century, when Wilhelm Max Wundt (1907), one of the founding fathers of psychology, advanced the claim that affect always accompanied thought. Almost eight decades later, Zajonc (1980, 1984) proposed the Affective Primacy Hypothesis, according to which affect was independent from, and primary to cognition. Zajonc’s argument goes that affective and cognitive processes differ, and that so does the processing of affective and cognitive stimuli, a claim which has received ample empirical support (Bromberek-Dyzman 2015: 222). Affective reactions are not only basic, but also inescapable, since “[t]he individual is never *without* being in some emotional state” (Zajonc 1984: 121). As Bromberek-Dyzman (2015: 223) put it, “[w]hatever we perceive, it is never a mere collection of features. It is a collection of features that we like or do not

like.” In other words, we constantly assess the incoming stimuli as either desirable (positive, good, useful, rewarding) or undesirable (negative, bad, harmful, threatening) (Bromberek-Dyzman 2012: 90). What is more, valuation is automatic: research has demonstrated that people may evaluate stimuli that they do not mean to evaluate, or even such that they are not consciously aware of (Ferguson and Zayas 2009: 362). If this is the case, then one may conclude that valuation has to bear upon how people perceive and process their environment, and especially those of its elements which carry affective meaning – and such is irony.

The claim that ironic utterances are rich in affective content is by no means surprising, given the major communicative goal that they serve, which is to convey information about the speaker’s attitude (Grice 1989; Clark and Gerrig 1984; Sperber and Wilson 1986; Kreuz and Glucksberg 1989; Roberts and Kreuz 1994; Giora 1995; Berntsen and Kennedy 1996; Harris and Pexman 2003). It needs to be noted that the affective content of irony is of a particular quality, as the phenomenon has a nature that is fundamentally dichotomous (Barbe 1995). It is the duality between what is said and implicated that communicates the speaker’s attitude towards the subject commented upon (Berntsen and Kennedy 1996: 13); what is more, if this duality is eliminated, so is irony, which testifies to this feature being constitutive for irony (Bromberek-Dyzman 2015: 219). Bromberek-Dyzman (2015: 219) points out that “[i]rony is inherently *two-faced*, humorous and hurtful, funny and stingy, criticizing and praising at the same time.” This dichotomous nature has to and does influence the character of attitudes conveyed by irony: these are not only complex, but also highly ambivalent.

In order to explore the impact that affective valence has on the processing of irony, Bromberek-Dyzman (2014) conducted two empirical studies. The experimental stimuli included not only ironic criticism, in which the attitude expressed is both implicit and incongruent, but also literal praise and literal criticism, two types of utterances which express explicit and congruent attitudes. Intending to capture the effects of valence for two kinds of processing – direct and indirect, Bromberek-Dyzman (2014) employed two different task types: an evaluative decision task and a lexical decision task, respectively. In the first of these, participants were supposed to decide whether the target utterances – remarks presented within short dialogic scenarios – articulated positive or negative attitudes. In the second task type, in turn, participants were to gauge whether a string of letters flashed on a computer screen was a word or a nonword; here, each target item was displayed after the

presentation of a prime – a given scenario from the evaluative task. Thus, the sets of stimuli that were used for both task types did not differ.⁵⁵ There was a further dimension that differentiated the experimental conditions, however: the pacing of both presenting the input and of participants' responding to it. Thus, reading of the stimuli as well as responding to them were either self-paced or had a temporal limit imposed; in the latter case, interstimulus intervals [ISIs] of 0 and 1000 milliseconds were employed.

The pattern of results obtained by Bromberek-Dyzman (2014) was surprisingly consistent across all of the many conditions tested. First, a regularity was observed in how “strikingly different” (Bromberek-Dyzman 2014: 255) the processing trajectories of literal (sic!) praise and criticism were in both the explicit and implicit task. Above all, this remarkable finding points to the significance that valence has for the recognition of attitudinal meaning. It also indicates, however, that the traditional distinction between literal and figurative meaning may not be the most felicitous methodological choice, especially if one is to study the time course of irony or the processing of its attitudinal content. Earlier processing-focussed studies yielded discrepant findings concerning the comprehension speed of ironic, as opposed to literal, stimuli (cf. the results of Giora 1995, 1997; Giora et al. 1998; Giora and Fein 1999a; Giora 2002; versus those of Gibbs Jr [1986] 2007; Gibbs Jr and O'Brien 1991; Gibbs Jr 1994b, 2000; Ivanko and Pexman 2003). Bromberek-Dyzman's (2014) finding that it is valence, rather than an utterance's (non)literalness that determines its processing pattern, may reconcile the conflicting empirical evidence. The results of Bromberek-Dyzman's (2014) first experiment, where no temporal limit was imposed on participants as they performed an attitude evaluative task, demonstrated that they could process ironic utterances as quickly as they did literal praise, and faster than literal criticism. In Experiment 2, in turn, where the response time available to participants was restricted, they processed ironic meaning longer than literal praise, and only insignificantly faster than literal criticism. The results obtained in Experiments 3 and 4, which employed the implicit processing task, further demonstrated affective valence effects: while the processing trajectories of ironic criticism, where the valence expressed is ambiguous, varied and were modulated by the differences in ISIs and prime display timing (Bromberek-Dyzman 2014: 257), a consistent pattern of results was observed for the two stimulus types that had congruent valence. Moreover, just as was the case in Experiments 1 and 2, a con-

⁵⁵ Apart from ironic criticism, literal criticism and literal praise, Bromberek-Dyzman (2014) also devised non-word target items and filler scenarios to render the critical items less salient.

stant facilitation was observed for the processing of positive valence and an inhibition for that of negative valence – a regularity which could not have been identified had Bromberek-Dyzman (2014) compared irony against a single, and more general, category of literal utterances. Thus, apart from pointing to the relevance that affective valence, a factor which has so far been largely overlooked, has for the processing of attitudinal meaning in irony, Bromberek-Dyzman's (2014) exploration has major methodological implications: it shows how important it is to tailor one's research tools to the challenges posed by the pursued question. Rethinking and improving experimental designs that have long been used for addressing a given problem may not only hold the key to resolving some of the unexplained issues, but also to reconciling discrepant research findings.

2.2.2. The all-important context

There is hardly a factor in irony comprehension whose impact has been discussed so widely as that of context; it must be remembered, though, that the term may have distinct meanings to different scholars – especially when the latter focus on its varying aspects. Still, the factor is of such importance that it recurs in various fields of irony studies, from the many branches of linguistics, through rhetoric, to literary theory.⁵⁶ To illustrate, Linda Hutcheon, a literary critic and theorist, writes that irony is “best seen (...) as a trope dependent on context” (Hutcheon 1992: 230). What is more, she claims that “it is precisely the mutual contexts an *existing community* creates that set the scene for the very use and comprehension of irony” (Hutcheon 1994: 91). Marianne Shapiro (1985: 13) also stresses the role of context: “[i]rony cannot (...) be comprehended as a unit but as a context”, and so does Booth (1974: 9), writing about an utterance that it could “mean an unlimited number of things, depending on the context.” Similar views are held by pragmaticians and psycholinguists.

Sperber and Wilson (1981: 298) point out that “it is generally agreed” that context is the major factor governing speakers and hearers' choice of the correct interpretation from a whole range of possible senses. In a similar vein, Clark and Gerrig (1984: 125) note that speaker and hearer's “common ground” or “shared knowledge” is an element that is crucial

⁵⁶ How various theoretical approaches viewed the role of context was discussed in Chapter 1, where major linguistic approaches to irony were introduced together with their critical concepts. A review of empirical findings into the role of contextual cues follows in the present chapter, in section (2.3.3).

for the recognition of ironic pretense. Almost thirty years later, Hirsch (2011: 317) writes about contextual knowledge, such as hearers' "acquaintance with the situation", acting as an important cue gearing the hearer towards a logical ironic interpretation. Attardo (2000) claims that an ironic utterance is, most of all, characterised by being contextually inappropriate; thus, context is among the key concepts of his theory.⁵⁷ Even Rachel Giora, on whose account "context has a limited role" (Giora 1997: 186), writes about the "givenness status [of a word or an utterance] in a certain (linguistic and nonlinguistic) context" (Giora 1997: 185).⁵⁸ Thus, she sees context as one of the factors governing the salience of a particular meaning (Giora 1997: 183) and, therefore, influencing the availability of ironic interpretation.

The above is but a small selection of the various views that researchers of irony have had on the role that context plays for hearers' comprehension of irony. While the many approaches may differ considerably as to how they describe and explain the mechanics of the contextual cue, there is not a single theory known to the author of the current analysis that would fail to acknowledge the existence of this factor.

2.2.3. What the voice can tell

One of the more widely discussed phenomena in irony research is the role that vocal cues, sometimes referred to as ironic tone of voice, play in irony comprehension. While these do not seem to be a necessary condition for the comprehension of irony – after all, people are able to recognise verbal irony in a written text – there is a body of research showing that it does provide hearers with important supplementary information which aids irony recognition and processing.⁵⁹

⁵⁷ It needs to be noted, though, that it is already Sperber and Wilson (1981) who placed inappropriateness among the cues crucial for irony recognition; they construed it as one of the markers of implicit mention.

⁵⁸ This is so because on Giora's (1997) account context cannot suppress the activation of salient meanings.

⁵⁹ It has been demonstrated by Gibbs Jr and O'Brien (1991) that special intonation is not a necessary condition for adults to understand irony. One needs to bear in mind, though, that people differ considerably with regard to how skilled they are at decoding ironic meaning – not only in face-to-face interactions, but also when irony occurs in a written text. There have been famous cases of literary works whose ironic meaning was altogether missed by some of the readers: a case in point is the already invoked Swift's (1729) essay *A modest proposal*. The ironic intention of the author of this text is reported to have been the object of "notorious misunderstanding" (Giora 1995: 255).

Among the features of ironic tone of voice that have been distinguished in the relevant literature are nasalisation, prominent stress, and a decelerated pace of speaking (Cutler 1976; Kreuz and Roberts 1995). Nakassis and Snedeker (2002) point out, however, that there is a wide variety of tones of voice which can be used to express ironic meaning. Winner (1988: 148) enumerates three different types of intonation that can accompany an ironic comment: “sarcastic (mocking, exaggerated, contemptuous); (...) flat (deadpan); or (...) overly sincere” and notes that the intonation is typically incompatible with utterance content. Newer studies tend to point to the contradictory results of research into the sound of irony (Rockwell 2007): some authors have observed a lower (Rockwell 2000), and others – a higher pitch for sarcastic utterances (Haiman 1998; Anolli et al. 2000). Also, differences have been found concerning the pitch range associated with sarcasm: while Haiman (1998) posits that the range is fairly broad and has prominent pitch shifts, Kreuz and Roberts (1995: 24) postulate that the best instances of irony may actually be those uttered in what they describe as a “totally deadpan way.”⁶⁰ Similar inconsistencies have been noted concerning the intensity, tempo, and vowel sound length for sarcastic utterances (Rockwell 2007). Rockwell (2007), who analysed both acoustic and perceptual features of sarcastic and non-sarcastic utterances, has found only moderate correlations between the two types of variables. The results obtained by Cheang and Pell (2008, 2009, 2011) indicate that, while prosodic features are crucial for indicating nonliteral intent in speech, the particular ways of expressing irony appear to differ across languages (Cheang and Pell 2009: 1395). Thus, “(native) experience with a language is essential for recognizing sarcastic intentions” (Cheang and Pell 2011: 217).

Somewhat more recently, Caffarra et al. (2018) have found that indexical features, such as a speaker’s foreign or native accent, influence irony comprehension. The authors examined two types of irony: one that is frequently used, that is ironic criticism, and one that is less frequently used, that is ironic praise. The findings demonstrate that native listeners considered foreign accented ironic praise to be less ironic than they did native accented ironic praise. Thus, foreign accent is it another variable that has been found to modulate irony interpretation.

⁶⁰ Interestingly, while some authors, such as Winner (1988), consider flat intonation to be indicative of irony, others, as Attardo (2000: 805f.), claim that the “so-called ‘dead-pan’ delivery (...) consists precisely in not signalling that one’s utterance is a joke/irony.”

In a later study, Caffarra et al. (2019). examined the impact of speaker accent together with that of context on irony analysis and found that “contextual biases and speaker accent interacted as early as 150 ms during irony processing” (Caffarra et al. 2019: 3566). These results indicate that listeners make use of and weigh multiple cues when making sense of ironic utterances. The authors point out that the cues “can interact from the earliest stages of irony analysis” (Caffarra et al. 2019: 3566).

Even a cursory glance at the stimuli and methods employed in the various explorations of the vocal cues of sarcasm reveals that the differences are such as to render any direct comparisons highly impracticable. Bryant and Fox Tree (2005), drawing on experimental data and acoustic analyses, put forward a claim that the widely recognised notion of an ironic tone of voice is “oversimplified and misguided” (Bryant and Fox Tree 2005: 257). More than that, their conclusion is that “there is no particular ironic tone of voice” (Bryant and Fox Tree 2005: 257); instead, hearers make sense of ironic utterances by integrating various cues, not only those belonging to the immediate linguistic context. An earlier and more moderate argument against the existence of one specific ironic tone comes from Grice (1989: 54): “if speaking ironically has to be, or at least appear[s] to be, the expression of a certain feeling or attitude, then a tone suitable to such a feeling or attitude seems to be mandatory.” While, perhaps, not very revealing, this early observation does provide a plausible explanation for the contradictory results of research into the sound of irony.⁶¹

2.2.4. Nonverbal cues

Writing about factors influencing irony comprehension, a lot of authors point to the role of nonverbal signals sent by the ironic speaker; it needs to be remembered, though, that such cues are available to the hearer only in the case of face-to-face communication. Thus, it is not only the way a given message is constructed and linguistically packaged that carries weight in the comprehension process; nonverbal signals matter, too – and to a great degree, as some scholars like to stress. Kreuz and Roberts (1995: 23), discussing the issue of cues for verbal irony, draw on Winner and Gallagher’s (1983) findings which demonstrate that

⁶¹ Analogously to what was the case with our discussion of context, an account of the theoretical perspectives on the problem of ironic tone of voice was undertaken in Chapter 1, where major theoretical approaches to irony were introduced together with their critical notions. A detailed analysis of the relevant empirical findings will be conducted further in the present chapter, in section (2.3).

behavioural signals, for example laughing or pointing, can be more suggestive of irony than is intonation. This is consistent with the results obtained by DePaulo (1978), whose subjects, supposed to decode conflicting visual and auditory nonverbal cues, were more influenced by those of the visual type. The phenomenon, referred to as the “video primacy effect” (DePaulo 1978: 313), is indicative of the natural appeal that nonverbal signals have for people. Having acknowledged the communicative potential inherent in such cues, let us now take a closer look at those which have been associated with irony.

Rockwell (2001) sought to determine what kinds of facial expressions were used by speakers to convey sarcastic meaning and found that the only region that raters relied on when distinguishing sarcastic utterances was mouth.⁶² Attardo and colleagues (2001), in turn, focussed on an altogether different kind of irony in their search for the relevant non-verbal cues: they considered examples belonging to the broader category of humour, and found that these were “delivered with at least a smile” (Attardo et al. 2001: 242). Thus, the mouth region appears to be important not only for sarcastic, but also for humorous irony. One need not forget, though, that there are a number of other facial regions that have been associated with irony in the literature.

Attardo et al. (2003: 245f.), who seem to have adopted the most exhaustive approach, have listed several, as they call them, “facial markers” of irony: “[e]yebrows (raised or lowered), [e]yes (wide open, squinting, rolling), [w]inking (...), [n]odding [and] [b]lank face” (Attardo et al. 2003: 245f.).⁶³ Analysing these markers, the authors introduce an important distinction between metacommunicative and paracommunicative alerts (Attardo et al. 2003: 256). The former, metacommunicative alerts, consist in signalling that a comment should be understood as ironical; in other words, they impart information about the message being delivered. The examples that Attardo and colleagues (2003: 257) give of facial expressions belonging to this category are the “tongue in cheek” and the “ironic smile”. Cues belonging to the second category, that of paracommunicative signals, are fundamentally different: they do not impart information about the message, but, as if, next to it. They communicate things other than the ironic utterance does but, taken together with it,

⁶² One needs to remember, though, that the notion of sarcasm is typically associated with negative emotions only, while the phenomenon of verbal irony is by no means restricted to these.

⁶³ Attardo and colleagues (2003: 243) claim that the last element of this list – the “blank face” – is a cue which has not been discussed in the literature before; in the present author’s view, however, this concept bears a close and, perhaps, uncoincidental resemblance to the “dead-pan” delivery, as discussed by Winner (1988), Kreuz and Roberts (1995), and... Attardo (2000) (sic!).

they guide the hearer towards the correct interpretation (Attardo et al. 2003: 257). To illustrate, the ironic speaker may nod excessively or have a surprisingly blank face; such facial expressions do not have clear meanings of their own, but when they accompany a statement that they seem to be in conflict with, they do become meaningful cues for irony (Attardo et al. 2003: 257).

While the studies discussed above have considerably broadened our understanding of the ways in which nonverbal cues aid hearers' understanding of irony, this research area is by no means exhausted: further empirical work is needed to yield a more comprehensive picture of the facial and gestural markers of irony. Attardo and colleagues (2003: 257f.) make an important methodological contribution here: they postulate that, since the cues for irony are of multimodal nature, the approach adopted for their proper analysis should also be multimodal. They claim that employing such a means of inquiry is not only advisable, but also inevitable, as it is "the challenge for the future" to examine how all the nonverbal cues for irony interact (Attardo et al. 2003: 258).

2.2.5. Irony as a social phenomenon

Apart from the cues available in the ironic message and its delivery, there are many other factors which influence hearers' comprehension of irony. This should not be surprising, as communicative acts do not take place in a vacuum, but in broadly understood social and cultural contexts which necessarily have impact on the shape of communication.⁶⁴ For instance, listeners have been shown to be aware that speakers differ with respect to how likely they are to use irony and that "these differences are conveyed by certain social categories, such as occupation and gender" (Ivanko et al. 2004: 245). Let us begin our analysis with the latter.

Among the first empirical inquiries that found a difference in how men and women use irony was the one conducted by Gibbs Jr (2000). While the issue of gender differences in irony production was not its main focus, the findings showed that men made almost twice as many sarcastic comments as did women. Similar results were obtained by Katz

⁶⁴ It needs to be remembered that such influence is not unidirectional. Social factors affect hearers' recognition of irony but, at the same time, the capacity to comprehend ironic utterances is a significant element of one's ability to function in a society (Pexman and Glenwright 2007: 179). The latter aspect will be dealt with in more detail in section (2.3).

and colleagues (2001): in one of their experiments, men were seen as more sarcastic than women. Interestingly, this effect was particularly strong when the remark was uttered unintentionally. When, however, the intentions of the speaker were obvious, it was women who were perceived as more sarcastic (Katz et al. 2001, after Colston and Lee 2004: 290). A further exploration of gender differences in irony use was conducted by Colston and Lee (2004) who, apart from investigating the scope of these, ventured upon explaining them. In the first of their series of experiments, verbal irony was found to be perceived as “more malelike” (Colston and Lee 2004: 294) than literal comments. This result is in line with the findings of their final experiment discussed in the article, where male participants reported a preference for using discourse irony.⁶⁵ To have a more detailed picture of the problem, Colston and Lee (2004) conducted further experiments: the second and third one aimed at, respectively, establishing what communicative goals are accomplished via irony and determining whether there is a correlation between participants’ gender and the communicative goals they prioritise. The correlation was found, but it was rather unexpected: out of the five goals attainable by means of irony, three – “to be rude, to deemphasize, [and] to insult” (Colston and Lee 2004: 298) – were more desired by women than they were by men. The popularity of irony among the male group cannot, therefore, be the result of irony fulfilling the communicative goals they seek. It is to the contrary: “a better fit is found between the discourse goals of females (...) and the pragmatic functions of verbal irony” (Colston and Lee 2004: 301). An alternative explanation for the popularity of irony among men could lie in the riskiness of irony: Colston and Lee’s (2004) fourth experiment showed that both men and women perceived ironic utterances as more prone to misunderstanding than literal ones. It is possible, the authors posit, that this property “appeals to males’ greater general riskiness relative to females” (Colston and Lee 2004: 301). Nevertheless, it may also be the case that the problem under discussion involves more complex mechanisms which, in combination, produce the effect of the male preference for irony. Among such factors Colston and Lee (2004: 302) list “the emotional expressiveness of verbal irony and gender differences in attribution, aggressiveness, and mastery demonstration.”

An interesting perspective on differences in irony use is offered by Recchia and colleagues (2010). The authors looked at how children understand and produce ironic utterances in family conversations, but for the purposes of our current discussion we will now

⁶⁵ This finding is consistent with the results of self-report data obtained by Ivanko and colleagues (2004) and Dress and colleagues (2008), in whose studies men admitted to using sarcasm more often than did women.

limit our analysis of their findings to those concerning differences in parents' use of various forms of irony. The study showed that, while fathers (and other family members) made ironic comments more frequently in positive situations, mothers employed verbal irony in positive contexts as often as they did in negative, conflictual situations (Recchia et al. 2010: 269). Interestingly, the form of irony preferred by mothers was rhetorical questions: indirect and not having explicit victims, they appear to be less acrimonious than sarcasm is. As compared to mothers, fathers were more playful in their use of irony; also, their employment of the different forms of irony was more diverse: comments involving hyperbole were as frequent in their speech as those involving understatement or rhetorical questions (Recchia et al. 2010: 270). While it is difficult to point to a single cause of these differences, they could be indicative of the distinct roles stereotypically associated with and performed by male and female parents in family interactions.⁶⁶

The findings obtained by Recchia and colleagues (2010) concerning mothers' use of irony were recently supplemented by Banasik-Jemielniak (2019). Analysing corpus data, this author found that for a significant number of ironic comments uttered by mothers in the presence of their child, the child did not seem "to be the actual addressee of the message, but rather the overhearer" (Banasik-Jemielniak 2019: 1). These utterances were, most of all, "references to the child's behavior or being overwhelmed" (Banasik-Jemielniak 2019: 1).

Apart from the differences in irony use which have been discussed above, research has identified several other factors of importance; these, too, have typically been associated with broadly understood social function. One's occupation, an important indicator of social status, is a case in point. There are certain professions in which the use of irony is stereotypically believed to be higher than in others; these include comedians, taxi drivers (Katz and Pexman 1997), army sergeants (Pexman et al. 2000), and factory workers (Katz et al. 2004).⁶⁷ One of the first studies into the exact role of these stereotypes was conducted by Katz and Pexman (1997). The obtained results confirmed that "people have consensus, or share common ground, regarding their beliefs about the linguistic habits of members of occupational categories" (Katz and Pexman 1997: 37), and showed that the effect of speaker occupation is so strong that it can even change the hearer's interpretation of a figurative remark: in the study, familiar comments whose default meaning was metaphorical were

⁶⁶ For a more detailed analysis of the roles that parents – especially fathers – adopt in the context of family interactions, see Parke (2002).

⁶⁷ Pexman and colleagues (2000: 219f.) note that the occupations which are stereotypically linked to irony are usually blue-collar occupations, while those linked to metaphor are white-collar ones.

read as irony when made by members of high-irony occupations (Katz and Pexman 1997: 37). Speaker occupation effects were further investigated by Pexman and colleagues (2000), who addressed the problem using an online reading task. The results demonstrated that “participants were sensitive to the mention of speakers’ occupation and were taking that source of information into account as they were reading the target statement” (Pexman et al. 2000: 211). Thus, the finding complements that of Katz and Pexman (1997) and has similar implications. Discussing these results, one need not forget, however, that the effect of speaker occupation on the interpretation of a particular utterance is by no means absolute: its degree is mediated by other factors, such as discursive context and meaning saliency (Katz et al. 2004: 187).

Another social criterion that has been identified as relevant for the issue of irony production and comprehension, the geographic region one inhabits, is a factor whose role has escaped the attention of theoreticians and experimentalists for what seems to be an unduly long period of time. Indeed, the study by Dress and colleagues (2008) – the first to document regional variation in the use of sarcasm – has been published quite late, especially compared with how much earlier other, no less complex, irony-related phenomena received due academic consideration. Dress and collaborators’ (2008) experiment, conducted in the United States of America, has found differences in the use of sarcasm by college students in New York and Tennessee. The results showed that Northern participants not only saw sarcasm as more humorous than did Southern participants, but they also produced more sarcastic wrap-up comments and selected more straightforward ironic utterances. It is important to point out here that the authors of the study have managed to control for the influence of demographic variables such as “age, gender, race, and rural or urban differences”; thus, geographical region can be claimed to have been the sole significant predictor of the differences found in participants’ sarcasm use (Dress et al. 2008: 81). While the exact pattern of results obtained by Dress and colleagues (2008) can by no means be considered generalisable – after all, there is much more to linguistic diversity than the simple North-South division – the authors deem it “reasonable to predict that similar differences would be found in other, geographically diverse countries” (Dress et al. 2008: 82). This claim remains to be addressed empirically; there is one more important problem that Dress and collaborators’ (2008) exploration touches upon, however: the authors point to the possibility that there may also exist what they call “significant intergenerational differences” (Dress et al. 2008: 82). It, indeed, seems reasonable to assume that the variation in irony

use and perception is not only synchronic – a function of simultaneously operating social and cultural factors – but also diachronic, undergoing changes in time. At this point, however, yet another potential dimension comes to mind: that of individual differences. Let us proceed to take a closer look at these and see how this new layer completes our picture of the discussed problem.

2.2.6. Irony as a personal phenomenon

On a purely superficial level, the idea that some speakers use irony more often than others can hardly be considered surprising; it seems to be in accord with what people can observe in their daily interactions. And yet, it is not until recently that this intuitive claim has received due scholarly attention (Ivanko et al. 2004: 245).

One of the first studies that explored the link between individual differences and verbal irony has been conducted by Ivanko and colleagues (2004). Drawing on the results of research into social variables influencing the comprehension of irony, the authors wanted to explore the relationship between an individual's personality and the likelihood of their using verbal irony. To do so, Ivanko and colleagues (2004) conducted two experiments which employed tasks that involved the “production, interpretation, and processing” of irony (Ivanko et al. 2004: 248). In the first experiment, the authors tested how a speaker's self-reported use of sarcasm and indirect speech affected his or her understanding and actual use of irony; to achieve this goal, they prepared a special measure: “the sarcasm self-report scale” [henceforth, SSS] (Ivanko et al. 2004: 248).⁶⁸ The results showed that speakers' self-assessed use of sarcasm predicted their actual use of this type of language in a role-playing production task; what is more, self-assessed sarcasm use was also found to be linked to participants' interpretation of critical and complimentary forms of verbal irony (Ivanko et al. 2004: 244). The results of the second experiment, which aimed at finding out how individual differences affect the processing of irony, showed that participants' scores on the SSS were “related to relative processing times for literal and ironic statements” (Ivanko et al. 2004: 263), the nature of this relationship being such that, typically, higher SSS results

⁶⁸ This scale has become a model for further studies, such as Dress and colleagues' (2008), who used the questions from the SSS to obtain participants' self-report data.

were linked to greater processing speed for irony.⁶⁹ Thus, the general conclusion one may draw from Ivanko and colleagues' (2004) findings is that speakers' self-perceived use of sarcasm influences not only their own linguistic output, but also their understanding and perception of the linguistic output of others.

The problem of individual differences in irony use was further investigated by Regel and colleagues (2010), who investigated the issue from an altogether different angle. In their experiment, event-related brain potentials [henceforth, ERPs] were recorded from participants who read short stories ending with either ironic or literal comments made by one of two characters. There were two experimental sessions which differed with regard to the characters' use of irony: in the first one, the ironic speaker uttered 70% of ironic comments (the remaining 30% being uttered by the nonironic speaker), while in the second one, both speakers uttered as many ironic comments as they did literal ones. The authors obtained interesting results concerning the amplitudes of three ERP components: P200, N400, and P600; before reporting these findings, however, let us first provide a brief overview of what these components are and what kinds of neural activity they have been associated with. Thus, P200, or P2, is an early positive peak in electrical brain activity which appears 200 milliseconds after stimulus onset (Kutas et al. 2006). It has been found to be modulated by factors such as contextual constraint, stimulus congruency and anticipation, with greater P2 amplitudes for predictable stimuli (Federmeier et al. 2005; Wlotko and Federmeier 2007). The second of the discussed components, N400, is a negative peak appearing about 400 milliseconds after stimulus onset (Kutas et al. 2006: 667). N400 is believed to reflect "the ease or difficulty of retrieving stored conceptual knowledge associated with a word (or another meaningful stimuli), which is dependent on both the stored representation itself, and the retrieval cues provided by the preceding context" (Kutas et al. 2006: 669). Finally, P600 is a late positive peak appearing between 500-800 milliseconds after stimulus onset (Kutas et al. 2006: 692). P600 has typically been registered to different kinds of linguistic anomalies, such as violations of "subject-verb agreement, verb inflection, case inflection, phrase structure, and higher-level syntactic constraints"; it is not, however, "specific to violations *per se*" (Kutas et al. 2006: 692). Kutas and colleagues (2006: 692) point out that such in-

⁶⁹ The only exception here was the link between the overall SSS sarcasm scores and increased processing times "for ironic statements at the second word in the wrap-up sentence" (Ivanko et al. 2004: 263). While the authors offer several possible explanations for this result, they do admit that their data are insufficient to enable distinction between the available interpretive options (Ivanko et al. 2004: 263).

creased late positivities have been also registered for grammatically correct structures that were either convoluted or had dispreferred syntactic construction.

Regel and colleagues' (2010) ERP findings revealed that where speakers differed with regard to how frequently they used irony, differences were found as early as 200-300 milliseconds after stimulus onset: ERPs for the ironic and the non-ironic speaker seemed to vary not only with respect to distribution, but also as a function of utterance type. In the 300-500 ms latency window, a negativity was observed over frontocentral scalp regions that was greater for the non-ironic speaker (Regel et al. 2010: 124). In the late time window, in turn, a large positivity was registered in reaction to irony, but only for the non-ironic speaker; the corresponding P600 amplitudes as elicited by the utterances of the ironic speaker were similar for both literal and ironic comments. Even more interesting results were obtained in the second experimental session, where speakers who previously differed in their use of irony, now used it equally. As regards P200, the amplitude was greater when utterance type was consistent with the speakers' communicative manner. In the N400 time window, the ERPs for the ironic speaker were less negative for ironic than for literal sentences. Also, the potentials evoked by the non-ironic speaker were somewhat more negative than those evoked by the ironic one. Finally, in the 500-900 ms time window, an irony-related late positivity was registered for the ironic speaker – a pattern of results opposite to what was found in the P600 latency window in Session 1.

The data obtained in Session 1 indicate that participants gained pragmatic knowledge of how likely each of the two speakers was to use irony, and that these differences in the communicative styles of the latter influenced participants' understanding of target statements: "both ironically and literally intended sentences were processed differently depending on who said them" (Regel et al. 2010: 128). Importantly, even though this knowledge was acquired spontaneously, its influence was already apparent at initial stages of comprehension.⁷⁰ In the second experimental session, where the pragmatic information was no longer valid, the impact of speakers' previous communicative styles was still visible in the earliest stages of processing: P200 amplitude was greater for items that were congruent with speakers' formerly established ways of expression (ironic or non-ironic) (Regel et al. 2010: 130). What is more, the results obtained in the P600 latency window demonstrate that the acquired pragmatic information even affected later processing phases: a high posi-

⁷⁰ The experimental task was such that it did not direct participants' attention towards the differences in speakers' irony use.

tivity was registered for irony as uttered by the ironic speaker.⁷¹ It is, then, likely that, once confirmed, information about one's communicative style "set[s] up a reliable cue for potential interpretations of someone's utterances" (Regel et al. 2010: 132). Thus, listeners pay attention to such versatile and highly individualised clues as particular speakers' tendencies to use irony and utilise these subtle signals in language comprehension.

2.3. Irony skills in children

Previous sections point to an important shift that has taken place in irony studies: over the past decades, researchers have managed to go way beyond examining its isolated typical instances. Many factors nowadays considered critical for the processing of irony have been identified as such thanks to scholars' expanding their original fields of inquiry – investigating a variety of ironic utterance types in broadly understood contexts and from multiple perspectives. Among the latter, one is particularly important for the study of irony.

Developmental research, for such is the nature of the empirical study that is at the core of the present work, offers a unique insight into the processes underlying language comprehension. Testing young participants, one can observe which cognitive phenomena are primary and basic, emerging at early stages of development, and which are more advanced, requiring time to be fully operative. Studying how children, whose brain structures involved in language processing are not yet fully matured (Schmithorst et al. 2002, 2005; Nagy et al. 2006; Pujol et al. 2006; Friederici et al. 2011), (mis)understand irony is an effective means of learning how the capacity for this complex type of language develops over time.⁷²

2.3.1. Why expose children to irony? On challenge and opportunity

Having pointed out the main advantage of developmental approach, let us move on to discuss what constitutes one of the most fundamental challenges that researchers of irony

⁷¹ The authors take this finding to reflect the coupled effect of the expected irony-related P600 and the previously acquired knowledge of the speaker's ironic communicative style (Regel et al. 2010: 128).

⁷² There are two major stages of development during which myelination of the language-related brain areas takes place: these are infancy and adolescence (Carpenter 2013: 452).

working within this perspective have to face: “the common parental belief that ironic talk to children is harmful” (Dryer-Seymour and Callanan 2005, as quoted in Recchia et al. 2010: 258). Though this view might appear rather dated, it is one that recurs in lay discourses of child-rearing: “I’d like my daughters to feel comfortable with being literal rather than always going for the cheap laugh” (Lott 2013). The quotation reflects only one aspect of the problem, however, as there is a body of professionals and practitioners who hold the opinion that “grown-ups who use sarcasm with young children risk being misunderstood at best and creating lasting wounds at worst” (Whitson 2011). There are several problems with the discussed view, the main being that it is not scientifically grounded: its apologists consistently fail to refer to research findings which would corroborate the claims as to the alleged harmfulness of sarcasm.

Let us now look at the other side of the problem: even most ardent opponents of irony, be it irony in speech or philosophy of life, unfailingly admit that it constitutes “the ethos of our age” (Wampole 2012). This is obvious to Lott (2013), who goes so far as to call the claim a truism. If this is the case, however, a grave problem emerges for those who have embarked on the mission to fight irony: if one is to function in a contemporary society which is, as all agree, “dripping with irony” (Chin 2011), the individual has to possess the ability to understand this type of language and behaviour. Otherwise, he or she would miss out not only on countless manifestations of modern culture, but also on the fun part of a great many daily interactions with others, as these, too, are not free from irony.

Irony is indeed pervasive, and to such an extent that, over the course of history, people have repeatedly come up with the idea of creating a special punctuation mark which would disclose the author’s ironic intent to the reader. The first such sign that has been documented dates as far back as 1668 (Houston 2013: 212), while among the newest is the so called “SarcMark”, created by an American company in January 2010 (Moore 2010a).⁷³ While any attempt at making the elusive phenomenon of irony explicit by means of punctuation has to spark controversy, one cannot pass over reports such as Moore’s (2010b), who writes for *The Telegraph* about “widespread agreement” that the “SarcMark” “is a good and necessary thing.” Opinions such as the above lend support to the claim that the ability to recognise sarcasm is highly valued in contemporary culture; it is, indeed, the case

⁷³ The symbol looks like a mirror image of a sloppily written “6” with a dot in the middle, a design that has been patented (US patent D608820). The term “SarcMark” is registered as a trademark, and the symbol itself is available for download in a digital format.

that people who fail to grasp sarcastic remarks may be perceived as awkward, if not socially inept.

Apart from the argument that, as John Haiman put it, sarcasm is nowadays “practically the primary language” (after Chin 2011) and therefore one should be able to understand it, there are many other reasons why it makes perfect sense to introduce children to the concept of irony. One of these is that, as has been experimentally confirmed, sarcasm helps improve creative thinking. In a study by Miron-Spektor and colleagues (2011: 1065), participants who observed anger which was communicated by means of sarcasm were better at solving creative problems; also, their complex thinking was enhanced. Furthermore, the authors report that sarcasm “appears to (...) attenuate the otherwise negative effects of anger” (Miron-Spektor et al. 2011: 1072). A similar claim was made over a decade earlier by Haiman (1998), who considers sarcasm to be a means of distancing oneself from the immediate environment, including one’s unwanted emotions – in this way, one can acquire a sense of superiority over the latter and feel more in control.

Finally, research has demonstrated that the ability to understand irony and sarcasm is compromised in a number of clinical conditions, ranging from Autism Spectrum Disorder (Wang et al. 2006b; Persicke et al. 2013), schizophrenia (Rapp et al. 2013) and schizotypy (Langdon and Coltheart 2004; Rapp et al. 2010), through different types of neurodegenerative disease (Rankin et al. 2009; Shany-Ur et al. 2012), including Parkinson’s disease (Monetta et al. 2009) and Alzheimer’s disease, to various types of brain damage, such as right- and left-hemisphere damage (Giora et al. 2000), or traumatic brain injury (Martin and McDonald 2005). If the ability to understand irony is impaired in so many conditions, then monitoring its progress from an early age appears to be a reasonable enterprise, and one which could have important clinical and therapeutic implications.

2.3.2. Sine qua non: Understanding the literal

Scholars investigating the processing of various types of figurative language – especially researchers conducting studies with people belonging to young or clinical populations – seem to be prone to making one tacit presumption: that participants will either exhibit a specific deficit, or at least experience difficulty in understanding nonliteral language. The problem has been raised by Gernsbacher and Pripas-Kapit (2012) in their article on autism,

in which they take issue with the common claim that autistic individuals have a particular figurative language impairment. The authors quote a number of widely ignored studies whose results show clearly that it is participants' language comprehension ability, and not their autistic status, that determines their ability to understand ambiguous expressions. Further, Gernsbacher and Pripas-Kapit (2012) list several well-cited studies whose authors have failed to provide a proper control task checking that their participants' figurative language deficit did not stem from a more general comprehension difficulty – one evident at the literal level already.

There is an important lesson to learn from the above: testing the processing of the various aspects of verbal irony comprehension, one should by no means forget about the apparently not so obvious, more basic level of the literal. Developmental research into irony has been rather lucky in this respect: drawing greatly from pragmatics, it cannot have ignored the long-standing question of the nature of the relation between the ironic and the literal. Checking the comprehension of literal utterances can safely be considered a standard procedure in psychopragmatic developmental research; typically, as much as half of the experimental stimuli are literal fillers, and participants' performance on this kind of stimuli serves as one of the major points of reference for probing the comprehension of irony.

2.3.3. First things first: On context comprehension

In the previous section, checking participants' ability to understand literal language was demonstrated to be a precondition for any empirical attempt at examining irony comprehension. Aiming to explore the problem, one needs to bear in mind one more important issue, however: understanding irony “may not be an ‘all-or-nothing’ phenomenon” (Creusere 1999: 236). Indeed, the processing of ironic utterances has been shown to involve several steps, or aspects which differ in complexity and time required for particular skills to fully develop. It is worth remembering that adulthood, often equalled with this “full development”, does not grant unfailing accuracy in decoding an ironic speaker's intent: in a study by Demorest and colleagues (1984), healthy adults mistook as much as 46% of sar-

castic stimuli for deception.⁷⁴ Before dwelling on the issue of ironic intention recognition, however, let us focus on a skill which operates at a more basic level: the ability to integrate contextual information with that available in the utterance, for in order to understand an ironic comment, the hearer first must “detect the incongruity with the context” (Recchia et al. 2010: 257).

As has been demonstrated in the sections on adult comprehension of irony, a lot of pragmatics-oriented contributions to this issue have revolved around the hearer’s familiarity with the – however broadly understood – context. Accordingly, developmental research cannot have overlooked the importance of this factor. In the current section, we will focus on two related areas. First, we will check how the comprehension of contextual information has (or has not) been addressed in experimental developmental designs. Subsequently, we will analyse several studies aimed at determining the role that contextual cues play in child irony comprehension.

When one reaches for pioneering research into how children process irony, one will find that early studies already included questions probing participants’ appreciation of the context surrounding an ironic remark. Importantly, these questions were there regardless of whether the authors’ goal was to clarify the function of context or learn about other factors. A listener trying to understand why their interlocutor said a particular thing has to consider the circumstances in which the utterance was made, and, accordingly, a researcher investigating such comprehension processes cannot neglect this area. Thus, asking children about what happened in a given scenario has become a matter of good practice in developmental studies of irony. Authors may do this by asking “yes” – “no” (Ackerman 1983; Winner et al. 1987; Capelli et al. 1990; Winner and Leekam 1991; Hancock et al. 2000; Nakassis and Snedeker 2002) or open-ended (Demorest et al. 1984) questions about factual story content. Typically, context probes open a series of questions, but in some experimental designs they come as the second (Capelli et al. 1990) or last (Nakassis and Snedeker 2002) thing to be tested, in which case they may also serve as a memory check. It needs to be noted at this point that the authors of several newer investigations have, somewhat surprisingly, omitted the context probe to a smaller or greater extent. To illustrate, Pexman and colleagues (2005) did not employ a context comprehension question, but a memory measure. In their

⁷⁴ This surprising result may have stemmed from the methodological choices made by the authors; still, it gives testimony to the fact that adults do not always recognise all instances of irony. A more in-depth analysis of the study by Demorest and colleagues (1984) will be performed in section (2.3.6).

study, participants were presented with puppet show scenarios where one character did something and the other commented on it. Before each scenario, participants were informed whether the puppets were friends, strangers, or enemies. After every puppet show, participants were asked six different questions. Interestingly, none of these concerned the immediate situation surrounding the ironic comment. Instead, the authors employed a relationship memory measure, which checked participants' memory of the relationship between the ironic speaker and the addressee of the comment. A different approach was taken by Loukusa and Leinonen (2008). These authors did not probe their participants' knowledge of any aspect of the context, but only asked them to provide an interpretation of speaker meaning and say how they arrived at it – a surprising choice given that the authors' aim was to look into comprehension processes⁷⁵. A similar problem emerges for Pexman and Glenwright's (2007) study into children's understanding of ironic remarks: the authors did not check whether the participants understood the context, and only asked them about speaker belief, attitude and teasing. The lack of context probe may seem a somewhat less controversial issue in the case of three other related studies – by Harris and Pexman (2003), Pexman and colleagues (2005), and by Pexman and Whalen (2010). These investigations did not focus on comprehension per se, but on participants' perceptions of and reactions to irony – and it is known that people can express opinions about phenomena that they do not fully understand.⁷⁶ Thus, participants of the discussed studies would have been able to share their perceptions of the ironic stimuli, regardless of whether they had understood the meanings of the target comments. This claim, however, should not be taken to mean that adding a manipulation check determining whether participants actually understood the depicted situations would not be a valuable improvement to the experimental designs discussed.⁷⁷

Having discussed how context awareness has, or has not, been tested in various studies, let us proceed to report the findings of several investigations that directly addressed

⁷⁵ The authors address this issue indirectly, stating that their probes “were planned to contain information familiar to young children and that discrepancy between the statement and context was clear and thus there was no need to process subtle information about the meaning of the utterance” (Loukusa and Leinonen 2008: 66f.). It seems, then, that the authors have taken it for granted that participants understood the situations depicted in the experimental stimuli.

⁷⁶ Sociological research has demonstrated that, when asked a survey question, people are capable of expressing opinions on issues they have never heard about – including fictitious problems or events (Bishop et al. 1986). Accordingly, people will be able to form an opinion about or react to a given ironic utterance even though they may not understand it.

⁷⁷ The problem of how people perceive irony will be addressed in more detail in section (2.3.7).

the role that contextual cues play in children's comprehension of irony. One of the earliest developmental studies that explicitly focussed on context integration effects was conducted by Ackerman (1982). Among the aims of his investigation was to check how the placement of contextual cues influenced young participants' capacity to combine these cues with those available from the utterance. It turned out that the youngest participants could only be successful in integrating information coming from the two sources when cues pertaining to context immediately followed the ironic expression. It may be the case that such a configuration makes the difference between the status quo and the ironic comment more prominent, helping children recognise the information mismatch (Creusere 1999: 237) – after all, “[t]he more obvious the discrepancy between the apparent facts and the utterance, the likelier the listener is to recognize the sarcasm” (Capelli et al. 1990: 1825).

Another early investigation into the discrepancy issue was conducted by Demorest and colleagues (1983). The researchers tested as many as five types of figurative utterances: sarcasm, metaphor, understatement, hyperbole, and irony, which, apart from the communicative goal they serve, differ with regard to “degree of discrepancy from the truth” (Demorest et al. 1983: 121). It is important to make it clear at this point how the authors differentiated between the phenomena of sarcasm and irony: the former was operationalised as a statement which is contrary to the facts, while the latter as a statement emphasising the “incongruity of an event” (Demorest et al. 1983: 123).⁷⁸ The authors claim that to understand such expressions as those delineated above, one needs to engage in at least two tasks which they called “a logical task” and “a social-cognitive task” (Demorest et al. 1983: 121). For now, we will focus on the first of these, that is, determining that “the truth value of the statement is *discrepant* from the facts of the situation” (Demorest et al. 1983: 121).⁷⁹ The authors assumed that the greater the discrepancy, the more likely it is that children will be “able to explain the utterance in terms of discrepancy” (Demorest et al. 1983: 127). This claim was confirmed in the course of the experiment: the results showed that children were

⁷⁸ The author of the present thesis sees several potential problems with the typology used by Demorest and colleagues (1983), not least because their categories were not mutually exclusive. Further, an inspection of the particular stimuli employed in the experiment raises doubts – for instance, the target ironic comment to a situation in which someone has failed to clean a dirty room runs as follows: “Your room is a mess now after all that cleaning” (Demorest et al. 1983: 123). Demorest and colleagues (1983: 122) posit that their category of irony is “one in which a paradox is underscored” and where “the proposition is both literally true (...) and literally false”, but to the present author, the example above is anything but figurative and, consequently, can by no means be considered ironic in the widely used sense of the term.

⁷⁹ The second task, which consists in “identify[ing] the *communicative purpose* motivating the remark” (Demorest et al. 1983: 121), will be analysed in more detail in section (2.3.6).

most likely to recognise the inconsistency in sarcastic utterances, followed by metaphor, understatement, and hyperbole. Identification of the discrepancy was most difficult in ironic expressions, which becomes less of a surprise given the controversial definition and questionable examples of irony that were employed by the authors.

Another early investigation into the relationship between the ironic comment and “the facts of the situation” (Winner et al. 1987: 29f.) was conducted by Winner and colleagues (1987).⁸⁰ Just as Demorest and colleagues (1983), these authors also assume that it is this relationship that decides how difficult or easy it will be for the hearer to understand a given ironic remark. In their experiment, the researchers studied children’s comprehension of just three types of figurative remarks – all belonging to the irony family: sarcasm, hyperbole, and understatement. As was the case with Demorest and colleagues’ (1983) results, here, too, sarcasm was found to be the easiest to recognise. Winner and collaborators’ (1987: 29) explanation of this finding is that “sarcasm presents the listener with a more blatant violation of truth”, because what is said is the direct opposite of the actual state of affairs; in other utterance types, the discrepancy is less prominent. In the case of understatement, what is said merely underrates the reality: failing to notice the distance between sentence meaning and the situation, children may interpret such messages literally. In hyperbolic utterances, in turn, the reality is magnified: while children are capable of noticing the exaggeration, they are likely to misinterpret comments of this type as deceptive (Winner et al. 1987: 30).

Similar results concerning the comprehension of irony types were obtained in the study by Filippova and Astington (2010). The authors found that understanding hyperbole was more difficult than understanding counterfactual statements. While one reason for this may be that children are less familiar with hyperbole, which is not as common in everyday discourse as, say, sarcasm (Gibbs Jr 2000), it is also likely that the utterance-context discrepancy is more prominent in counterfactuals, urging the hearers to resolve the information mismatch (Filippova and Astington 2010: 924).

⁸⁰ While Winner and colleagues (1987) initially write about the distance between utterance meaning and speaker meaning, in the discussion section of their paper they seem to equate it with the distance between utterance meaning and situational context – or “the facts of the situation” (Winner et al. 1987: 29f.).

2.3.4. It's not context alone: Intonation

In the previous section, we reviewed several studies aimed at determining the role that contextual cues play for child irony comprehension. It needs to be remembered, though, that the context-utterance discrepancy rarely acts as a sole cue for irony; it is so in the case of written texts alone, while in real life situations people, and especially children, hear rather than read irony.⁸¹ Accordingly, the issue of the sound of irony, already introduced in the section on factors influencing irony comprehension, is one that has great relevance for developmental research. The focus of our discussion of this problem will be twofold: we will begin by looking at how empiricists employed intonation in their experimental designs and move on to analyse the results of several developmental studies conducted to probe the role of the ironic tone of voice – be it alone or relative to other cues – for the processes underlying irony comprehension in children.

A great many young participants of developmental studies of irony have not yet fully mastered the ability to read; it should, therefore, come as no surprise that experimentalists tend to decide on auditory presentation of stimuli. Here, two options are available to researchers: they can either play previously recorded audio stimuli or produce the target expressions themselves.⁸² The former option has the advantage of replicability – each participant hears the same delivery of the target string, and testability – before playing the file to children, the experimenters can subject it to multiple pretests and implement improvements whenever necessary. The latter option, in turn, creates a more naturalistic setting and fosters experimenter-participant interaction. The choice between the two possibilities depends on what it exactly is that researchers want to investigate. When the focus is on the processing of irony, recorded stimuli tend to be the preferred option, as can be seen from a number of comprehension studies (Winner and Leekam 1991; Keenan and Quigley 1999; Hancock et al. 2000; Nakassis and Snedeker 2002; Pexman et al. 2006; Pexman and Glenwright 2007; Glenwright and Pexman 2010; Nilsen et al. 2011; Nicholson et al. 2013).⁸³

⁸¹ This is only true for those texts whose authors have not provided other clues for recognising ironic intent; for instance, a writer may describe the body language, facial expression, and intonation of an ironic speaker.

⁸² The stimuli may also be audiovisual, in which case nonverbal cues would also be available. In this discussion, however, we will limit ourselves to the auditory channel.

⁸³ There are comprehension-focussed explorations, though, where the ironic stimuli were read out to participants by the experimenter(s) – such is the case with Filippova and Astington's (2008: 129) study: “[d]uring the administration of the irony task, the experimenter used the same stressed intonation for the ironic utterances across all the participants. Thus, all children received the same prosodic cues.” It seems to the present author that recording the stimuli would have been a better choice than reading these out if participants were to

When the focus is on ironic interaction, in turn, researchers have to employ proper intonation themselves, as in Pexman and Whalen (2010), and remember about the importance of being as consistent across participants as it is possible. Once the choice between recording and reading the stimuli out has been made, another and, perhaps, more fundamental problem needs to be addressed: what is the proper ironic intonation? As has been demonstrated earlier, ironic expressions can be uttered with many different tones of voice; experimentalists working with children have to decide which of these will be the one most suitable for the purposes of their research. The decision will depend on many factors. Certain considerations may be dictated by the demands of a given theoretical framework, if one chooses to work within any of the established theories, but it needs to be remembered that it is one's research question that must be the factor determining the selection of specific experimental tools. Researchers may be after identifying the most facilitative pattern of intonation, in which case they would have to employ several different options, but they may as well be after clarifying the role of Theory of Mind or establishing the age at which the capacity for irony begins to develop.⁸⁴ In the latter case, the major requirement would be that the chosen intonational pattern does not interfere with the intended ironic meaning, so any of the intonational contours traditionally associated with irony should be suitable. The one thing the experimenter would have to make sure is that the employed intonation does not constitute a confounding factor; this is typically assured by pretesting the stimuli with healthy adults. Delivery characterised by exaggerated pitch and drawn-out articulation, broadly tested with young participants (Ackerman 1983; Capelli et al. 1990; de Groot et al. 1995; Nakassis and Snedeker 2002; Glenwright and Pexman 2010), seems to be quite a safe neutral option, and one suitable for researching general irony comprehension ability.

Having discussed methodological issues, let us now focus on what has so far been found concerning the role of the ironic voice for children's comprehension of irony. Even a cursory glance at the relevant literature shows that the topic has been an important research pursuit. Several pioneering developmental studies analysed the interplay of contextual and

be presented with identical intonational cues. While employing recordings is almost unattainable in highly spontaneous, interactionist experimental paradigms where experimenters have little control over participants' responses and reactions, it is not at all problematic in rigid and highly controlled paradigms – and such was Filippova and Astington's (2008).

⁸⁴ Theory of Mind is believed to be “one aspect social cognition [that] sets us apart from other primates” (Gallagher and Frith 2003:77). It has been defined as “[o]ur ability to explain and predict other people's behaviour by attributing to them independent mental states, such as beliefs and desires” (Gallagher and Frith 2003:77). A more detailed description of Theory of Mind will follow section in (2.3.5), whose focus is the problem of speaker belief in irony studies.

intonational cues to find how these two factors influence children's comprehension of ironic utterances. One of the first investigations into this issue was conducted by Ackerman (1983). Ackerman (1983) postulates that the comprehension of ironic utterances takes place in two stages, called "Detection" and "Inference": the first consists in determining whether the literal message is appropriate, while the second is about recognizing speaker intent or utterance function (Ackerman 1983: 488). Having pointed out what Ackerman's (1983) critical concepts are, let us move on to discuss his findings. Ackerman's (1983: 487) results demonstrate that, firstly, "Detection" and "Inference" are autonomous and separable processes in children; secondly, that intonation and context act as distinct cues to these steps, and thirdly, that adults and children differ in how they attain the two stages and utilise contextual and intonational cues to irony. It turned out that, while context discrepancy served as an effective cue for both comprehension phases, stressed intonation was an effective cue for "Inference" only; it may be the case, then, that intonation cues the recognition of speaker intent. A further important finding of Ackerman's (1983) study was that "Inference" turned out to be an especially difficult process for first graders – the youngest children tested; while these participants were relatively apt at rejecting the inappropriate literal option, they found it difficult to interpret the motivation behind uttering an ironic remark. This difficulty seems to decrease with age, as children learn to make better use of intonational cues.

Another investigation that touched upon the role of intonation was the already discussed Winner and colleagues' (1987) study in which the authors probed children's comprehension of various forms of verbal irony.⁸⁵ Here, for the respective target items, sarcasm was uttered with a derisive tone, hyperbole with an emphasized and exaggerated one, while understatement – with a deadpan expression (Winner et al. 1987: 27). Contrary to what the authors hypothesized, the availability of intonational cues did not make it easier for the children to comprehend irony; thus, Winner and colleagues (1987: 31) have concluded that, "at least by age 8", children do not make use of intonation to understand ironic meaning.

Diametrically opposite results concerning the role of intonation for children's processing of irony were obtained by Capelli and colleagues (1990), who also investigated the problem with reference to contextual discrepancy.⁸⁶ The findings showed that children, in contrast to adults, did rather poorly in detecting irony whenever they had to rely on the sole

⁸⁵ Winner and colleagues' (1987) findings were discussed with reference to the role of contextual discrepancy; this analysis was presented in section (2.3.3).

⁸⁶ See the previous footnote.

cue of contextual information: in the case of third-graders, the youngest group tested, the success rate was as low as 14%. While sixth-graders were better than that, they nevertheless failed to recognise sarcasm in about half of the cases. Children's performance was far more satisfactory, however, when intonation was used as a cue to sarcasm. The authors concluded that there may be at least two paths via which hearers can make sense of sarcastic utterances: one relying on context, and the other relying on intonation. In the first case, the hearer has to compare the surface meaning of the utterance to situational context, and if these two do not match, sarcasm is inferred. In the second case, the hearer first takes note of the type of affective information conveyed by intonation; if negative valence is sensed – such as in mocking – then the speaker's intention has to be to insult. The remaining thing the hearer has to do is check the literal sense of the utterance so as to establish which topic is being criticised (Capelli et al. 1990: 1837). This route, not requiring the hearer to perceive the disparity in information from the context and the utterance, seems to be the one more accessible to children, and it may even be – as Capelli and colleagues (1990: 1838) put it – “the only one available to them in many instances.” The authors propose that this fairly basic use of intonation cues may actually be a developmental step on children's way to achieving a more fine-grained understanding of the phenomenon of verbal irony (Capelli et al. 1990: 1838).

Another study that looked at the role of intonation for children's understanding of irony was conducted by Winner and Leekam (1991). The authors hypothesized that mocking intonation could facilitate children's recognition of irony and, especially, ironic attitude which, as the authors posit, has to be negative.⁸⁷ The results did not corroborate the researchers' assumptions, however: in no way did the presence of ironic intonation – characterised by exaggerated stress, nasality, and a somewhat flattened tone (Winner and Leekam 1991: 262) – enhance the children's recognition of the ironic speaker's attitude. What turned out to be crucial for making this acknowledgement was appreciation of the speaker's second-order intention – that is, appreciation of “what the speaker wants the listener to believe” (Winner and Leekam 1991: 259).⁸⁸

⁸⁷ The claim that ironic attitude is invariably negative is somewhat dated; more recent work shows that ironic utterances may convey a wide range of various attitudes. Experimental perspectives on the issue of ironic attitude will be looked at in more detail in section (2.3.7).

⁸⁸ A more in-depth analysis of what second-order beliefs and intentions are and of how important they are for the comprehension of irony will be conducted in sections (2.3.5) and (2.3.6).

Different results concerning the role of intonation for children's comprehension of irony were obtained by Keenan and Quigley (1999). In their experiment, the presence of sarcastic intonation significantly aided the children's appreciation that the ironist wanted to convey a meaning that was opposite to what was exactly uttered (Keenan and Quigley 1999: 90). In the absence of the intonational cue, in turn, the participants were more effective in decoding the ironic meaning when the target utterance was explicitly echoic (Keenan and Quigley 1999: 91). Taken together, these two findings point to an intriguing possibility: it may be the case that "there is a difference in the relative importance of directly perceived cues, e.g., intonation, versus cues which engage more cognitive/inferential strategies, such as echoic mention" (Keenan and Quigley 1999: 92). Indeed, while children seem to make greater use of intonation, adults – privy to the pragmatic possibilities offered by "echoic sarcasm spoken without [salient ironic] intonation" (Keenan and Quigley 1999: 92) – may choose the latter for its greater subtlety.

An interesting empirical exploration of the role of the ironic tone of voice was conducted by Nakassis and Snedeker (2002). Pointing out that the results of studies into this issue have, so far, been inconclusive, the authors note that developmental research into irony has been highly inconsistent with respect to how it defined and operationalised essential categories. To illustrate, while it has been established that ironic meaning can be conveyed with a variety of intonation types, only one of these is typically examined empirically: "a nasal, stressed intonation conveying negative affect" (Nakassis and Snedeker 2002: 4). Thus, the general role of intonation, as well as the effects of using particular tones of voice to convey ironic meaning, remain unknown. Nakassis and Snedeker (2002) designed their study to shed light on these issues. In the course of the experiment, participants were presented with stories in which one character expressed a boast or a self-doubt with regard to some expected activity, and then either succeeded or failed, depending on what the utterance conveyed: "[t]he actual performance of the bragger/self-doubter was always contrary to the expected performance" (Nakassis and Snedeker 2002: 6). What followed was a favourable or unfavourable comment uttered by the second character. Here, the researchers employed both sarcastic utterances and ironic compliments, while the intonation with which these strings were uttered was coded as either positive or negative. Analysed in this way, the data obtained for the two intonation types did not differ significantly; also, no interaction was registered between intonation and context. In subjects analysis, however, and coded in a different way – as "concordant or discordant with the literal meaning" of the

target item (Nakassis and Snedeker 2002: 9) – intonation turned out to be significant for both adults and children. While this was not a very strong effect, the findings obtained by Nakassis and Snedeker (2002) have important implications concerning the very nature of the intonational hint, indicating that it may not be “an absolute cue per se” (Nakassis and Snedeker 2002: 10), but a cue which facilitates the comprehension of ironic meaning relationally: its function can be observed as a coupled effect of “the relationship between the ‘literal’ meaning of the final utterance (...) and the valence (+/-) of the intonation” (Nakassis and Snedeker 2002: 9). Interestingly, the mechanics of the intonational cue may be very similar for children and adults, since the discussed experiment has found no definitive interaction between participants’ age and prosodic features of the target utterances. It seems to be the case, then, that children and adults utilise the cues available in “intonation in the same way to the same degree” (Nakassis and Snedeker 2002: 9).

Among the more recent investigations into the role of intonation for irony processing in children was the experimental work by Glenwright and colleagues (2014). Similarly to Nakassis and Snedeker (2002), these authors also share their methodological concerns as to the research designs employed in earlier developmental explorations of irony, pointing out that empirical paradigms should have been stricter with respect to how they operationalised the ironic tone of voice, and that their assumptions should have been modelled upon the findings obtained with adults. Aiming to fill this gap, Glenwright and collaborators (2014) decided to employ an objective, physical measure of intonation: “the size of speaker’s reduction in mean F0 (small, medium, large) verified by an acoustical analysis” (Glenwright et al. 2014: 474). The obtained results showed that the greater was the intonational contrast between the target utterance and the preceding context, the easier it was for the tested children to grasp the figurative meaning of ironic criticism. Interestingly, and contrary to what the authors expected, a similar effect was registered for the adult group: here, comprehension of irony was better when the pitch of the ironic comment was significantly lower than that of the utterance preceding it (Glenwright et al. 2014: 482). This result demonstrates that salient intonation is a useful cue not only for children, who are just beginning to appreciate ironic meaning, but also for adults, commonly believed to “generally possess a sophisticated understanding of sarcasm” (Glenwright et al. 2014: 481).

2.3.5. The speaker means something else: Speaker belief

One of the skills most crucial for the comprehension of the ironist's actual meaning is the ability to mentalise, that is to make inferences about what people think and believe (Sullivan et al. 1995; Wang et al. 2006a; Nilsen et al. 2011). This “apparently innate and automatic” (Happé 1995: 277) ability to “attribute mental states (thoughts, knowledge, beliefs, emotions, desires) to oneself and others” (Sodian and Kristen 2010: 189) has become known as “Theory of Mind” [henceforth ToM], and its various elements have been widely tested in relation to irony comprehension (Winner and Leekam 1991; Lucariello and Mindolovich 1995; Sullivan et al. 1995; Mo et al. 2008; Monetta et al. 2009; Akimoto et al. 2012; Caillies et al. 2012; Spotorno et al. 2012; Massaro et al. 2013, 2014).⁸⁹ Analysing this bulk of research, though, one needs to bear in mind that authors have not been consistent in how they labelled (and operationalised) the relevant aspects of the discussed phenomenon.⁹⁰ To illustrate, testing the very same component of irony comprehension, some researchers have written about participants' appreciation of speaker belief (Demorest et al. 1984; Winner et al. 1987), others about recognition of speaker meaning (Andrews et al. 1986; Happé 1993), and still others about detection of nonliteral, unstated (Winner et al. 1988), or intended meaning (Banasik 2013). What all these diverse labels capture is a single component of irony processing: the hearer's appreciation that the speaker is not being earnest and means something other than what he or she has actually said.

While a correct judgement of speaker belief does not equal full comprehension of irony, it does seem to be a prerequisite for the latter. A hearer first needs to notice that the ironist holds a belief radically different from what was literally stated to be able to reflect on the speaker's intention in uttering such a comment. In other words, the “why” of irony cannot but follow the “what”; hence, without the “what” being clear, one cannot speak of full understanding.⁹¹ Accordingly, before exploring the core element of irony comprehen-

⁸⁹ The term was coined by Premack and Woodruff (1978) for the purpose of an animal study in which they tested whether chimpanzees were capable of inferring the mental states of a human actor. The name “Theory of Mind” has gained immense popularity in different branches of psychological research, including linguistic and clinical explorations. Still, some authors, such as Happé (1995: 277), have criticised the phrase as evoking “the misleading connotation of a conscious theory” and prefer to use the notion of “mentalising”.

⁹⁰ The practical side of testing first- and second-order ToM ability in relation to irony processing will be discussed in more detail later in the current section, and in section (2.3.6), respectively.

⁹¹ It needs to be pointed out here that there are authors who do not seem to subscribe to this view. In the study by Angeleri and Airenti (2014), for example, participants' responses to the question probing the comprehension of communicative intent were scored as correct whenever the children demonstrated awareness that the target string was nonliteral (either nonliteral alone, or both nonliteral and nonserious). Such operationalization

sion – recognition of the ironic speaker’s intention – researchers first need to check whether their participants notice at all that the speaker privately entertains a belief radically different from the one literally expressed.⁹²

As has already been indicated, experimentalists have done this in different ways. Typically, a question probing the recognition of nonliteralness is asked directly after the presentation of each target string (or after the context probe, if there is such). As regards the linguistic form of this type of question, a speaker belief probe can be either open-ended, as is the case with “What did the speaker mean by saying... /when s/he said...?”, or closed – a forced-choice polar (yes-no) question, such as “Did the speaker mean what s/he said?”. Also, the speaker belief probe may operate at various levels of generality, from very broad, as in the above “Did the speaker mean what s/he said?”, to fairly specific, as in “When X said that Y was a great painter, did X think that Y’s pictures were good or bad?”. It is crucial to remember that whichever question type one chooses to employ, the decision should always be dictated by the demands of the pursued research question. These considerations are of particular importance when one works with young participants. Issues such as attention span, working memory load, priming, participants’ verbal fluency, as well as their active and passive vocabularies should be taken into account and controlled for. Otherwise, these factors could have a confounding effect on the results.

Having shared our methodological concerns, let us move on to see what has so far been found empirically concerning the “nonliteralness” irony component and the development of its recognition in children. A considerable body of research has demonstrated that it is around the age of six that children begin to notice the existence of a discrepancy between what an ironic speaker says and believes (Ackerman 1983; Andrews et al. 1986; Winner and Leekam 1991; de Groot et al. 1995; Dews et al. 1996; Hancock et al. 2000; Nakassis and Snedeker 2002; Harris and Pexman 2003; Pexman and Glenwright 2007; Pexman 2008; Glenwright and Pexman 2010; Nilsen et al. 2011). Experimental studies are fairly consistent with regard to this issue, despite their inevitable methodological differences. Further, this finding is perfectly in line with what is currently known about how the ability to mentalise develops: research has found that children acquire the capacity to at-

of intent recognition is highly problematic, for a mere observation that a person says something other than what they really mean has little to do with identifying their communicative goal which, for example, might have been to deceive the listener.

⁹² A more detailed analysis of the major issues related to the topic of ironic intent recognition will be provided in section (2.3.6).

tribute first-order mental states between the ages of four and five (Perner and Wimmer 1985; Winner and Leekam 1991; Sullivan et al. 1995; Glenwright and Pexman 2010), and that their accomplishment of various tasks measuring first-order ToM skills reaches its ceiling over the age of five (Wellman et al. 2001; Liddle and Nettle 2006: 232). Thus, once a young individual has mastered the ability to attribute first-order mental states to other people, he or she is ready to try to utilise it in order to recognise the true beliefs of an ironic speaker; this recognition is the earliest sign showing that the child's ability to understand irony has begun to develop.

It needs to be pointed out at this point that there are studies in which even younger children demonstrated, more or less convincingly, some understanding of irony. The youngest age group that has so far been tested on irony comprehension were, to the best of the present author's knowledge, children aged between two and a half and three years who participated in the study conducted by Bucciarelli and colleagues (2003). These authors report "a considerable difference" in how the youngest children and children from a slightly older group – aged between 3.6 and 4 years – understood ironic acts (Bucciarelli et al. 2003: 229). While this is an important finding, one can only speculate as to what factors caused this difference, for such considerations were far beyond the scope of Bucciarelli and colleagues' (2003) exploration.⁹³ It needs to be pointed out, however, that – despite having a focus different from the majority of studies discussed here – these authors do appreciate the role that recognition of speaker belief plays in the comprehension of irony: one of the central concepts in Cognitive Pragmatics, the framework within which they work, is shared belief, defined as subjectively viewed mutual knowledge (Bucciarelli et al. 2003: 212). This knowledge is what a given ironic expression is compared to in the process of decoding ironic meaning: "comprehension of irony requires a partner to appreciate the special nature of the shared belief, and to generate a new meaning, overtly contrasting with that belief" (Bucciarelli et al. 2003: 214). Thus, even though Bucciarelli and colleagues (2003) did not explicitly test their young participants' understanding of speaker belief, they did assume that children who succeeded in performing the experimental task must have correctly recognised the shared beliefs in the scenarios.

⁹³ The goal of Bucciarelli and colleagues' (2003: 207) study was to account for the differences in the level of difficulty in comprehending pragmatic phenomena such as "direct, indirect, deceitful, and ironic communicative acts", and not to explore the nature of the processes underlying the comprehension of these acts.

Another study in which very young participants were shown to have some understanding of irony was conducted by Loukusa and Leinonen (2008). Here, several children as young as three were already able to provide a correct answer to an experimental question probing their recognition of ironic speaker meaning; this is early given the finding that the capacity to attribute first-order mental states begins to develop about a year later (Perner and Wimmer 1985; Winner and Leekam 1991; Sullivan et al. 1995; Glenwright and Pexman 2010). Loukusa and Leinonen (2008) speculate that the children's performance could have been aided by their cultural and linguistic background: earlier studies (Ryder and Leinonen 2003; Loukusa et al. 2007) have shown that some Finnish children, in contrast to their English peers, may be able to provide correct answers to implicature questions as early as at three years of age. The issue of whether and how the particular language one speaks could influence their ability to understand irony remains to be explored; there is, however, another explanation that Loukusa and Leinonen (2008: 65) offer, and it seems to be more convincing than the previous one: "[i]t may be that (...) some children get more experience about ironic language from their parents or hear how older children use ironic utterances when talking to each other".⁹⁴ The claim that those familiar with irony understand it better and are more likely to use it has indeed gained ample support, direct and indirect, and both from theoreticians and experimentalists (Carpendale and Lewis 2004; Pexman and Whalen 2010; Recchia et al. 2010; Regel et al. 2010); such facilitative effects of experience with irony have also been shown for children (Pexman et al. 2009).⁹⁵ What is important for the current analysis, even if the unexpected proficiency of some of the three-year-olds tested by Loukusa and Leinonen (2008) stemmed from such individual differences, it remains a fact that these individuals have managed to explain what the ironic speaker of a given scenario meant by uttering the target comment, which is an impressive achievement for children at such young age. The authors of the study interpret this finding as evidence that "some children start to recognize correctly the intent behind verbal irony as early as at the age of 3 and 4" (Loukusa and Leinonen 2008: 65). The author of the present analysis cannot agree with this conclusion, however; I believe that it cannot be determined whether any of Loukusa and Leinonen's (2008) participants was able to correctly

⁹⁴ It is important to note that these two explanations are not mutually exclusive.

⁹⁵ In the study by Pexman and colleagues (2009), children as young as four produced instances of gestural irony. Importantly, their use of irony was not linked to their cognitive capacities or vocabulary spans; it was linked to whether and how other interactants – members of their families – employed irony (Pexman et al. 2009: 237).

attribute ironic intent, because the methodology of the study did not involve a direct measure of this component: the experimental questions only concerned participants' recognition of speaker belief ("What does X mean?") and identification of cues that helped them make this recognition ("How do you know that?").⁹⁶ Hence, the interpretation of Loukusa and Leinonen's (2008) results advanced here is that some children may be capable of appreciating the ironist's belief as early as at about three years of age. As regards appreciation of the ironist's intent, the present author believes that this process entails more complex cognitive operations and postulates that, in order to have tested it, Loukusa and Leinonen (2008) should have gone a step further and asked not only about the actual meaning of the ironist's comment but also about his or her communicative goal in making it – such as in "Why did X say that?". The problems and challenges involved in testing children's performance at this level of processing are discussed in the subsequent section.

2.3.6. Irony, lies and mistakes: Speaker intention

While correct recognition of the ironist's true belief is a prerequisite to a full comprehension of irony, the two phenomena are by no means the same. For the latter to occur, one more cognitive operation needs to take place: the hearer needs to identify the speaker's intention in commenting on a given situation in the particular way chosen. In other words, the hearer has to recognise that the speaker is being ironic – a process which appears to be the most difficult of all that contribute to irony comprehension.⁹⁷ One reason for this difficulty is that, to make such an inference, the hearer has to assign to the speaker "not the thought interpreted by his utterance (a first-order metarepresentation), but a thought about a thought attributed to someone other than the speaker (...) (a second-order metarepresentation)" (Curcó 2000: 269). Since irony entails a higher level of abstraction than do other types of figurative utterances, first-order mentalizing ability cannot be a sufficient comprehension

⁹⁶ To have measured participants' recognition of the speaker's ironic intent, this question should have been phrased along the lines of "What does X mean to do by saying this?" – a wording which primes intention-related responses.

⁹⁷ Numerous authors have written about another difficulty that those exposed to irony are faced with: perceiving the playful side of ironic utterances (Demorest et al. 1984; Dews et al. 1996; Harris and Pexman 2003; Pexman et al. 2005). The present author does not venture upon determining whether recognizing speaker intent is more difficult than recognizing the humour function of irony, the more so as such comparisons are not particularly informative. The issue of how children perceive the attitudes expressed by irony is discussed in more detail in section (2.3.7).

tool. While it does provide the means necessary for the initial stages of irony processing, enabling the recognition of nonliteralness, it does not capacitate the hearer to reflect upon the speaker's communicative intent; for the latter, second-order Theory of Mind is required (Winner and Leekam 1991; Sullivan et al. 1995; Hancock et al. 2000; Pexman and Glenwright 2007; Nilsen et al. 2011; Massaro et al. 2013).

While various tasks have been devised to measure people's general second-order mentalizing ability (Baron-Cohen et al. 1985; Perner and Wimmer 1985; Happé 1993; Doody et al. 1998; Astington et al. 2002; Kaland et al. 2002; Perner et al. 2002; Mo et al. 2008), testing participants' performance at the component of irony comprehension that requires the use of this skill has been quite problematic for experimentalists, largely because of the difficulty of operationalising a phenomenon so subtle and multifarious as speaker intent.⁹⁸ Since researchers have approached the challenge from varying perspectives, their definitions and interpretations of this notion have necessarily been diverse, which – in turn – must have affected experimental paradigms. These methodological differences are one of the reasons why the results of many developmental studies into irony comprehension are inconclusive, if not disparate.

On the approach pursued in the current analysis, as well as in the empirical work following it, the researcher needs to take three steps in order to be able to check whether the hearer can correctly identify the ironist's communicative intent. Firstly, the researcher needs to consider all possible motivations for someone's uttering a comment that – taken literally – belies the truth; secondly, to reduce the many motivations to a manageable (ideally, the smallest possible) number of basic categories, and finally, to create meaningful and succinct, if not self-explanatory, labels for these categories. It is crucial to remember that each of these three steps abounds in potential pitfalls, which means that the experimenter has to be constantly aware of the possibility of making oversimplifications and oversights. An omission made as early as the first step may skew the pattern of data obtained and, consequently, yield an incomplete, if not distorted, picture of the investigated problem. Thus, wanting to make a valid empirical contribution, the experimenter has to watch out for mistakes all along the way. Having pointed to the importance of methodological rigor, let us now proceed to see how developmental researchers of irony approached

⁹⁸ A lot of these tasks have been used to test young (Perner and Wimmer 1985; Astington et al. 2002), as well as clinical or otherwise vulnerable populations, such as individuals with Asperger syndrome (Kaland et al. 2002), autism (Baron-Cohen et al. 1985; Happé 1993), at risk of ADHD (Perner et al. 2002), or those suffering from various psychoses (Doody et al. 1998), including schizophrenia (Mo et al. 2008).

the task of devising experimental designs suitable for testing intent recognition. Our discussion of this problem will be presented in the order of the three steps specified above.

It was as soon as the earliest developmental studies of irony comprehension that researchers tested whether children could detect that a speaker was being intentionally insincere (Ackerman 1981; Demorest et al. 1983, 1984; Andrews et al. 1986; Leekam 1991). Such an operationalization of speaker intent presupposes two options: the speaker is being ironic or wants to deceive the listener. On the other hand, it is also logically possible that a false utterance may be uttered unwittingly – by someone unaware of the untruth; in this case, two further options are conceivable: the speaker knows the facts of the situation, but has been careless, making a slip of the tongue and not noticing this, or the speaker is not familiar with the actual state of the affairs, believing what he or she said was true. The above possibilities are in line with what Andrews and colleagues (1986) have found concerning children’s interpretations of irony: the study has shown that young participants may confuse irony with “other types of literal falsehood – (...) mistakes and lies” (Andrews et al. 1986: 294). This finding indicates how important it is for empirical explorations into comprehension of false remarks to allow for the “mistake” option. Andrews and colleagues (1986: 287f.) were explicit in this respect, as their study employed a forced choice task where participants had to choose from four speaker intent interpretations, one of which was “making a mistake”. It should be noted, however, that the “mistake” option can be included in other types of experimental paradigms, too. To illustrate, researchers may investigate speaker intent recognition by means of a set of open questions, in which case particular configurations of answers would be scored as the previously established interpretations of the ironist’s communicative intention.⁹⁹ An important methodological point needs to be taken up here: in irony studies, just as in studies of any other linguistic phenomenon, the target items need to be interspersed with control items; thus, apart from ironic utterances, researchers employ appropriate fillers. If one wants to go beyond these obligatory elements, experimental design may be expanded with additional categories of target strings.¹⁰⁰

⁹⁹ Such is the case with the study by Demorest and colleagues (1984), who – according to Creusere (1999: 236) – “did not provide subjects with a ‘mistake’ option.” In fact, Demorest and colleagues (1984) probed speaker intent recognition indirectly: their experimental questions were, mostly, open-ended. Participants’ appraisal of the speaker’s communicative goal was measured by collapsing their answers to as many as three test questions that probed story facts, speaker belief and purpose comprehension, respectively. In this way, four possible categories were obtained, one of which – apart from “sincere-correct”, “deceptive”, and “sarcastic” – was “sincere-mistaken” (Demorest et al. 1984: 1529).

¹⁰⁰ This will depend on the scope of the investigation.

Whichever approach one chooses to follow, one needs to remember that plausible speaker intent interpretations need to be created for all types of stimuli, not just the ironic ones, in order to ensure consistent experimental procedure.

Having decided what explanations there might be for someone's uttering a given type of remark, the researcher needs to focus on their exact wording. In the case of forced choice paradigms, he or she would have to create adequate labels for the various motivations – such that could be given to participants as plausible interpretive options. In the case of open-ended questions, in turn, the focus would be on the wording of the particular test questions. Despite the procedural differences, the chosen phrasing needs to be unambiguous, conveying the intended meaning clearly and directly. The importance of clarity cannot be overemphasised here; if the questions asked, or the responses available to the participants are vague, then the results obtained will be anything but accurate.

At this point, the critical issue emerges: what kind of label or wording would capture the essence of ironic intent? This question in fact reflects a more fundamental problem – that of operationalising ironic intent, and in order to answer it, one first needs to consider what communicative goal it is that the ironic speaker wants to achieve. As has already been discussed, the functions of irony are many; the challenge facing the experimenter is to encapsulate them all in a short phrase that not only does not contain the name of the investigated phenomenon, but also has a meaning so transparent that it would be perfectly clear to children. Let us, then, have a look at how researchers have approached this problem. In the study by Andrews and colleagues (1986), participants were considered to attribute ironic intention correctly when the response they chose for the “Speaker Intention Question” was that the speaker was kidding (and not “making a mistake” or “telling a lie”) (Andrews et al. 1986: 286). Filippova and Astington (2008) pursued a different approach; their “Communicative intention” probe took the following form: “Does X want Y to believe that he thinks that?”. While this question is the forced-choice type, only allowing “yes” or “no” responses, it does not provide participants with any labels for, or interpretations of, ironic intent. A question of a similar form was employed almost a quarter of a century earlier by Demorest and colleagues (1984: 1529) in order to “assess understanding of speaker purpose.” In a version of one of their scenarios, a character named Jay got a new haircut, which “was the worst haircut he had ever had”, while the other character, named Mike, commented on it, saying “That new haircut you got looks terrific” (Demorest et al. 1984: 1529). In order to check participant “understanding of speaker purpose”, the authors used the following ques-

tion: “Did Mike want Jay to think his haircut was good or bad?” (Demorest et al. 1984: 1529). Just as was the case with Filippova and Astington’s (2008) study, here, too, only two answers were possible.

The author of the current analysis considers this kind of experimental probe problematic, and this is so for at least two reasons. Firstly, thus formulated and used as a standalone measure, the question is not particularly informative. To illustrate, if a given participant responded that Mike did indeed want Jay to think that the haircut was good, this could be taken to indicate that the participant mistook the target ironic comment for a lie. There is also an alternative explanation, however: it is possible that Mike missed the facts of the situation, in which case his utterance would still be deliberate, but erroneous. Thus, one and the same response given by the participant could mean two very different things. Interestingly, the situation would not be any better if the participant chose the opposite answer – that Mike wanted Jay to believe that the haircut was bad, because this response also allows two possible interpretations: it could be taken to demonstrate that the participant correctly recognised Mike’s ironic intent, but it could also mean that the participant misunderstood the irony, taking it for a careless mistake, such as a slip of the tongue. Thus, each of the two answers that are available to the participant has two fairly different interpretive options. Hence, if questions of the discussed type are to have explanatory value, they need to be accompanied by and analysed together with other comprehension indices. For instance, in the Demorest et al. (1984) study, the speaker purpose probe was not an isolated measure, but – quite rightly so – constituted just one of three questions, the answers to which were collapsed in order to yield a more detailed interpretation of the speaker’s communicative goal. On the approach pursued by Filippova and Astington (2008), in turn, the discussed forced-choice “Communicative intention” question (“Does X want Y to believe that he thinks that?”) was followed by an open-ended “Motivation/Attitude” question of the following form: “Why did X say that?”. Let us illustrate this with an example scenario. In one of the authors’ irony stories, Robert, who is “a new player on his school’s soccer team”, “misses the chance to score several easy goals” during his very first game, and his best friend, Oliver, who is also a player on the team, says to him “You sure ARE a GREAT scorer!” Filippova and Astington (2008: 137). The correct answer to the “Communicative intention” question (“Does Oliver want Robert to believe that he thinks that?”) was “no”. What followed was an open-ended “Motivation/Attitude” question: “Why did he say that?”. Here, participants’ responses were divided into five groups, each of which was assigned a

value on a scale ranging from 0 to 4, depending on their levels of cognitive complexity. The most basic answers, such as “he said it by accident”, or “I don’t know”, were scored 0 and labelled by the authors as “inappropriate justifications”. Responses such as “because he was bad, disappointed” belonged to the category of “simple surface-level justifications”, which were scored 1. Responses involving “identification of the speaker’s first-order intention”, such as “he wanted him not to do it again”, were scored 2, while those involving “identification of (...) second-order intention”, such as “to blame, criticise, make him feel bad” were scored 3. Finally, responses such as “he was being funny, teasing, joking” were considered by the authors as the most complex because they involved “identification of an attitude”; these were assigned the maximum score of 4 (Filippova and Astington 2008: 130, 138).¹⁰¹ While Filippova and Astington (2008) later rescored the answers obtained to the “Motivation/ Attitude” probe to a more basic, three-element scale based on Happé (1994), the question was nevertheless crucial for providing the authors with more detailed insight into how their young participants interpreted the communicative purpose of an ironist.¹⁰² The necessity to employ additional, clarifying probes shows that forced-choice intent questions of the type used by Filippova and Astington (2008) and, earlier, Demorest and colleagues (1984) may not be particularly effective. This is not their only limitation, however; another and, perhaps, more important problem is that this kind of probe is necessarily complex – both syntactically and cognitively. The issue has been addressed by Winner and colleagues (1987: 16), who point out that questions compelling participants to ponder the be-

¹⁰¹ Filippova and Astington (2008: 132) claim that “the sophistication of an understanding of the speaker’s motivation to use irony, reflected by the highest score (...), is an indication of a more complex aspect of understanding others’ minds.” The author of the present analysis has two reservations here. Firstly, Filippova and Astington’s (2008) very coding of the answers seems arbitrary: for instance, a response such as “[s]/he was being (...) mean” is considered to be a “simple surface-level justification” (scored 1), and not one involving “identification of an attitude” (scored 4). Secondly, these authors seem to have missed the point that sophistication of understanding does not have to go hand in hand with sophistication of expression – in other words, participants’ choice of vocabulary may have understated the complexity of the mentalising processes involved in the task. To illustrate the claim with Filippova and Astington’s (2008: 138) coding scheme examples, why would an explanation such as “[s/he was] emphasizing” (“identification of an attitude”, scored 4) be indicative of more sophisticated ToM than “[s/he wanted to] make him/her feel (...) bad about what s/he did” (“identification of the speaker’s second-order intention”, scored 3) or “[s]/he was (...) disappointed” (considered by the authors to be a “simple surface-level justification”, and scored only 1)? To the present author, all three answers may have been dictated by equally complex mentalising processes.

¹⁰² Filippova and Astington’s (2008: 130) motivation for this decision was that some of the previously established categories had little representation in the actual responses obtained. Thus, the new groups were three: “inappropriate responses”, responses making “appropriate reference to a story fact that had reference for the second-order reasoning”, and responses “reflecting the second-order reasoning”, and were scored 0, 1, and 2, respectively (Filippova and Astington 2008: 130). To the present author, this coding scheme has the advantage of being if not unarbitrary, then far less prone to individual determination of item assignment.

belief states of the speaker are inherently difficult, and hence a child's failure to provide a correct answer may have been caused by the complicatedness of the question, and not by his or her not having understood the target expression. Winner and colleagues (1987) tested this claim in two experimental conditions: situation condition and story condition. In the first of these, participants witnessed live interactions between two experimenters, while in the second they were read out stories describing interactions which paralleled those from the situation condition. The key feature differentiating the two conditions were memory demands, minimised in the situation condition, where the setting was true to life and reflected the natural circumstances in which children are likely to come across sarcastic, deceptive or erroneous utterances (Winner et al. 1987: 20). In both experimental conditions, participants' understanding of the target expressions was tested using two different measures. The first of these encompassed three questions designed to probe the recognition of truth, speaker belief, and literalness. The form of the questions was similar to that employed by Demorest and colleagues (1984): they were forced-choice and rather complicated, such as "Did X want Y to think he had (...) or not?". The second measure was of a different kind: here, participants were simply supposed to decide whether the speaker in each target string was "teasing", "making a mistake" or "lying" (Winner et al. 1987: 21). The results obtained by Winner and colleagues (1987) were that while – contrary to what was hypothesized – participants' overall scores were not higher for Measure 2 than for Measure 1, a large difference between the scores was observed in the story condition (Winner et al. 1987: 22, 24). This finding indicates that traditional questions about conversational maxims, such as those used in Measure 1, may underrepresent participants' comprehension if incorporated into a high-memory-demand paradigm, and is particularly relevant to the current analysis, as the bulk of developmental research into irony has used either read out or pre-recorded scenarios.¹⁰³ Thus, it is critically important that the researcher be aware of the limitations inherent in various research formats; this awareness is prerequisite to both de-

¹⁰³ Although an experimental setting where participants witness actual interactions instead of listening to scenarios has the advantage of ecological validity, it is not a setting that is free from limitations. The present author has two reservations to how Winner and colleagues (1987) designed this condition. Firstly, a situation in which children watch as the experimenter, an adult person in authority, lies to another and does not get criticised for such behaviour, is highly unpedagogical, which may raise concerns as to the ethics of this kind of experimental environment. Secondly, it seems unrealistic to expect that children would be at ease when they were supposed to say outright that one of the experimenters was lying – all the more so when this person was still in the room; to some of the young participants, such conduct might be short of challenging the authority of an adult. Responses provided by children who are discomforted by a stress-inducing experimental setting appear to be prone to bias.

signing new experimental procedures and analysing the results of studies that have already been conducted. The issue is of even greater significance for those research areas which – just as the one under discussion – are “characterised by discrepant findings” (Creusere 1999: 233); sensitivity to methodological differences may be the key to resolving at least some of the inconsistencies.

Having pointed to the importance of methodological awareness, let us now briefly summarise what has so far been found concerning children’s ability to reflect upon the communicative intention of an ironic speaker, and to locate this component within a broader frame of acquisition sequence of the steps involved in irony processing. On the approach pursued in this analysis, based on a sound body of research that has been conducted into the issue, speaker intent recognition is considered the most critical of all the processes implicated in understanding irony; thus, to say that someone has understood an ironic utterance means that they have acknowledged the speaker’s ironic intent. The preceding cognitive operations – noticing the discrepancy between the real state of affairs and the state of affairs as referenced in the ironic utterance, and, further, understanding that the speaker is being nonliteral (i.e., believes something else than what has literally been uttered) – are two preconditions for identifying the speaker’s communicative goal, but they are not sufficient for the comprehension process to be complete. To illustrate, a false statement is discrepant with reality just as irony is; moreover, here, too, the speaker says something other than what he or she believes. A further step is needed if one is to distinguish an ironic from a false remark: one needs to consider the speaker’s communicative intention in uttering the comment.

As regards the developmental dynamics of these comprehension processes, it has already been stated that it is around the age of 6 that children begin to realize that the ironist does not believe what he or she has said (Ackerman 1983; Andrews et al. 1986; Winner and Leekam 1991; de Groot et al. 1995; Dews et al. 1996; Hancock et al. 2000; Nakassis and Snedeker 2002; Harris and Pexman 2003; Pexman and Glenwright 2007; Pexman 2008; Glenwright and Pexman 2010; Nilsen et al. 2011). This finding has been demonstrated to correspond with that concerning the full competence of children as young as five in performing various tasks measuring their first-order mentalising ability (Wellman et al. 2001; Liddle and Nettle 2006). This correspondence is by no means accidental: in order to recognise the ironic speaker’s actual belief and detect nonliteralness in his or her utterance, one needs to engage in mentalising. Even more advanced ToM ability is necessary for identify-

ing ironic intent; thus, it is at a later age – between six and eight years – that children begin to develop the ability to distinguish between ironic jokes and other types of literally false utterances, such as lies (Winner et al. 1987; Winner 1988). To correctly recognise ironic intent, it is not sufficient to observe that what the speaker says and believes are two different things; one needs to go a step further and reflect on what the speaker knows about the listener’s knowledge state, or what the speaker wants the listener to believe – either way, one needs to make a second-order attribution (Curcó 2000: 269). One of the experiments designed to explore the nature of such metarepresentations has been conducted by Sullivan and colleagues (1995). These authors differentiate between two types of attributions: attributions of (false) belief and attributions of ignorance.¹⁰⁴ The former refer to the speaker’s precise representation of the listener’s (incorrect) belief, while the latter – to the speaker’s knowledge that the listener is not aware of the actual state of affairs.¹⁰⁵ Sullivan et al. (1995) found that the ability to attribute second-order ignorance already enabled their young participants to distinguish ironic jokes from lies, which means that the children did not need to possess the ability to attribute second-order false belief¹⁰⁶. This is in line with what Hogrefe and colleagues (1986) have found concerning the temporal dynamics of children’s developing ability to make these two types of second-order attributions: emergence of ignorance attributions preceded that of belief attributions by two years. The importance of the former process for recognising ironic intent becomes apparent if one takes into consideration Sullivan and colleagues’ (1995: 202) argument that “the liar need not have a representation of what the listener actually believes, but need only believe that the listener does not know the truth.” The centrality of listener knowledge for the hearer’s interpretation of irony has been further explored by Nilsen and colleagues (2011).¹⁰⁷ The novelty of their exploration lies in employing a third-person task, in which participants had to be able

¹⁰⁴ And so do several other authors, including Leekam (1991).

¹⁰⁵ It should be noted that the author of the present analysis does not make this differentiation in her work and uses the term “second-order belief” in the broad sense of a general second-order mental state, as many recent explorations have done (Glenwright and Pexman 2010; Nilsen et al. 2011; Massaro et al. 2013).

¹⁰⁶ Sullivan and colleagues (1995) admit that there are other studies into this issue that have yielded different results. For example, in the study by Leekam (1991), children’s ability to provide a correct answer to a second-order belief probe preceded their ability to distinguish lies from jokes. The authors claim that this discrepancy may stem from methodological differences in “what counted as a second-order belief question” (Sullivan et al. 1995: 202) – that is, in how the two explorations tested participants’ ability to attribute second-order belief.

¹⁰⁷ While the term “listener knowledge” does not employ ToM-related vocabulary, it needs to be pointed out that any attempt made by the speaker to identify what the listener does and does not know necessarily entails making knowledge state attributions.

to perceive their own knowledge of the situational context as distinct from that of a less informed recipient of the target expression in each of the analysed scenarios (Nilsen et al. 2011: 379). Such a task imposes high processing demands on participants, as it entails acting against a “fundamental bias in social cognition (...) – being biased by one’s own knowledge when trying to appreciate a more naïve perspective”, a phenomenon that has been referred to as “the curse of knowledge” (Birch 2005: 25). Thus devised experimental task turned out to be especially challenging for the youngest participants tested by Nilsen et al. (2011): children aged between six and seven. While they demonstrated some sensitivity to the information available from the context, they nevertheless had difficulty understanding the target ironic comments: their answers “reflected interpretations of ironic criticisms that were more similar to literal compliments than to literal criticisms” (Nilsen et al. 2011: 402). What is more, when asked about the listener’s understanding of the target utterances, children belonging to this age group did not make use of listener knowledge. Very different results were obtained with a group of older children: eight- to ten-year-olds, whose responses already revealed a dawning sensitivity to the listener’s knowledge state. It was only in the oldest group tested, however, that the ability to utilise listener knowledge was found to be refined: adults demonstrated a sophisticated understanding of listeners’ interpretations of ironic intent. The results obtained by Nilsen and colleagues (2011), apart from illustrating the developmental dynamics of the ability to make sense of ironic intention, clarify the issue of the relationship between irony comprehension and mentalising. In the study, children endowed with a more advanced mentalising ability as indexed by their performance on a second-order false belief task, exhibited not only higher proficiency in understanding irony, but also greater flexibility in their appraisal of how other people would understand irony (Nilsen et al. 2011: 405).

A different kind of experimental evidence on the link between intent recognition and mentalising has been provided by Wang and colleagues (2006a), whose study was “the first (...) to examine the neural correlates of interpreting communicative intent in adults and children using irony comprehension as a test case” (Wang et al. 2006a: 119). In the experiment, participants’ brain activity was being scanned using functional magnetic resonance imaging as they were performing a simple irony comprehension task. They listened to short, recorded scenarios about children engaged in a given task and were at the same time shown cartoon sketches of the described situation. The vignettes always ended with one character making a comment that was potentially ironic, such as “Way to go!”. Uttered

to a character who has just accidentally knocked down a tower that they were building, this comment would be sarcastic. However, uttered to someone who has just finished building the tower, the very same comment would be sincere. After each such scenario, participants were supposed to determine “whether the speaker really meant what he or she said” (Wang et al. 2006a: 109). While at first glance this experimental question seems to probe the recognition of speaker belief rather than intent, it needs to be added that the task instructions specified that a “no” answer would mean that “the final remark was sarcastic and that the speaker meant the opposite of what he or she said” (Wang et al. 2006a: 109); thus, participants’ choosing of the negative answer would indicate both their detection of the speaker’s nonliteralness and their recognition of his or her intention to be sarcastic. What is interesting, Wang and colleagues’ (2006a) task turned out to be relatively easy for the children tested: no significant difference was found between their performance and the performance of adults.¹⁰⁸ Moreover, no reliable difference in response latency was registered between the two groups. However, major differences were observed in the patterns of neural activity of children and adults. For one thing, children’s activation of prefrontal regions – the medial prefrontal cortex and left inferior frontal gyrus – was stronger than adults’; the authors claim that this reliance on prefrontal brain areas may help children consolidate the many cues available to resolve the inconsistency between the surface and the actual meaning of a given ironic remark (Wang et al. 2006a: 107, 119). As regards the regions that adults activated more strongly than children did, these were the fusiform gyrus, extrastriate areas and the amygdala – regions which have been reported to play a significant part in the processing of facial emotions (Wojciulik et al. 1998; Vuilleumier et al. 2001). Wang and colleagues’ (2006a) explanation for this finding is that when processing irony, adults may make greater use of facial cues than children do. Further, the authors claim that the developmental shift they have observed – a transition from children’s dependence on frontal areas to adults’ reliance on posterior occipitotemporal brain regions – may be indicative of a progressing “automatization of basic reasoning about [other people’s] mental states” (Wang et al. 2006a: 107, 119). Taken together, these findings offer a unique insight into the neural circuitry underlying humans’ developing ability to recognise ironic intent. They vividly demonstrate that what seems to be the same effect – a comparable proficiency at irony un-

¹⁰⁸ It needs to be remembered that – as is typically the case with fMRI studies – the exploration by Wang and colleagues (2006a) had a limited number of participants: there were only twelve people in each of the two groups tested. Further, the age range of the child group was wide, encompassing ages from 9 to 14 years.

derstanding, accomplished at a similar speed and with almost identical accuracy – may actually have very different brain correlates.

2.3.7. Nice or mean? Speaker attitude

Having discussed the mechanics of the three major steps in irony processing: context comprehension, speaker belief detection and recognition of speaker intention, we need to take a closer look at one more fundamental problem – that of speaker attitude. The issue is highly controversial, for empiricists have been making diverse assumptions concerning not only the nature of the attitude held by the ironic speaker (Creusere 1999: 238), but, above all, the very role that attitude recognition plays for comprehension processes. Such theoretical considerations have necessarily influenced the actual shapes of experimental designs and, consequently, the results obtained, together with their particular interpretations.

The earliest developmental studies of irony tended to treat attitude recognition as a distinct and separable component of irony comprehension. A good example here is the study by Andrews and colleagues (1986), who claimed that children needed to perceive the ironic speaker's attitude as negative if they were to be credited with a mature, fully developed ability to understand ironic utterances (Creusere 1999: 238). On these authors' account, the processing of every ironic utterance has to entail a separate step whereby the hearer evaluates the speaker's attitude; more than that, if the attitude is not interpreted as negative, this means that the hearer has missed the ironic meaning. Andrews and colleagues' (1986) approach seems to be problematic for one fundamental reason: more recent research has repeatedly demonstrated that the ironist does not always hold a negative attitude towards the object of irony (Dews et al. 2007; Kumon-Nakamura et al. 2007). As has already been discussed in Chapter 1, irony can serve many and multiple communicative goals, including social bonding (Dews et al. [1995a] 2007; Boxer and Cortés-Conde 1997; Partington 2007; Dynel 2008) and humour (Kreuz and Glucksberg 1989; Littman and Mey 1991; Norrick 1993; Kumon-Nakamura et al. [1995] 2007; Jorgensen 1996; Attardo 2001; Hirsch 2011; Dynel 2013), both of which quite definitely are positive phenomena. Accordingly, hearers who have correctly identified the ironic speaker's intent may gauge his or her

attitude as positive, and such a perception of this attitude can by no means be taken to mean that they have failed to grasp the actual meaning of the ironic utterance.¹⁰⁹

While Andrews and colleagues' (1986) restrictive, if not simplistic, view of ironic attitude does not seem to promote the viability of attitude recognition as a comprehension measure, this does not mean that attitudinal judgements cannot be employed experimentally to index whether and how people understand a given aspect of ironic meaning. Valuation, found to be both an automatic and inevitable brain activity (Ferguson and Zayas 2009; Lebreton et al. 2009), bears upon people's processing of all elements of their surrounding environment; accordingly, it makes sense to postulate that it also bears upon their processing of irony. This is indeed the case, and to a greater degree than one may have suspected: recent interdisciplinary research has demonstrated that affective valence plays a pivotal role in irony comprehension (Bromberek-Dyzman 2014, 2015). If the factor is of such significance, then it is highly recommendable to take it into account when designing one's experimental paradigm. If this is to be done effectively, in turn, it is critically important for the researcher to give full credit to the complexity of this phenomenon. As it is a dichotomy (Barbe 1995) – “a clash between contents” (Garmendia 2014: 642) – that lies at the very heart of irony, the ironic attitude cannot be homogeneous or single-faceted; it is to the contrary, the sentiments expressed by the ironic speaker are inherently and inevitably ambiguous (Bromberek-Dyzman 2014, 2015). An experimenter wishing to make a valid contribution to the relevant research area must embrace this complexity – such an approach is necessary if the results are to yield a comprehensive picture of the studied problem. In accordance with this, the findings obtained by Andrews and colleagues (1986), whose study acknowledged but one element of ironic attitude, can only provide a fragmentary portrayal of this phenomenon; to be more precise, in consequence of these authors' restrictive operationalisation of ironic attitude, their data can be taken to indicate what participants thought of a given target utterance rather than whether they correctly understood it.¹¹⁰

¹⁰⁹ Interestingly, as Creusere (1999: 238) points out, Andrews and colleagues (1986) have been inconsistent in what they claimed about the nature of the ironist's attitude and how they actually tested hearers' recognition of this attitude in their study: “the authors did not reconcile the fact that they scored some positive attitude responses as appropriate, yet asserted that recognition of negative attitude underlying irony is a crucial component in understanding the speech act.”

¹¹⁰ The conclusion that Andrews and colleagues (1986: 297) drew as to the role that speaker attitude recognition plays for irony processing was that it is “neither necessary nor sufficient for comprehension of irony.” This finding, however, did not preclude the authors from maintaining at the same time that “comprehension of irony which does not include comprehension of the speaker's negative attitude remains incomplete” (Andrews et al. 1986: 297) – a claim that clearly contradicts the former one. It seems that the inconsistencies in Andrews and colleagues' (1986) assumptions and findings could be reconciled if these researchers broadened

Andrews and colleagues' (1986) is not an isolated problem; a lot of comprehension-oriented research into irony has utilised speaker attitude recognition in a way similar to theirs.¹¹¹ For example, a related methodological issue emerges for the study conducted by Winner and Leekam (1991). Here, participants were presented with two short stories about a boy who failed to clean his room. In both stories, the boy wanted to play with his older brother, and the boys' mum asked both of them to clean their rooms first. While the older brother did that, the younger one forgot about it. In one story, the mother sent the older brother upstairs to check the younger brother's room, while in the other story she went upstairs with the older brother in order to check the room. Both stories ended in the older brother telling the mother that the younger brother "did a great job cleaning up". In the first scenario this comment was intended as a lie, as the mother could not have known about the mess. In the second scenario, however, the utterance was meant as an ironic comment, as the mother was well aware of the facts of the situation. Once the stories were presented, participants were shown two pictures related to each story and were asked two comprehension questions: a second-order intention question, and an attitude question. In the former question, participants were supposed to point to a picture depicting the story in which the older brother did (or did not) want the mother to know about the mess in the younger brother's room. In the latter question, in turn, participants were asked to point to a picture depicting the story in which the older brother was being nice (or mean) to his younger brother. In the ironic scenario, answers to the "attitude" question were coded as correct only when participants decided that the older brother was "being mean" (as opposed to "being nice", the expected attitude of a white liar). Interestingly, as the authors note, the results they obtained on the attitude score differed depending on how the target question was phrased: "when children were asked which brother was being nice, they were able to select the white liar 73

their restrictive view of ironic attitude and appreciated that it was dichotomy rather than "the negative tone" that was the feature "underlying all forms of irony" (Andrews et al. 1986: 297).

¹¹¹ Among the notable exceptions are the explorations by Bromberek-Dyzman, who not only repeatedly emphasised that ironic utterances were inherently ambiguous (Bromberek-Dyzman 2012, 2014, 2015), but also managed to employ attitude recognition as a viable comprehension measure (Bromberek-Dyzman et al. 2010; Bromberek-Dyzman 2014). This was achieved by asking participants whether the speaker made a "favourable" or "unfavourable" comment, instead of asking them whether he or she was being "nice" or "mean". A target question thus phrased has two major advantages. Firstly, it probes the perception of the comment and not of the speaker – after all, not all people who express criticism are necessarily mean. Secondly, the employed labels are umbrella terms, general enough to capture the correct responses that narrower options might have missed: for instance, the category of "mean" might have been too directly negative to be chosen by those participants who perceived ironic comments as jocular and found them entertaining. Such participants would not be likely to choose the other available option either, because "nice" is not an attitude that has particularly salient associations with irony.

per cent of the time. But when they were asked which brother was being mean, they only selected the ironic brother 31 per cent of the time” (Winner and Leekam 1991: 266f.). The authors claim that a possible explanation may be what Kohlberg (1969) called “the ‘good boy’ mentality” (Winner and Leekam 1991: 267), whereby children are unwilling to ascribe negative motivations to other people. Compelling though this line of reasoning may seem, there is an alternative and, possibly, simpler explanation: “mean” may not be the most salient of the attitudes expressible by irony, and it is by no means the only such.

If this is the case, then perhaps developmental researchers should look at the problem of ironic attitude from an altogether different angle and stop making the a priori assumption that those who do not consider irony mean must have missed its true meaning. It seems to the present author that the results of the experimental endeavours which do not subscribe to the restrictive, necessarily negative view of ironic attitude, have considerably broadened our understanding of the mechanics of irony.

To illustrate, there is a considerable body of research centred around exploring what it is that people actually mean when they label an attitude as ironic. These studies investigate how people perceive the functions of irony and how they understand ironic attitude (Long and Kreuz 1991; Dews et al. [1995a] 2007; Dews and Winner 1995; Dews et al. 1996; Harris and Pexman 2003; Pexman et al. 2005). It is important to note that such experimental designs do not always check participants’ comprehension of irony; when they do, they may demonstrate how ironic utterances are perceived by those who have managed to understand them. On the other hand, when perception data are analysed in isolation, without a comprehension check, they may reveal how risky a figure of speech irony is – and it is this approach that seems to be the one more true to the reality of our everyday interactions: speaking to the people we meet on a daily basis, we do not make sure that they have correctly understood our communicative intentions in uttering a particular phrase or expression.¹¹² When we make an ironic comment, we do so, hoping that some of our interlocutors – at least those whom we consider to be members of our informal social group – will understand it and share our laughter (Dynel 2008: 257). It is only in special circumstances, such as when irony has fallen flat or been misunderstood, that we may decide to check with our hearer(s) upon which part of the intended message has been misconstrued.

¹¹² Interestingly, as has been found by Eisterhold and colleagues (2006: 1240), “the majority of ironical utterances go unacknowledged.”

Having shared our methodological considerations, let us now proceed to see what has so far been found concerning how children perceive the ironic speaker's attitude. It is important to note at this point that a lot of what we know on the matter has been acquired indirectly: where open-ended attitude questions would be the most welcome choice, experimenters tended to employ forced-choice tasks where participants had to rate their perceptions on two to three continua – such as from nice to mean, from funny to serious, and, sometimes, from teasing to real (as in Pexman et al. 2005) – or even to choose between the end points of these scales, a yet more restrictive method. Still, taken together, such data provide a valuable insight into how young individuals view ironic utterances. It is generally agreed that “[c]hildren’s appreciation of the social functions of irony unfolds during a long period between middle and late childhood” (Nilsen et al. 2011: 376). Importantly, the recognition of two main such functions – to criticize and to entertain – does not seem to be equally complex: appreciation of one does not entail, and neither does it implicate, the appreciation of the other. Research findings indicate that, to children, the ironic speaker is predominantly mean (Dews et al. 1996; Harris and Pexman 2003; Pexman et al. 2005; Nilsen et al. 2011), which may be taken to reflect these participants’ recognition of irony’s critical function.¹¹³ Things are far more complex with recognition of the humour function, as there is a disagreement among researchers as to the age at which this skill begins to develop. Typically developing five- and six-year-olds would not consider an ironic comment funny (Pexman et al. 2005; Nilsen et al. 2011); according to some authors, such interpretations could begin to appear in the responses of 7- to 9-year-olds (Dews et al. 1996; Harris and Pexman 2003; Pexman et al. 2005; Nilsen et al. 2011), but there are researchers who claim that the skill is not yet fully developed in teenagers (Demorest et al. 1984). Overall, research indicates that irony’s function to criticize is more salient to children; when asked (in a more or less veiled way) about the attitude of the ironic speaker, they tend to choose the “mean” option (Nilsen et al. 2011). Analysing these findings, one needs to remember two things, though: firstly, the stimuli used in developmental research have overwhelmingly been sarcastic – and therefore negative – utterances, a highly conspicuous feature which must have biased the obtained results; secondly, there are authors such as Garmendia

¹¹³ One needs to remember that this may be so because the “mean” – “nice” opposition underlay the majority of developmental attitude recognition paradigms – hence, this finding may be an artefact of the methodologies employed.

(2010), who consider all irony to be critical, in view of which the pattern of intuitions exhibited by children is precisely what one would anticipate.

2.4. What we do not know: Directions for future research

Having analysed what has so far been found concerning children's comprehension and perception of irony, one may reach the sad conclusion that not only is our picture of these problems somewhat lacking in unity, but it is also not clear enough to bring out the much-needed details. The research field is indeed "characterised by discrepant findings" (Creusere 1999: 233); one should not forget, however, that much of the current disagreement stems from basic methodological differences in how the various researchers defined and operationalised their critical concepts. Thus, it seems that, whenever discussing relevant empirical findings, the researcher should always consider how the methodological choices influenced the obtained data. Sensitivity to these considerations is of paramount importance if contentious issues are to be properly addressed and resolved; accordingly, conducting a detailed scrutiny of previously used methodologies should be the step preceding any attempt at designing one's own exploration of a given research topic. And the questions to answer are many.

The most fundamental issue that needs further exploration seems to be the developmental dynamics of how children acquire the particular components of irony understanding. Here, empirical designs are needed which employ precise definitions of the critical concepts and which have employed a rigorous methodology – such that precludes the possibility of merging distinct phenomena into a single category. This is of particular importance given the inconclusive results of some of the earlier studies into this problem: comprehension data obtained in experiments which did not test participants' understanding of the context or did not differentiate between their recognition of speaker belief, intent, and attitude, cannot be subjected to a definitive interpretation. Hence, more rigorous paradigms need to be employed in order to yield a more complete picture of these problems.

Another issue that needs more attention from developmental researchers is children's comprehension of various forms of irony. While some earlier studies tested how young participants understood ironic criticism as well as praise (Hancock et al. 2000), or how their performance on a comprehension task differed relative to the kind of ironic or

otherwise figurative stimulus presented (Demorest et al. 1983; Winner et al. 1987; Filipova and Astington 2010), empirical works employing fine-grained categorisations of irony – such that have mutually exclusive elements – are still lacking.

Yet another research area that needs to be addressed more comprehensively than has so far been done is children’s perceptions of irony. It seems to the present author that paradigms which go beyond the traditional “mean” – “nice” opposition would be instrumental in broadening our knowledge of young individuals’ appraisal of the attitudes expressible by irony. Such studies could shed a new light on how children view the communicative goals of the ironic speaker, as well as on what they actually mean when they label an utterance as ironic. These findings would be of particular importance given irony’s undeservedly dark reputation as evidenced in various lay discourses of child-rearing and socialisation.

Finally, not much is known about the existence of various social and cultural differences in how children produce, understand, and perceive ironic utterances. While research conducted with adults has demonstrated the effects of categories such as one’s gender or the geographical region one inhabits on the processing of irony, we do not know whether these factors would have similar effects for younger individuals.

The study described in Chapter 5 of this project aims to provide new insights into some of the above issues.

2.5. Conclusions

The analysis undertaken in Chapter 2 had two major goals. First, it was aimed at introducing the factors which have been found to influence the processing of irony. Here, the author discussed both the factors related to the ironic utterance and to the relevant characteristics of the speaker and hearer. Next, the chapter focused on the developmental psychopragmatics – a research field in which the current thesis’ empirical exploration is immersed. Here, the author reported what has so far been found concerning children’s ability to interpret ironic meaning. Discussion of these issues provided emphasis on what the author, drawing upon a sound body of research, considers to be the major components of irony comprehension in children. At this point, apart from providing an account of research findings relevant to each of these components, the related methodological problems were discussed, as well as some comments offered on how the existing experimental designs could be improved.

Analysing the implications of the different methodological choices and operationalisations of critical concepts, as well as providing brief directions for further research, the stage has been set for introducing the study that is the focus of this dissertation. To fully prepare the ground for reporting on this empirical endeavour, however, one more critical problem needs to be addressed, namely that of the bilingual mind, as the participants in the research described here such were bilinguals. Accordingly, the following chapter focuses on those aspects of bilingualism that are directly relevant for the current analysis.

Chapter 3: Introducing bilingualism

3.1. Introduction

The aim of the discussion presented in Chapter 3 is to introduce the topic of bilingualism, note its prevalence and, at the same time, demonstrate how heterogeneous a category it is. The definitions of bilingualism are many; moreover, the label has been employed to describe radically different populations. It is important, then, to review the main factors which have been used by scholars studying the phenomenon. Among these are the degree of bilingualism, the age and context of language acquisition, the domain of language use, as well as social orientation.

Subsequently, the focus of the analysis will be shifted to the issue of the costs and rewards of bilingualism. The concept of the bilingual advantage will be introduced and discussed in detail. Here, research results will be reviewed concerning bilinguals' metalinguistic awareness, verbal abilities, cognitive flexibility and executive function, Theory of Mind, communication skills, and cognitive reserve. Taken together, these findings point to the existence of the bilingual advantage. They, moreover, lay the groundwork for the idea that the advantage might manifest itself in other areas, such as irony comprehension.

The final part of Chapter 3 offers a dose of scepticism, presenting the arguments of scholars who question the existence of the bilingual advantage. These views are discussed against the backdrop of the current scientific debate surrounding the ethics of scholarly publishing. Here, problems such as the so-called replication crisis, the publication bias, and the file drawer bias are looked at. Finally, the problem of inconsistent findings on bilingualism is taken up. Having acknowledged the inevitability of conflicting evidence, the author

will move on to discuss the potential reasons for the problem, as well as several solutions that could mitigate it.

3.2. Introducing bilingualism

Before going into the details of how bilingual individuals – especially those who are young – process language, we need to address a far more basic problem, namely that of what bilingualism actually is. Theoreticians and experimentalists have approached this fundamental question from many different perspectives, and provided various, and frequently opposing, definitions of bilingualism.

It is generally accepted that a bilingual speaker is someone who has competence in two languages. This, however, is the point at which scholarly agreement ends. This is so because speakers who have been referred to as *bilingual* differ substantially on many dimensions. One needs to remember that a great deal of heterogeneity already exists among members of monolingual populations, where significant differences are easily observable not only at the individual level, but also at various group levels. The situation is even more complex in the case of bilingual populations: here, the regular diversity is further enhanced as numerous factors come into play which are related to broadly understood circumstances of speakers' second language acquisition and use.

A number of scholars claim that these fundamental and inevitable differences have been overlooked or otherwise neglected by a substantial body of bilingualism research. Grosjean (2008: 10) notes that “[t]he ‘real’ bilingual has long been seen as the one who is equally and fully fluent in two languages” and points out that – working with this restrictive definition – researchers have missed out on a population that is not only large, but also critically relevant for bilingualism research. These speakers, who – due to their differential command of the two languages – have often been considered as “‘not really’ bilingual or (...) ‘special types’ of bilinguals” (Grosjean 2008: 11), in fact constitute “the vast majority” (Grosjean 2008: 10f.) of individuals who make use of two languages on a daily basis.

Analysing why the restrictive definition of bilingualism has been so popular among scholars, Grosjean (2008: 10) notes that it is monolinguals that have by and large been the focus of, as well as the point of reference for linguistic inquiry, serving as “the models of the ‘normal’ speaker-hearer.” When one takes this into account, it comes as little surprise

that bilinguals have been perceived – and studied – as if they were, or ought to be, “two monolinguals in one person” (Grosjean 2008: 10). This, as Grosjean (2008) calls it, “monolingual”, or “fractional” view of bilingualism is not only limiting, but also highly problematic. For one thing, there is a sound body of research that has found major differences in how mono- and bilingual individuals understand and produce language (Schmid and Köpcke 2007: 3), and in how language is organised in their brains (Dehaene 1999).¹¹⁴ The other problem is no less fundamental, as it is of definitional nature: should we assume that the monolingual is a person who can neither utter nor understand a single word in any foreign language? It needs to be remembered that, as Bialystok (2001a: 1) points out, “[f]or adults, the idea of an ‘uncontaminated’ monolingual is probably a fiction.” A similar observation is made by Edwards (2006: 7), who writes that “there is no one in the world (no adult, anyway) who does not know at least a few words in languages other than the maternal variety.” It needs to be noted, though, that Edwards (2006) makes this point as an elaboration of his earlier, and rather controversial, claim that “[e]veryone is bilingual” (Edwards 2006: 7). Taking the above into account, one may consider it likely that different scholars would classify the same individual as being either – to paraphrase Bialystok (2001a: 1) – a “contaminated” monolingual, or a bilingual.

The reasons for such discrepancies are many, but the most immediate one seems to be that researchers entertain largely different ideas as to what should count as a speaker’s competence in a given language. Edwards (2006: 7) points out that “[t]he question (...) is one of degree”, and perceives bilingualism in terms of a continuum. On the one end, he sees speakers such as his potential readers – having a native command of English, but familiar with several isolated foreign phrases, for example, “c’est la vie” or “guten Tag” (Edwards 2006: 7). Diebold (1961: 99) called such individuals “incipient bilinguals”, that is speakers whose competence in a foreign language was insufficient for the production of “complete meaningful utterances.” Proposing this definition, Diebold (1961) alluded to Haugen (1953), whose criterion for bilingualism was slightly stricter – according to Haugen (1953: 7), a speaker first needed to be able to “produce complete meaningful utterances in the other language” to be credited with bilingualism. Thus, under Haugen’s (1953) defini-

¹¹⁴ Perani and colleagues (2003: 180), who used functional MRI to study brain activation patterns of bilinguals, clearly state that “the bilingual brain cannot be viewed as the sum of two monolingual language systems, but rather considered as a unique and complex neural system which may differ in individual cases.”

tion, the speakers occupying the very beginning of Edwards' (2006) continuum would not be considered bilingual.

The situation at the opposite end of the continuum is far less controversial: this place is occupied by individuals who declare equal – and high – proficiency in two languages and cannot consider either to be dominant.¹¹⁵ Having “native-like control of two languages” (Bloomfield 1933: 56), these speakers are the only group that meets the requirements of Bloomfield's (1933: 56) classic definition of bilingualism.

Having zoomed in on the continuum proposed by Edwards (2006) and given how many different conditions can easily be fitted in between its two end points, it comes as less of a surprise that there neither is, nor can be, a single definition of bilingualism. As Baetens Beardsmore (1982: 1) put it, the concept “has open-ended semantics”, and may, therefore, “mean different things to different people” (Bee Chin and Wigglesworth 2007: 3). A similar claim has been made by Cook (2002: 4), who postulates that “[t]he term ‘bilingual’ (...) has so many contradictory definitions and associations in popular and academic usage that it seems best to avoid it whenever possible.” The solution that he offers is to use the concept of the L2 user instead. The L2 user is defined as “any person who uses another language than his or her first language (L1), that is (...), the one learned first as a child” (Cook 2002: 1), a definition similar to Haugen's (1953) minimal view of bilingualism (Cook 2002: 3). Here, “any use counts, however small or ineffective” (Cook 2002: 3), and it is probably therefore that “an L2 user can be almost anyone anywhere”, as Cook (2002: 2) himself notes. Thus, the concept of the L2 user does not seem to be more restrictive than that of bilingualism.

How is it, then, that scholars conducting bilingualism research can refer and relate to the experimental results obtained by their peers, whose very definitions of the object of study may be distant from the one they have chosen to employ?

¹¹⁵ Edwards (2006: 7) illustrates this point with an example which, as he admits, is actually a case of trilingualism: he draws on the famous literary critic and philosopher Francis George Steiner, who speaks English, French and German, and considers himself to be equally fluent in all three languages. Interestingly, a diligent reader of *After Babel*, Steiner's (1998) seminal work on translation, will find out that its author's childhood linguistic experience was not limited to these – as he calls them – “three ‘mother tongues’”, but also encompassed “[s]trong particles of Czech and Austrian-Yiddish”, beyond which, “like a familiar echo of a voice just out of hearing, lay Hebrew” (Steiner 1998: 121).

3.2.1. Major factors in bilingualism: On the need for precision

Given that “there is no one definition of bilingualism” (Bee Chin and Wigglesworth 2007: 3), it is critically important that researchers state their understanding of this concept whenever reporting their findings. Also, they should always provide exhaustive descriptions of the studied population. Bee Chin and Wigglesworth (2007: 4) list five major areas which need to be considered when discussing bilingualism, be it at individual or group level: these are “the degree of bilingualism”, “the age of acquisition”, “the context of bilingual language acquisition”, “the domain of use”, and “social orientation”. Let us now have a look at each of these factors.

3.2.1.1. The degree of bilingualism

It has already been indicated in the opening sections of the current chapter that much of the discussion about who is, and who is not bilingual boils down to the problem of degree. The bone of contention is “the levels of linguistic proficiency a bilingual must achieve in both languages to be considered a bilingual” (Bee Chin and Wigglesworth 2007: 5). To address this problem in more detail, let us recall Edwards’ (2006) illustration: the continuum, at the ends of which were speakers with very different linguistic proficiencies. It has been discussed that the two extremes of the continuum do not exhaust the problem of bilingualism and that the array of different conditions related to this phenomenon is far wider. We will now take a closer look at these.

It has been pointed out that one of the least restrictive definitions of bilingualism was proposed by Diebold (1961), whose notion of “incipient bilingualism” encompassed individuals familiar with only a few isolated phrases in a foreign language. As we remember, Haugen (1953: 7) would not have considered these speakers bilingual unless they were able to “produce complete meaningful utterances in the other language.” Given that a simple *hello* may count as a “complete meaningful utterance”, one may conclude that Haugen’s (1953) criterion for bilingualism was not much stricter than Diebold’s (1961). It needs to be pointed out here that these two authors were not the only ones who entertained such an inclusive or, as Baetens Beardsmore (1982) calls it, “minimalist” approach to bilingualism. In a similar vein, Mackey (1962: 52) defined bilingualism as “the ability to use

more than one language”, while Weinreich (1953: 1) – as “the practice of alternately using two languages.” One can easily notice that these two definitions are far from precise, but also that they do not require that an individual should be particularly proficient in the second language; basic comprehensibility seems to be sufficient for the speaker to be considered bilingual.

A more nuanced, though not more restrictive, approach to defining bilingualism was taken by MacNamara (1966), who believed that such a complex phenomenon should not be discussed as a single capacity, but rather in terms of the four basic language skills: speaking, reading, writing and listening. Interestingly, on MacNamara’s (1966) view it was sufficient for an individual to have – or to retain – some second language ability in any of the four categories to be considered bilingual.

As we remember, a very different approach was taken by Bloomfield (1933), according to whom a speaker could only be credited with bilingualism if he or she had “native-like control of two languages” (Bloomfield 1933: 56). Such perfectionist views on bilingualism have become known as “maximal” (Baetens Beardsmore 1982).¹¹⁶ An important question arises at this point: what happens between the two extremes – the minimal and maximal approaches to bilingualism? If we, once again, recall the continuum as put forward by Edwards (2006), we can imagine an infinite number of points in between its two ends; here, each little dot would stand for a unique combination of a bilingual speaker’s proficiencies in the first and second language. With so many configurations possible, it is, naturally, impossible to describe all. Nevertheless, researchers have managed to pinpoint the most salient cases. Let us now have a look at a selection of bilingualism types as distinguished on the basis of speaker proficiency in L1 and L2.

To keep our discussion orderly, let us first consider an important factor: the relationship between a bilingual speaker’s two languages. Looking from the most basic perspective, there are two major options: the speaker may or may not be equally competent in the two languages. If his or her “mastery of two languages is roughly equivalent” (Wei 2000: 4), then we call such a speaker a “symmetrical bilingual”, or an “equi lingual”. Ac-

¹¹⁶ An important point needs to be made here that many scholars referring to Bloomfield (1933) fail to acknowledge; despite all the radicalism, this author was perfectly aware that his definition of bilingualism was by no means an absolute one: “[o]f course one cannot define a degree of perfection at which a good foreign speaker becomes a bilingual: the distinction is relative” (Bloomfield 1933: 56). This shows clearly that it is not only contemporary scholars who recognise “that there can be no clear cut-off points” (Hoffmann 2014: 14) in the study of bilingualism.

ording to Wei (2000: 4), the same speaker could also be called a “balanced bilingual” or an “ambilingual”; however, not all authors subscribe to this view. The term “balanced bilingual”, coined by Lambert, Havelka and Gardner (1959), first referred to individuals whose command of both languages was not only identical, but also perfect, and many researchers still use it in this sense.¹¹⁷ Similarly, Halliday and colleagues (1970: 141) used the term “ambilingual” to describe speakers who were impeccably competent in the two languages spoken, regardless of the context of use. Thus, it appears that both Lambert and colleagues’ (1959) notion of “balanced bilingualism” and Halliday and colleagues’ (1970) concept of “ambilingualism” were very close to Bloomfield’s (1933) restrictive understanding of bilingualism. A somewhat less controversial descriptor for such a speaker who has close to native competence in two languages is a “maximal bilingual” (Wei 2000: 5).¹¹⁸ A crucial, yet by no means pioneering, observation needs to be made at this point: while there are many speakers who function very well in both languages, it is almost impossible to find a speaker whose mastery of two languages would be absolutely identical. Baetens Beardsmore (1982), who shared Halliday and colleagues’ (1970) understanding of ambilingualism, doubted the very existence of such individuals (Baetens Beardsmore 1982: 9). A related point was made almost two decades earlier by Fishman, who noted that even such speakers that “use both languages equally well (correctly), effortlessly and frequently” (Fishman [1968] 1972b: 78) tend to favour one language over the other in certain situations.¹¹⁹ It is, then, more realistic to assume that a bilingual speaker’s knowledge of two languages is rarely, if ever, equal. Such bilingual speakers who are more proficient in one language are often referred to as “dominant bilinguals”, and the language that they are less proficient in – as the “subordinate language” (Bee Chin and Wigglesworth 2007: 7).¹²⁰ Let us now have a closer look at several types of bilinguals whose languages are not balanced.

A situation in which an individual is at the beginning stage of bilingualism, and the second language has not been fully mastered, has already been discussed as incipient bilin-

¹¹⁷ This is pointed out in Baker (2001: 7), who highlights the discrepancy between the literal meaning of the word “balance”, which is that two phenomena are at an equal level – be it high or low, and the meaning typically used in bilingualism research, where it is often assumed that balanced bilinguals have “‘reasonable’ or ‘appropriate’ competence in both languages” (Baker 2001: 7).

¹¹⁸ To be precise, on Wei’s (2000: 5) definition the “maximal bilingual” is proficient in “two or *more* [emphasis mine, DJP] languages.”

¹¹⁹ Hence Fishman’s ([1965] 1972a) concept of “domain” – according to this author, bilingual speakers arrange their languages into “functionally complementary spheres” (Bee Chin and Wigglesworth 2007: 7) whereby a given language is preferred over the other in particular situations or contexts.

¹²⁰ An important note here is that – as pointed out by Bee Chin and Wigglesworth (2007: 7) – “the term ‘dominance’ may not apply to all domains.”

gualism. Such a condition in which a speaker knows only a few expressions in the second language may also be referred to as “minimal bilingualism” (Wei 2000: 5). Sometimes, it may be the case that a bilingual speaker experiences interference from the first language when using the second one; a condition in which he or she limits the repertoire of grammatical patterns to those familiar from the mother tongue is known as “subordinate bilingualism” (Wei 2000: 5).

A different situation takes place when an individual acquires second language ability at the cost of first language – this phenomenon is referred to as “subtractive bilingualism” (Wei 2000: 5). A related situation, in which a speaker’s ability to use one of the languages slowly deteriorates, is termed “recessive” or “passive bilingualism”, and is typically caused by prolonged lack of language use (Bee Chin and Wigglesworth 2007: 7).¹²¹ Interestingly, Wei (2000: 5) equates passive bilingualism with “receptive bilingualism”, “asymmetrical bilingualism” or “semibilingualism”, a condition in which an individual “understands a second language, in either its spoken or written form, or both, but does not necessarily speak or write it.”

A phenomenon frequently juxtaposed with passive bilingualism is “active” or “productive bilingualism”, which consists in “productive use of two languages” (Bee Chin and Wigglesworth 2007: 8). A related term is “functional bilingualism”, denoting a speaker’s ability to function in two languages “with or without full fluency for the task in hand” (Wei 2000: 5). What is noteworthy, it does not matter here whether the speaker is more proficient in one language than he or she is in the other; all that matters is such ability that is sufficient for the individual to function in both languages. Thus, one may postulate that the notion of active, productive or functional bilingualism evades the balance/dominance criterion.

Interestingly, the same holds true for two terms which can be used to describe a condition that is directly opposite to the one delineated above. “Semilingualism”, or “limited bilingualism” (Cummins 1994), refers to the situation of an individual “with insufficient knowledge of either language” (Wei 2000: 5). Here, too, the definition does not make it clear whether the speaker’s abilities in the two languages are equal – or equally insufficient, to be precise. The only criterion is that the mastery of both languages is lacking.

¹²¹ A related phenomenon is “dormant bilingualism” – the term pertains to individuals who have moved abroad and therefore have little chance to use their mother tongue (Wei 2000: 5), which is as if asleep.

3.2.1.2. The age of acquisition

Another issue that is typically brought up in discussions of bilingualism is the age of language acquisition. Initially, the role of this factor has been studied by researchers interested in first language acquisition, who wanted to verify the critical period hypothesis. The view, advanced by Penfield and Roberts (1959) and popularised by Lenneberg (1967), postulates that there is a maturational constraint on an individual's ability to fully acquire a language. In other words, there is a period in the development of every human that is optimal for his or her learning of a language; this period is claimed to end at puberty. Unless the individual acquires the language by this time, he or she will not be able to attain full linguistic proficiency later in life. Although initial evidence in support of the hypothesis came largely from individuals such as aphasic patients striving to recover their impaired first language ability (Abello-Contesse 2008), researchers were interested in the problem of whether similar constraints exist for the acquisition of a second language.¹²²

As Hakuta and colleagues (2003: 31) point out, “[t]he claim that there is an age-related decline in the success with which individuals master a second language is not controversial.” Numerous studies have been conducted into this problem, employing a variety of different measures of linguistic competence such as grammaticality judgements or language production tasks, and the general conclusion has been that there is a relationship between the age at which an individual first receives linguistic input in the second language, and his or her ultimate attainment of it. The typical pattern of results has been that the younger a given participant had been at the time of the first exposure to L2, the greater his or her achievement has been on an experimental task probing L2 competence (Oyama 1976; Patkowski 1980; Johnson and Newport 1989; Newport 1990; Johnson 1992; Patkowski 1994). Particularly pronounced facilitative effects of early acquisition have been found

¹²² For instance, Lenneberg (1967), to whom we owe the formulation of the critical period hypothesis, and who was the most prominent advocate of the view, based his arguments on two major types of evidence: “(1) recovery from traumatic aphasia, lateralization of speech function and hemispherectomy, and (2) Down’s syndrome children” (Hurford 1991: 160). On the other hand, it needs to be remarked that Lenneberg (1967: 141) did (albeit in passing) address the problem of “wolf children” (also known as “feral”, or “wild children”) – individuals who have spent their earliest years in isolation from human contact and hence have not received linguistic input before the critical period. Because of their circumstances, wolf children have been viewed as carrying great potential for verifying the critical period hypothesis. It needs to be remembered, though, that the study of these individuals is fraught with major methodological problems, as extreme social isolation has long been known to have highly detrimental, if not devastating, effects on human intellectual ability (Davis 1940). A population whose study is less problematic and comparably revealing are deaf children learning American Sign Language.

for phonology¹²³ (Flege 1991; Thompson 1991; Flege and Fletcher 1992); specifically, a number of studies have demonstrated that children who started learning their second language in early childhood – especially before the age of 6 – did not speak with a measurable foreign accent¹²⁴ (Flege 1991; Flege and Fletcher 1992).

The variability with which people acquire the different aspects of a second language was one of the factors which have led researchers to consider the possibility that – instead of a single critical period that simultaneously applies to all language areas – several critical periods may operate, each affecting a different set of linguistic abilities. Among the proponents of this view were Seliger (1978) and Walsh and Diller (1981). Yet another version of Lenneberg’s (1967) critical period hypothesis is the sensitive age hypothesis, according to which “we have a superior language learning capacity early in life which will disappear or decline with maturation” (Bee Chin and Wigglesworth 2007: 12). Here, again, puberty is claimed to mark the end of the sensitive age. It needs to be remembered, though, that empirical findings addressing this problem are not unequivocal. Long (1990), who analysed first and second language research for developmental differences in various aspects of acquisition, postulates that “the *rate* of development of what was learned was faster in (...) late starters than in normal children” (Long 1990: 259).¹²⁵ The explanation that he offers

¹²³ Here, an interesting point has been made by Scovel (1988), who argues that phonology is the only aspect of language whose acquisition involves a critical period. To substantiate this claim, Scovel (1988) describes what he calls the “Conrad phenomenon”. The term refers to the famous Polish-born writer Józef Teodor Konrad Korzeniowski, better known as Joseph Conrad, “increasingly regarded as one of the greatest English novelists” (“Joseph Conrad” 2015). Conrad’s example is interesting because his perfect mastery of the English language in its written form contrasted with his pronunciation, marked by a strong foreign accent. As a commentary on this, Scovel (1988: 65) draws on Gerard’s (1967) biography of Conrad, according to which “so thick was Conrad’s Polish accent that he was too embarrassed to follow the tradition of some other famous authors in England, like Dickens, and go to America on a lucrative lecture circuit” (Scovel 1988: 65).

¹²⁴ This should not be taken to mean that individuals who begin to learn a second language after the age of six will inevitably speak with a strong foreign accent. In the study by Bongaerts and colleagues (1997), short speech samples provided by highly successful Dutch late learners of English were subjected to a nativelikeness rating performed by experienced (phoneticians or EFL teachers) and inexperienced native British English judges. It was found that the scores obtained by some of the learners “were comparable to the ratings assigned to the native speaker controls” (Bongaerts et al. 1997: 462). A related point was made earlier: Scovel (1988: 181) predicted that there could exist “superexceptional language learners”, by which he understood adults able to “learn a foreign language well enough after puberty to be misidentified as native speakers on a tape.”

¹²⁵ Among these late starters, Long (1990: 259) lists “Isabelle, Genie, [and] Jim”, children whose stories have become landmark cases in psycholinguistics. Both “Isabelle”, studied by Mason (1942), and “Genie”, studied by Curtiss (1977), were feral children – raised in extreme isolation, with little, if any, human contact (“Isabelle” was less unfortunate in this respect). “Jim”, in turn, studied by Sachs and colleagues (1981), was brought up by deaf non-signing parents. Because of their circumstances, these children had not received linguistic input early in life (for Genie, this was as long as thirteen years). When these children were found, they had to be taught language, which they were, but with varying degrees of success. Discussing the empirical findings concerning the linguistic attainment of “Isabelle”, “Genie” and “Jim”, it is important to remember

for this is that the cognitive skills available at the onset of acquisition are more advanced for older learners than they are for young learners. On the other hand, Long (1990: 259) does admit that “the rate advantage”, as he calls it, “does not falsify the sensitive period hypothesis.” In order to do so, he posits, one would need empirical data concerning the ultimate attainment of a second language.¹²⁶

Such data are available. For instance, Birdsong (1992), apart from observing “an apparent advantage conferred by early immersion in the target language”, has also noted that “there are individuals who began L2A [second language acquisition] as adults and yet demonstrate attainment of native norms” (Birdsong 1992: 742). One of the two groups that participated in his study were English native speakers who were first exposed to French at or post puberty (the range was between 11 and 28 years), and nevertheless became near-native speakers of French. A further study, conducted by Birdsong and Molis (2001), showed that out of 32 native speakers of Spanish who were classified as “late arrivals” – that is, whose age of arrival in the United States was seventeen or more – four reached over 95% accuracy on the L2 task, including one whose performance was such that it fitted within the mean range achieved by the native speakers of English tested by Johnson and Newport (1989).¹²⁷ Drawing on these data, one needs to remember that, apart from the age of exposure, there is a number of other factors that further impact the learning outcome; this holds particularly true for mature learners. Among these factors, Bee Chin and Wigglesworth (2007: 13) list “aptitude, attitude, identity and motivation”, and highlight the role played by two: motivation and attitudes. Indeed, numerous studies have confirmed that these factors have a strong influence on the final linguistic attainment of an individual (Dörnyei and Clément 2001; Gardner 2001; Masgoret and Gardner 2003). A further area of importance that is pointed to by Bee Chin and Wigglesworth (2007: 13) comprises various contextual determinants, including the amount of exposure to the second language that a given individual receives. Discussing the role of this factor, the authors refer to the results obtained by Birdsong and Molis (2001), where second language use was “a strong predictor

that all three were first language learners, and therefore their experiences are difficult to compare with those of second language learners.

¹²⁶ Long (1990: 255) was straightforward on this issue: “a single learner who began learning after the period(s) closed and yet whose underlying linguistic knowledge (...) was shown to be indistinguishable from that of a monolingual native speaker would serve to refute the [hypothesis].”

¹²⁷ The study by Birdsong and Molis (2001) was a replication of Johnson and Newport’s (1989). As the replication did not involve native speakers of English, its authors compared the scores obtained by their non-native participants with those of the natives sampled by Johnson and Newport (1989).

of performance” (Birdsong and Molis 2001: 247) – a finding that was consistent for all individuals who participated in their study.

Drawing on the empirical data available on the sensitive period, one needs to remember that these should be interpreted with caution. Bee Chin and Wigglesworth (2007: 13) point out that many of the studies into the critical period hypothesis have been conducted with a tacit assumption that the concept of “native-speakerness” is a stable one. In these studies, participants were supposed to gauge how native the linguistic output (a piece of writing or a speech sample) of a second language learner was. Such assessments can only be considered generalisable if people share a common understanding of what it means to be a native speaker – this, however, is not the case, as it is not only naïve language users, but also linguists who entertain largely different ideas about the essence of this concept (Paikeday 1985; Kachru 1987; Rampton 1990; Davies 1991, 2003; Bonfiglio 2010). Hence, precise and detailed information is needed about the individuals who comprise the experimental and control groups in such studies. In this context, terms such as “early” and “late bilinguals” are often employed to refer to individuals who have acquired the second language “early in childhood” and “later than childhood” (Wei 2000: 5), respectively; it needs to be remembered, though, that when used by different researchers, these labels do not need to denote exactly the same ages.

Striving for greater precision, certain authors use more detailed denominations; for instance, Haugen (1956) employed as many as four terms to refer to the different ages of bilingual language acquisition: “infant”, “childhood”, “adolescent”, and “adult bilingualism”. Interestingly, on his understanding, “infant bilingualism” entailed acquiring two languages at the same time – a phenomenon commonly referred to as “simultaneous bilingualism”, whereby the “two languages are present from the onset of speech” (Wei 2000: 5).¹²⁸ “Childhood bilingualism”, on the other hand, was used by Haugen (1956) to refer to “the establishment of a second language during the early school years, after the first has been learned in the family” (Haugen 1956: 73) – a situation that is more commonly termed “sequential” or “successive bilingualism” (Lanza 2004: 11). It needs to be remembered that authors differ with regard to how they understand and use these terms, and the differences

¹²⁸ An interesting point concerning simultaneous acquisition has been made by Davies (2003: 210), who notes that it constitutes a clear case in which both languages spoken by a bilingual individual can be considered L1s. It needs to be noted, however, that Davies (2003) does not use Haugen’s (1956) terminology here, as he writes about “childhood” (and not “infant”) bilingualism to refer to the possibility of simultaneous acquisition.

are such that even the line between “simultaneous” and “sequential” bilingualism is far from being clear-cut.¹²⁹ Despite the many inconsistencies that the study of age effects is laden with, the problem has been among the most prominent areas of inquiry within second language acquisition research (Montrul 2008: 1).

3.2.1.3. The context of bilingual language acquisition

In the previous section, we have discussed the impact that age has on the linguistic attainment of a bilingual individual. Another important factor that bears upon one’s mastery of the second language is the context in which it has been acquired.

Bee Chin and Wigglesworth (2007: 10) list several possible contexts of bilingual language acquisition – these include “home, (...) school or university, (...) working environment, (...) [and] travel to, or residence in a foreign country.” The authors point out that within each of these areas, there are a few variables that make the experience of every bilingual unique. To illustrate, two speakers, both of whom have acquired their languages in a domestic setting, may (and most probably will) differ with regard to when they first had contact with the second language and how the language was used: how often, with whom, and in what circumstances. Given that such differences operate across all contexts, Bee Chin and Wigglesworth (2007: 10) postulate that when researching bilingualism, one should work from the premise that “no bilinguals have the same experience even though their profiles may be similar.”

3.2.1.4. The domain of use

In the literature, a number of denominations are used which help researchers to describe the bilingual experience of the individuals that they study. One of the common differentiations is that between “primary” and “secondary contexts” of language acquisition (Bee Chin and Wigglesworth 2007: 10). To illustrate the meaning of these terms, let us imagine two dif-

¹²⁹ The criterion proposed by McLaughlin (1978), who set the demarcation line between simultaneous and sequential bilingualism at three years of age, has gained wide acceptance among researchers (Lanza 2004: 11), but is not universally recognised.

ferent bilingual children. One child has picked both languages up at home, without receiving any formal instruction – the linguistic input was provided naturally, by the child’s parents and siblings. This is an example of a primary context of acquisition. The second child, in contrast, has acquired one of the languages at school – that is, in a formal setting, with the aid of a teacher who structured and monitored the learning process. This is an example of a secondary context. If we now take a closer look at the experience of the second child, we will find an interesting aspect to it: the two languages known by the child have been acquired in very different circumstances – one in a naturalistic, and the other in a formal setting. This difference is at the heart of another important distinction: that between “natural” and “school bilingualism” (Bee Chin and Wigglesworth 2007: 10).¹³⁰ Apart from these two, Skutnabb-Kangas (1981) also distinguishes “cultural bilingualism” – a type that is closely related to school bilingualism, but more readily employed with reference to adult individuals who decide to learn a new language because of work, travel or similar reasons (Skutnabb-Kangas 1981: 95f.).

If we now go back to our initial distinction – that between primary and secondary contexts, we will find that these can be divided into further subtypes. To illustrate, Bee Chin and Wigglesworth (2007: 11) write about two configurations that are possible within the primary context. The first of these is a “naturalistic fused setting”, which refers to a situation in which a bilingual child receives input in both languages in the same situation – for example, when both the mother and father use two languages with their child. If, however, each of the parents consistently uses only one language with the child, then such a setting is referred to as “naturalistic separate”. This situation is sometimes described as the “one-parent, one-language model” (Bee Chin and Wigglesworth 2007: 11). It is important to note here that the “division line” may also operate for speakers other than the parents, such as sisters and brothers, friends, or grandparents (Bee Chin and Wigglesworth 2007: 11). Moreover, it may also be the case that the bilingual child decides which language to use depending on the physical surroundings, and not on his or her interlocutor(s): Bee Chin and Wigglesworth (2007: 11) illustrate this with an example of the young individual studied by Ginsberg (1996). In her thesis, this author described a child who consistently used

¹³⁰ Discussing this dichotomy, Skutnabb-Kangas (1981) points out that the opposite of natural bilingualism should actually be termed “unnatural bilingualism” – a label that would “reflect how difficult people find it to learn a language by formal tuition”, or “how ‘unnatural’ adults sound when speaking a foreign language with an accent” (Skutnabb-Kangas 1981: 95). Nonetheless, she sticks with the label “school bilingualism”.

Spanish whenever speaking to the parents in the domestic environment, and English whenever speaking to them outside.

Discussing the various contexts in which bilingual language acquisition takes place, researchers may also employ another helpful opposition – that between “circumstantial” and “elective bilingualism”, proposed by Valdés and Figueroa (1994).¹³¹ The first term refers to individuals who learn a foreign language because of necessity – without knowing the second language, they would not be able to function on a daily basis. Baker (2001: 3) illustrates this with the example of Latino immigrants in the United States of America: these speakers’ first language is not an adequate medium if they are to perform all their everyday activities and responsibilities within the society around. Learning the language of this society is, therefore, necessary. In such cases, there is always a risk that the second language may take the place of the first, replacing it (Baker 2001: 3f.). The situation of elective bilinguals is very different: for them, learning the second language is not a matter of survival, but of choice. They have a certain degree of freedom here, and the decision to take up a second language may be dictated by various reasons: for instance, an individual may start learning the native language of his or her partner, or a child may attend foreign language classes at school (Bee Chin and Wigglesworth 2007: 12). Importantly – as pointed out by Baker (2001: 3) – elective bilinguals are typically speakers of majority languages, and their learning of a new one does not lead to a loss of linguistic ability in the mother tongue.

A related distinction has been proposed by Fishman (1977), who differentiates between “elite” and “folk bilinguals”. The former can be considered similar to Valdés and Figueroa’s (1994) elective bilinguals: they are majority language speakers who, additionally, have competence in a foreign language – a skill that is related to greater prestige. Folk bilinguals, in contrast, are similar to circumstantial bilinguals: they are individuals who speak a minority language, which does not enjoy a prestigious status in their area of residence (Butler and Hakuta 2006: 118).

3.2.1.5. Social orientation

¹³¹ Bee Chin and Wigglesworth (2007: 12) note that this distinction – although useful – is not commonly used.

In our discussion of the various terms that are used to describe the context of bilingual language acquisition, we have already come across two distinctions that are directly related to another factor of importance: social orientation. Indeed, the status of one's first language, or the prestige that it has within one's society is at the heart of the "elective/circumstantial" and "elite/folk" oppositions. It must be remembered, however, that the impact that various social factors have on bilingualism is both greater and more complex than that.

Bee Chin and Wigglesworth (2007: 16) write about two fundamental distinctions that need to be made if one is to have a complete picture of the problem. The first distinction refers to the type of context in which bilingual speakers function: here, one option is that the context is mono- or bilingual, and the other is that it is multilingual. The second distinction refers to the degree of assistance – "infrastructure and administrative support in terms of funding and recognition" (Bee Chin and Wigglesworth 2007: 16) – that is available for bilingual contexts; such support may be either ample or scant. If the two above distinctions are overlaid and analysed together, different combinations will obtain. Let us have a look at a few examples.

Bee Chin and Wigglesworth (2007: 16) note that a large number of bilingual individuals function in a society whose dominant language is different from the one that these speakers use at home. As the children of such individuals start formal education, they typically begin to learn the official language of their country of residence. More often than not, these children receive little, if any, institutionalised help and encouragement to maintain their linguistic ability in the mother tongue.¹³² Hence, their learning of a second language is very often accompanied by a decrease in, or even loss of, first language ability. The situation in which the acquisition of a new language takes place at the cost of the first one is often referred to as "subtractive bilingualism" – a term proposed by Lambert (1974) to describe the situation of members of "many ethnic minority groups who because of national educational policies and social pressures of various sorts are forced to put aside their ethnic language for a national language" (Lambert 1974: 26).¹³³ Bee Chin and Wigglesworth (2007: 16) point out that the label has often been employed with negative overtones, and recommend "differential bilingualism" as a less bias-inducing term: "[i]nstead of a simple

¹³² Drawing on Clyne (2005), Bee Chin and Wigglesworth (2007: 16) write about Australia as a country which offers some degree of assistance for bilingual children who want to maintain their first language: for instance, "up to 47 languages are accredited for the end of high school examination." Also, bilingual children can attend a government School of Languages on Saturdays.

¹³³ Note that the term has already been touched upon in section (3.2.1.1).

replacement of L1 by L2, differential bilingualism highlights the differential development of the bilingual's first and second language." In addition, the term may also apply to situations in which the languages used by the bilingual individual differ with regard to status (Bee Chin and Wigglesworth 2007: 17).

It needs to be pointed out here that the status of a language in a given society is a very important factor that shapes speakers' attitudes towards their bilingualism. To explore this point, let us now imagine a bilingual individual competent in a standard language and think about the possible status of his or her other language. Apart from the standard language, the speaker may be also competent in an unrelated non-standard language or dialect, in which case we would speak of "diagonal bilingualism" (Wei 2000: 4), or in "a distinct but related language or dialect", in which case we would speak of "vertical bilingualism" (Wei 2000: 5). Regardless of the distance between the two languages, if one of them is associated with low prestige, it may be the case that a bilingual individual will try to conceal his or her competence in that language. This phenomenon, pointed to by Sawyer (1978) and labelled by her as "covert bilingualism", is common in societies "where a minority group, under the pressure of social stigma, undergoes a process of assimilation to the majority group's language and in the quest for upward social mobility will conceal the cultural attributes as well as the language of origin" (Baetens Beardsmore 1982: 22).

The situation is different if the two languages spoken by the individual have "a similar or equal status", a phenomenon referred to as "horizontal bilingualism" (Wei 2000: 5). This is typically the case in multilingual societies, which often pursue such policies that officially support employing more than one language in the public domain; this also pertains to areas such as education (Bee Chin and Wigglesworth 2007: 17). In such facilitative contexts, one's second language ability does not lead to a decrease in first language ability. Such speakers have been termed "additive bilinguals" (Lambert 1974), and their languages can be said to "combine in a complementary and enriching fashion" (Wei 2000: 4). The bilingualism of these individuals is generally perceived as an asset that substantially improves their life prospects (Bee Chin and Wigglesworth 2007: 17).

3.2.2. Other factors

In the previous sections, we have introduced the five factors that can be considered “crucial departure points” (Bee Chin and Wigglesworth 2007: 18) for any discussion of bilingualism. It is vital to stress at this point that these variables are by no means the only ones that shape the way in which a given individual experiences his or her bilingualism; in their analysis of this problem, Bee Chin and Wigglesworth (2007: 18) enumerate several other areas of importance, such as “self-identity, attitude towards the community, demographic factors and hypothetical mental organization of the two languages.” It needs to be remembered, though, that apart from these variables, there are many more, and each may shed new light on the topic in question.

Given the many factors that are at play here, one cannot but agree with Hoffmann (2014: 14) that “[t]he most salient feature of bilingualism is that it is a multi-faceted phenomenon.” This, however, is not to say that it is a phenomenon that “defies categorization” (Bee Chin and Wigglesworth 2007: 18): the five descriptors discussed above are instrumental in creating detailed characterisations of the studied individuals and populations – and this, in turn, is the starting point for any attempt at empirical exploration of bilingualism (Bee Chin and Wigglesworth 2007: 18).

3.3. The costs and rewards of bilingualism

One of the long-standing issues in second language acquisition research has been the question of the costs and rewards of bilingualism. Here, authors and empiricists have been particularly interested in how the alternate use of two languages affects the cognitive development of children.¹³⁴ Interestingly, a clear demarcation line can be drawn between the findings of initial and contemporary empirical reports in this area; before going into these, however, it needs to be pointed out that – despite the long history of the phenomenon of bilingualism – it is only at the dawn of the twentieth century that its effects have become the subject of a heated debate.¹³⁵ Fitzgerald (1993: 35), in her review of the historical ap-

¹³⁴ In our discussion of the advantages and disadvantages of bilingualism, we will refer to the more general sense of the term, as proposed by Weinreich (1953) and Mackey (1962).

¹³⁵ After all, it is “as old as the first occurrence in human history of mutually understood traffic between two peoples speaking different languages”, as noted by Arsenian (1945: 66).

proaches to bilingualism in the United States of America, notes that bilingualism enjoyed “generalised acceptance”, and “perhaps even embracement” over a considerable period extending “[f]rom pre-colonial times to the late 1800s” (Fitzgerald 1993: 35). Bee Chin and Wigglesworth (2007: 56) point out that the issue of the potential negative consequences of bilingualism entered scholarly discourse in the middle of the nineteenth century, when Wilhelm von Humboldt (1767-1835) expressed his view that monolingualism constituted the only way to ensure the maintenance of the core of every human language (Bee Chin and Wigglesworth 2007: 56). After all, he claimed, to master a second language meant, at least to some degree, “to acquire a new standpoint in the world-view hitherto possessed” (von Humboldt [1836] 1999: 60). Such acquisition, however, can never be fully – i.e. “purely and completely” (von Humboldt 1999: 60) – attained, as one can only build upon earlier experience: one’s “own world-view, and even (...) language-view”, as von Humboldt (1999: 60) puts it. It follows from the above that, with the acquisition of a foreign language, one’s “world-view” and, more importantly, “language-view” cannot remain unaffected.

Bee Chin and Wigglesworth (2007: 56) note that despite Humboldt’s excessively positive view of monolingualism, it is not his work that led to the massive critique of bilingualism that followed. What was instrumental in fuelling the argument against bilingualism was the outcome of the first empirical studies into the problem: “the ‘hard’ evidence from social science”, as Bee Chin and Wigglesworth (2007: 56) ironically refer to it.¹³⁶

3.3.1. Early reports

The unequivocally negative opinions of the cognitive effects of bilingualism which were voiced by the authors of initial scientific reports into the problem have been subjected to many an extensive analysis, and yet, it appears to the present author that no review has managed to convey the sentiments of those early authors better than they did themselves. To illustrate, let us recall a quote from Goodenough (1926), who – having analysed the results of several earlier studies – entertained the possibility that “the use of a foreign language in the home is one of the chief factors in producing mental retardation as measured

¹³⁶ It needs to be remembered that the time when these early studies were conducted – 1920s – was preceded by several decades during which “English-only sentiments grew markedly” in the United States of America (Fitzgerald 1993: 35) and in England. In the period between 1880 and 1920, bilingualism was blatantly attacked and criticised (Fitzgerald 1993: 35).

by intelligence tests” (Goodenough 1926: 393). Goodenough’s (1926) view of the effects of bilingualism was not an isolated one – her contemporaries held similar opinions. Moreover, such claims were not uncommon in the decades to follow. Diebold (1966), who remarked upon the “collective sentiment” towards bilingualism in the United States forty years later, thus summarised the views commonly held by American educators: “bilingualism (...) is a damaging experience for the child, one which poses hurdles to the child’s intellectual development and later emotional adjustment” (Diebold 1966: 1f.).¹³⁷ All of these was supposed to be caused by – as Diebold (1966: 2) aptly put it – “the simple fact of ‘having too much in one’s head’”: it was believed that early exposure to two languages caused “a deleterious conflict” in the child, which in turn led to an intellectual disadvantage.

The studies which fuelled such claims as those above were conducted in the 1920s, and – as pointed out by Bee Chin and Wigglesworth (2007: 56) – “were crucial in influencing decades of subsequent research.” Among these early explorations is the large-scale study conducted by Saer (1923), who examined nearly 1400 children and over 600 university students coming from rural and urban areas in Wales. The first of the two groups comprised – as the author put it – “bilinguists” and “monoglots” between the ages of 7 and 11. These participants were individually tested on a series of tasks, one of which was an intelligence quotient (IQ) test. Drawing on the obtained data, Saer (1923) came to the conclusion that monolingual children from rural areas demonstrated “a considerable superiority over bilingual children” which he deemed to be “of a permanent nature since it was seen to persist in students throughout their university careers” (Saer 1923: 38). Although the IQ test yielded a different pattern of results in the urban participant group, where the difference between the mono- and bilinguals was – as Saer (1923: 38) himself put it – “inconsiderable”, he nevertheless posited that “mental confusion [wa]s seen to exist in bilingual children” such that was greater in degree than that of their monolingual peers. The author supported this claim with the results of dextrality tests and of the singing exercise, one of the rhythm tests, in which the monolingual children again demonstrated “a consistent superiority over the bilinguals” (Saer 1923: 38). It is important to note at this point that not all of Saer’s results were in support of the view that bilingualism only had negative consequences. For instance, it was found in the study that bilingual children at the ages of 7, 9 and 10

¹³⁷ Importantly, Diebold (1966) does not fail to observe that the holders of this belief constitute the very body which has to tackle “the practical problems” of working with a population containing “a sizeable number of bilingual children” (Diebold 1966: 1). The implication here is that the task of dealing with these “practical problems” could have influenced the outlook of the parties responsible for it.

performed better than did their monolingual counterparts on the tapping exercise – one of the rhythm tests in which participants were supposed to tap out rhythms that were shortly before presented to them auditorily. Interestingly, it took Saer (1923) only eleven words to report this finding – he did not explore it any further, and neither did he make reference to it in the concluding section of his article.¹³⁸

This negligence, however, is not the only flaw of Saer's (1923) study; the exploration has several methodological problems which seriously undermine the validity of the obtained results, and which can be considered highly symptomatic for many empirical explorations of bilingualism that were conducted in his day.¹³⁹ Bee Chin and Wigglesworth (2007: 56) note that the problems appear as early as Saer's (1923) sampling procedure. The mono- and bilingual children who participated in the research fundamentally differed with regard to their social status: the researcher "was comparing middle-class monolingual children with working-class bilingual children" (Bee Chin and Wigglesworth 2007: 56), a practice which must have biased the obtained results.¹⁴⁰ Moreover, the bilingual participants constituted a highly heterogeneous group: "[a]ll stages of bilingual efficiency were met with" (Saer 1923: 26). Another problematic area is the test material employed by Saer (1923). Here, the reservations concern both the choice and the form of the particular tasks. Firstly, it is difficult to determine what it exactly is that some of Saer's (1923) tests measured, for they often required the engagement of many – and, sometimes, quite distant – abilities.¹⁴¹ It is, then, highly dubious whether one's performance on such experimental

¹³⁸ What follows is a hasty constatement that the monolingual children were "superior at each year of age" when the rhythms were presented and repeated by singing to "laa" (Saer 1923: 29).

¹³⁹ Some of the methodological problems that were characteristic of these first works were pointed to quite early – for instance, it is already in 1930 that McCarthy (1930) wrote about the role of social status as a variable that could affect performance. A similar point was made 30 years later by James (1960) and Jones (1960), who stressed "[t]he importance of a thorough examination of socio-economic factors in any comparative study of monoglot and bilingual children" (Jones 1960: 71).

¹⁴⁰ Socio-economic status [henceforth SES] is "one of the most widely studied constructs in the social sciences" (Bradley and Corwyn 2002: 371), and such that has been shown to affect numerous areas of an individual's life. Its effects begin to operate already before birth, and persist into adulthood, influencing one's health, as well as "cognitive, and socioemotional outcomes" (Bradley and Corwyn 2002: 371). Given this, the difference in the SES of Saer's (1923) participants should be considered a variable that this author has failed to account for, and as such, it is likely to have confounded the obtained findings.

¹⁴¹ Bee Chin and Wigglesworth (2007: 57f.) note that it is currently widely agreed that IQ tests "do not measure innate abilities", but – rather than that – "contain inherent cultural bias" which is likely to negatively affect the scores obtained by bilingual children. Moreover, these authors further point out that traditional IQ tests tap exclusively one type of thinking: convergent thinking, which consists in finding only one correct answer following an analysis of several problems in succession. Divergent thinking, which is about providing multiple solutions to a problem, and which "has been linked with creative intelligence", is an important skill that traditional IQ tests altogether omit (Bee Chin and Wigglesworth 2007: 58).

tasks can be representative of one's cognitive ability. Secondly, some of the materials used by Saer (1923) were his own translations of standard questionnaires that were popular in his day, a procedure that "is known not to produce accurate results" (Bee Chin and Wigglesworth 2007: 56). Despite these pronounced methodological weaknesses, a number of studies – both conducted in the 1920s and in the following decades – yielded results that were very similar to those obtained by Saer (1923). Among these is the research by Pintner and Keller (1922), who tested the intelligence of over a thousand children in Youngstown, Ohio. The participants were attending either the local kindergarten, or the first or second grade at one of the three local schools. A considerable percentage of the studied population was made up by children of "foreign parentage", who "heard only a foreign language in their homes" (Pintner and Keller 1922: 214). Among the goals of the study was to explore the impact of – as the authors put it – "this language handicap" (Pintner and Keller 1922: 214) on the children's performance on the Binet intelligence scale.¹⁴² To this end, Pintner and Keller (1922) compared the scores obtained by the "foreign" children with those obtained by their English-speaking peers. The results demonstrated that the children who were native speakers of English achieved "significantly higher" (Pintner and Keller 1922: 215) results than did their "foreign" peers – a finding that is not surprising given the fact that the test was administered in English.¹⁴³

Bee Chin and Wigglesworth (2007: 57) note that in the period between 1922 and 43, it was common practice to use IQ scores of different types in order to assess the cognitive development of bilingual individuals. Importantly, a number of these tests were language-based, which meant that one's performance on the tasks relied heavily on his or her command of the language of the test. Here, bilingual individuals – especially those who were not particularly fluent in their second language – were at a clear disadvantage. In tests that did not require reliance on language, however, bilinguals tended to score just as well as did monolinguals. The importance of the language in which the testing was carried out was already – albeit not directly – hinted at by Pintner and Keller (1922: 222), who noted in the

¹⁴² To be precise, the test material employed by Pintner and Keller (1922) was "a revision of the Binet Test which was prepared (...) by members of the Children's Service Bureau of (...) [Youngstown], and which showed a correlation of .97 with the Stanford Revision of the Binet Test" (Pintner and Keller 1922: 214). The rationale for choosing this version of the test over the Stanford Revision was that the latter would have taken too much time to administer.

¹⁴³ It needs to be pointed out here that Pintner and Keller (1922) did not perform any statistical analysis on the gathered data, but only compared the average and the median for the two groups of children, and therefore "significance" as used by these authors has a different meaning than the one used in contemporary research.

conclusion to their paper that “children, who hear[d] a foreign language at home, test[ed] lower as a rule when given the revisions of the Binet Test than when given tests which require a minimum knowledge of English.” The point was made clear by Barke (1933), who wrote that “under conditions of bilingualism, intelligence tests of a non-verbal nature should be used in preference or in addition to those in which success is conditioned by linguistic ability” (Barke 1933: 249). This message does not seem to have been taken in by her contemporaries, however. Looking at this problem, Bee Chin and Wigglesworth (2007: 56) draw on the numerous studies that have found poor performance of bilinguals and point to an important paradox: even though over half of these empirical explorations involved bilingual participants whose command of English was not satisfactory, it was in this language that the testing was typically conducted. It is not surprising, then, that Darcy (1953), having reviewed a considerable number of studies that have been conducted into the effects of bilingualism on IQ testing, concluded that researchers who found advantageous effects of bilingualism were “in the minority” (Darcy 1953: 50); here, she referred to but two explorations – those by Davies and Hughes (1927) and by Stark (1940). In contrast, the number of empirical works whose findings pointed to the detrimental effects of bilingualism on IQ as measured by verbal tests was almost ten times as high, approximating twenty.

3.3.2. Newer studies

Despite the serious methodological weaknesses that plagued many of the pioneering studies into the effects of bilingualism, and despite the fact that awareness of these weaknesses entered scholarly debate at a relatively early stage, it is not until the 1960s that bilingualism has slowly begun to lose its long-standing damning connotations. Since that decade, ample research has been conducted into the effects of bilingualism.

3.3.2.1. Metalinguistic awareness

One of the first authors to point to the benefits of bilingualism was Leopold (1949a), who – in an extensive, four-volume case study – thoroughly documented the linguistic develop-

ment of his bilingual daughter, Hildegard Rose Leopold.¹⁴⁴ In the third volume of his work, apart from analysing the various aspects of syntax, morphology and semantics, Leopold (1949a) discussed the question of the effects of bilingualism on child development. Here, he was far from sharing the fears typically voiced by his contemporaries; more than that, his view of the consequences of bilingualism was positive – he believed that early bilingualism “train[ed] the child to think instead of merely speaking half mechanically” (Leopold 1949a; as quoted in Baker and Prys Jones 1998: 39). One of the major benefits of bilingualism that Leopold (1949a) explicitly pointed to was an increase in metalinguistic awareness, that is in “the ability to reflect on language” (Galambos and Goldin-Meadow 1990: 3). As an example, Leopold (1949a) drew on his daughter’s exceptionally early sensitivity to rhyming words, whereby the girl “would deliberately destroy rhymes in word play” (Bee Chin and Wigglesworth 2007: 59). This was indicative of Hildegard’s ability to separate the meaning of a given word from its auditory form: “[s]ince she had two or more words for each object or idea, she recognized earlier than monolinguals that words are arbitrary labels that do not, in themselves, contain meaning” (Baker and Prys Jones 1998: 39).¹⁴⁵

Leopold’s (1949a) positive view of the effects bilingualism has made him “a prophet ahead of his time” (Baker and Prys Jones 1998: 39) who is nowadays “fondly cited by researchers” (Bee Chin and Wigglesworth 2007: 59) – especially those focussing on the favourable consequences of bilingualism.¹⁴⁶ It needs to be remembered, though, that Leopold’s (1949a) enthusiasm was not absolute: his claim was that bilingualism enriched the human experience rather than made it easier.¹⁴⁷ Decades of subsequent research have confirmed this early intuition, demonstrating differential – both positive and negative – effects

¹⁴⁴ It took Leopold over twenty years to gather and analyse the data. He started to note down Hildegard’s utterances as early as the girl was eight months old, in the autumn of 1930. The first volume was published in 1939 (Leopold 1939), while the three following – almost a decade later, in 1947 (Leopold 1947) and 1949 (Leopold 1949a, 1949b). The work was supplemented with the “Bibliography of Child Language”, which was issued in 1952 (Leopold 1952).

¹⁴⁵ These were English and German words, as Hildegard was an English-German bilingual.

¹⁴⁶ From 1965 onwards, a body of research has been accumulated which emphasises the beneficial effects of bilingualism (Bee Chin and Wigglesworth 2007: 61). The turning point has been the seminal work of Peal and Lambert (1962), whose bilingual participants achieved significantly better on most tasks than did the monolinguals. A more detailed account of the study will be given in section (3.3.2.3).

¹⁴⁷ One of the most memorable quotations from Leopold (1949a) is the one in which he compared the effects of bilingual experience to those of education: “[i]gnorance and superstition make the decisions of life simple. Education does not make life easier, but better and richer. Few would condemn education for this reason. Bilingualism should be seen in the same light” (Leopold 1949a: 188; as quoted in Baker and Prys Jones 1998: 39).

of bilingualism on the various aspects of intellectual development. Here, metalinguistic awareness has been found to be no exception: the performance of bilingual individuals on tasks measuring this ability has been varied.

Having said this, it is vital to remember that metalinguistic awareness is not a sharply defined concept; as pointed out by Bialystok (2001b: 170), “there is little consensus on what demarcates (...) [this] skill from linguistic competence and even less agreement on what appropriate tests of this achievement should be.” Hence, researchers have used a variety of different tasks and paradigms in an attempt to measure it. The obtained results have been highly diverse, which indicates that metalinguistic awareness is not a modular, all-or-nothing ability, but an aggregation of several sub-skills. Here, empirical research has explored four relevant areas: phonological awareness, word awareness, syntactic- and semantic awareness (Bee Chin and Wigglesworth 2007).

Phonological awareness is the understanding that speech is made up of distinct sound units (Bialystok 2001b: 175; Bee Chin and Wigglesworth 2007: 65). To test this ability, researchers devise tasks in which participants are supposed to abstract the meaningful phonological segments. To illustrate, participants may be required to substitute the initial sound from one word with that from another, to pinpoint a word that does not fit with the remaining words in a group, or to come up with a word that rhymes with another. These tasks might well be considered variations on the play with the sounds of language that was observed by Leopold (1949a) in his daughter. Just as was the case with Hildegard, children’s ability to engage in this play and their achievement in it are illustrative of their phonological awareness.

One of the first systematic studies into this ability in bilingual children was conducted by Davine and colleagues (1971), who tested the performance of 121 monolingually- (in either English or French) and bilingually (in English and French) schooled children on a phoneme sequence discrimination task. The results demonstrated that students from the bilingual programme “had developed a sensitivity for the sound system of their 2nd language” (Davine et al. 1971: 72) and did better than their monolingual peers. However, this advantage did not translate into “a generalized facility in discriminating sound systems” (Davine et al. 1971: 72).¹⁴⁸

¹⁴⁸ As reported by the authors of the study, this finding is valid for students who are by grade 4, for such was the educational level of the oldest participants.

A very interesting study was conducted by Rubin and Turner (1989), who looked at the link between children's phonological awareness and their reading and spelling abilities. Similarly to the study by Davine and colleagues (1971), here, too, the participants were enrolled in different school programmes. All the children were English, but one group had been receiving education in English, while the other – attending a French immersion programme – had since kindergarten been receiving education solely in French. Rubin and Turner's (1989) experimental tasks included an adaptation of Rosner's (1972) Auditory Analysis Test, in which participants were first asked to repeat a word uttered by the researcher and then to modify it according to the instructions given, as well as a spelling and a reading task. The results demonstrated that the children from the immersion programme showed "equal or better early linguistic analysis, reading and writing skills" (Rubin and Turner 1989: 80) than did their peers from the monolingual programme. There was, however, one exception to this finding: the monolingual group achieved significantly higher in the reading task, but only for the irregular stimuli. The authors point out that this result can be easily explained: irregular words can only be read correctly if they are memorised, and the children from the monolingual programme are likely to have been familiarised with the written form of many of these words. This was not the case for the other children: taught exclusively in French, they had not been formally exposed to the written form of English irregular words, and – consequently – could not have memorised these; hence their disadvantage for this stimulus type. No such disadvantage was observed for tasks tapping linguistic analysis ability.

The issue of phonetic awareness in mono- and bilingual children was further explored by Bruck and Genesee (1995) in a comprehensive, carefully designed study. The profiles of the tested children were similar to those in Rubin and Turner's (1989) research: all participants came from English-speaking homes, and were divided into two groups: monolingual, comprising children who attended all-English schools, and bilingual, comprising those who attended all-French schools. The participants were tested twice: for the first time in the kindergarten, and for the second time in their first grade, once they had started to receive formal literacy education. Bruck and Genesee (1995) used comprehensive testing material: a battery of phonological awareness tasks and tests of language and cognitive abilities. The battery was constructed in a way which enabled the researchers to look at the different levels of participants' phonological awareness: from the awareness of general units, such as the syllable, through the awareness of onset and rime, to finish with the

awareness of the smallest meaningful sound unit – the phoneme. The results demonstrated a bilingual advantage in the kindergarten children, who did better than their monolingual peers on the onset-rime awareness tasks. Interestingly, the same set of tasks yielded a different pattern of results for the first-grade children, where the performances of the two groups were similar. However, differences were observed for tasks tapping the two remaining levels of phonological awareness. Bilingual first-graders were found to outperform their monolingual peers on syllable counting tasks, while the monolinguals outperformed the bilinguals on phoneme counting tasks. In their discussion of these findings, Bruck and Genesee (1995) draw on the results obtained by Rubin and Turner (1989) and note that both studies “show that grade I English-speaking children acquiring French as a second language show heightened syllable awareness” (Bruck and Genesee 1995: 321). A more general conclusion from their exploration is that foreign language input can affect both the pace and the order of the development of children’s metalinguistic abilities (Bruck and Genesee 1995: 321).

An interesting study into phonological awareness was conducted by Campbell and Sais (1995), whose participants belonged to a slightly younger age group – “rising fives”, who were “typically 4½ years old at testing” (Campbell and Sais 1995: 62). The children were either English monolinguals, or Italian-English bilinguals. The aim of the study was to determine whether bilingualism enhanced pre-schoolers’ ability to change sound patterns at the sublexical level. The authors chose to explore sublexical awareness because earlier research had demonstrated a causal link between this ability and the development of children’s reading ability (Bradley and Bryant 1983). The tests employed by Campbell and Sais (1995) were “a very simple sublexical parsing task” (Campbell and Sais 1995: 62) of their own design, and a version of Bradley and Bryant’s (1983) odd-one-out task. Although both groups had approximately the same letter knowledge, and even though the bilinguals were at a somewhat younger age than the monolinguals (Campbell and Sais 1995: 65), the results have found a significant bilingual advantage. Bilingual children performed better both in the semantic odd-one-out task, where they were supposed to identify a picture that did not belong to the same meaning category as the others, and in two phonologically based tasks. The first of these was also of the odd-one-out type, but had a different selection criterion: here, the children had to attend to the initial phonemes of the depicted words. The second task was morpheme deletion, in which participants were presented with a long word, such as “pancake”, and with a morpheme that was part of that word, such as “cake”,

and were supposed to delete the morpheme from the original word and produce the remaining string – “pan”. The authors concluded that providing children with foreign language input before they have mastered the ability to read and write might lead to an increase in their metalinguistic ability – in particular in speech-sound awareness (Campbell and Sais 1995: 61). However, an important stipulation here is that the observed bilingual advantage might have been the effect of learning Italian rather than any given second language: Campbell and Sais (1995: 67) themselves point out that the regular phonological system and syllabic structure of Italian could have been “a simpler, more reliable ‘test bed’” for their participants’ developing metalinguistic ability.

The possibility that certain aspects of phonological awareness may be acquired precociously not as a result of bilingualism, but because of learning a language which happens to stress those particular structures has also been noted by Bialystok and colleagues (2003), who list it among the reasons why previous studies failed to clarify the link between bilingualism and phonological awareness. These authors also look at two other such reasons – the fact that the participants of these studies were at an early stage of bilingualism, and that the employed tasks were highly diverse, yielding disparate results. To properly address these issues, Bialystok et al. (2003) conducted a series of three experiments in which they explored the impact of bilingualism on the development of phonological awareness in mono- and bilingual children between kindergarten and second grade. The studies were carefully designed and strictly controlled. The participants belonged to as many as four language groups: monolingual English (Studies 1 to 3), bilingual English-French (Studies 1 and 2), bilingual Chinese-English (Study 3) and bilingual Spanish-English (Study 3). The first study aimed at isolating the demands of working memory from those of phonological awareness, the second at investigating the impact of the languages in which the testing was conducted and in which the participants had been taught at school, and the third at exploring the effects of task demands and of the particular languages that the participants spoke. The authors report that “[n]o clear and consistent effect of bilingualism could be extracted from the results” (Bialystok et al. 2003: 41). Of all three studies, but one task – phoneme segmentation – yielded a reliable effect of group which, however, did not emerge for all bilinguals, but only for the Spanish-English population. This has led the authors to reject the idea of a “general bilingual advantage”; rather than that, they postulate that “[o]ther factors are more significant than bilingualism and overrule whatever potential effect might emerge from being bilingual” (Bialystok et al. 2003: 41). One such factor could be the par-

ticular pair of languages that one is bilingual in: “children who speak a second language with similar phonological structure and alphabetic orthographic system may have some advantage when learning to read (...), whereas those children who speak a second language that is phonologically and orthographically different may require additional help” (Bialystok et al. 2003: 42).

The results of more recent research into the phonological awareness of children speaking different languages are not all in support of the conclusions drawn by Bialystok and colleagues (2003). For instance Verhoeven (2007), who tested a group of Turkish children living in The Netherlands and attending a Dutch kindergarten, found – as he put it – “clear evidence of a relation between bilingual development and phonological awareness” (Verhoeven 2007: 436). Similar results were obtained by Kuo and Anderson (2010), who tested Taiwanese first- and second-graders. All participants were dominant in Mandarin, but the bilinguals – in addition to this language – regularly received input in a heritage language, Southern-Min, at home.¹⁴⁹ The results demonstrated a comparable performance of both groups on tasks probing onset awareness in stimuli containing onsets that were exclusive to Mandarin, as well as in awareness tasks involving actual Mandarin syllables. However, a “pronounced bilingual advantage” (Kuo and Anderson 2010: 381) was found in tasks that involved manipulating syllables that contained onsets that existed both in Mandarin and Southern-Min. Moreover, the bilinguals did better than their monolingual peers on tasks requiring participants to “segment and compare onsets and rimes or to attend to tones in novel syllables” (Kuo and Anderson 2010: 381). The authors have concluded that bilingualism, entailing exposure to different phonological segments occurring in a variety of contexts, fosters the development of children’s phonological awareness, and especially their “ability to disassociate phonological segments from syllables and abstract suprasegmental features” (Kuo and Anderson 2010: 381). Importantly, the authors predict that this facilitative effect of bilingualism may take place “upon exposure to any second language” (Kuo and Anderson 2010: 383) – the second language does not need to be typologically close to the first or have similar orthographic transparency for the advantage in phonological awareness to be observed.

¹⁴⁹ Kuo and Anderson (2010: 371) report that Southern-Min is now a “major heritage language spoken in Taiwan.” In spite of its historical links to Mandarin, Southern-Min is nowadays not mutually intelligible with that language.

Among the findings in support of this claim are those obtained by Kang (2012). The aim of her research was to check whether bilingual advantages in phonological awareness would be found in the performance of children learning “two phonologically and orthographically different alphabetic languages” (Kang 2012: 411). To this end, Kang (2012) tested Korean mono- and Korean-English bilingual children on a number phonological awareness and literacy skills tasks.¹⁵⁰ The results demonstrated that the bilinguals had greater phonological awareness skills than did their monolingual peers – a finding that was valid for both Korean and English. The bilinguals were more apt at L1 and L2 tasks which consisted in manipulating phonological units, and superior on an L1 pseudoword reading task. Despite these findings, Kang (2012) refrains from drawing firm conclusions and notes that the problem of bilingual advantages in phonological awareness needs further research which would examine “the interplay of phonological and orthographical differences in the two languages and other emergent literacy factors” (Kang 2012: 428).

Another layer of metalinguistic awareness that has been studied in bilinguals is word awareness. As pointed out by Bialystok (2001b: 171), children need to be able to make two basic realisations if they are to understand that the nature of words is inherently symbolic: they need to have the capacity “to recognize that the speech stream is composed of discrete units called words” (Bee Chin and Wigglesworth 2007: 62) and to apprehend that the link between words and the meanings they have is arbitrary. It needs to be noted here that while both these abilities have been explored empirically in bilingual populations, the former has enjoyed less popularity as a research topic.

One of the early studies into children’s ability to segment speech into words was conducted by Bialystok (1986), who tested three different groups of participants: English junior kindergarten monolinguals, English first-grade monolinguals, and English-French first-grade bilinguals, who were native speakers of English, but had been attending a French immersion programme at school for two years. Four task types were presented to participants: word count, similarity judgment, size judgment, and digit span. In these tasks, participants were required to report how many words there were in a given sentence, to select a word that had a form or meaning that was similar to that of an initial word, to de-

¹⁵⁰ It is important to note here that Kang’s (2012) monolinguals “were not strictly monolingual” (Kang 2012: 417) – in the kindergarten, they had a daily 15-minute English lesson during which they were exposed to English. The author notes that it is nowadays “almost impossible to find monolingual Korean children who have no English exposure” and that “none of (...) [the] monolingual children [in her study] could speak English beyond one-word level or decode English words yet” (Kang 2012: 417).

cide which of the presented words was bigger, and to repeat strings of numbers, respectively. The tasks differed with regard to the demands that they imposed on participants' knowledge, cognitive control and working memory. In addition, such differences also existed between the particular test items within the tasks, so that the stimuli had varying levels of complexity. An interesting regularity was found in the results: "[i]n general, (...) the items that introduced an increased demand for cognitive control were less problematic for the French immersion students than for the English program students in the same grade" (Bialystok 1986: 29). Also, the bilingual participants made fewer errors on the word count task – this was particularly true for the most difficult items. However, similarity judgment results provided "little evidence of a knowledge advantage for the bilingual children" (Bialystok 1986: 29). In her discussion of these findings, Bialystok (1986) notes that researchers often consider word consciousness to be indicative of metalinguistic awareness; in her view, however, "constructs like word concept in particular and metalinguistic awareness in general do not constitute separated demarcated achievements", but exemplify a high level of proficiency in "two rather ordinary cognitive skills that can be applied to language" (Bialystok 1986: 30). The particular pattern of facilitation that exists between bilingualism, literacy, and metalinguistic awareness is an effect of the demands that the three phenomena share, and can be ascribed to the experiences associated with them (Bialystok 1986: 30).

A further study into word awareness was conducted by Yelland and colleagues (1993). The authors' goal was to explore whether a limited contact with a foreign language would result in an increased metalinguistic awareness, and – especially – facilitation in children's developing ability to read. The participants were two groups of preparatory and grade one English children: monolinguals, and "marginal bilinguals", who received an hour of Italian instruction every week. The experimental task consisted in naming a pictured object and determining whether that name was a big or small word. Importantly, the size of the word was not always congruent with the size of the object that it labelled: half of the big words were names of small objects, and half of the little words were names of big objects. Each participant was tested twice: two months into the school year, and again after five months. The results showed that the marginally bilingual group demonstrated "a significantly higher level word awareness" (Yelland et al. 1993: 423) than did their monolingual peers after only six months of limited exposure to Italian. However, this advantage was short-lived: "[b]y early in the second year of school, the word awareness skills of the monolingual children had caught up with those of the marginal bilingual group" (Yelland et

al. 1993: 439), as the performance of both groups approached ceiling levels. This was not the case with the development of participants' reading skills: "by the end of the second year of school, the mean written word recognition score for the marginal bilingual children (...) was significantly higher than that for the monolingual children" (Yelland et al. 1993: 440). This finding shows that early exposure to even marginal amounts of input in a second language provides children with "important cognitive and educational benefits" (Yelland et al. 1993: 441), facilitating their ability to recognise written words, which in turn is "a critical component of reading acquisition" (Yelland et al. 1993: 441).

Interestingly, similar conclusions were drawn by Göncz and Kodžopeljić (1991), who – in a slightly earlier series of two studies – explored the link between children's bilingual experience, metalinguistic awareness, and reading ability. Having compared the performances of several different groups of bilingual pre-schoolers and monolingual controls on a series of tasks measuring metalinguistic awareness and the ability to analyse linguistic input, the authors concluded that early bilingual experience was linked with an enhancement of both tested skills. This was reflected in the bilinguals' readiness to perform tasks which consisted in comparing and replacing words, as well as segmenting them into smaller units. In addition to this, the bilinguals were also judged by their teachers as having "more developed psychological functions such as concentration, synthesis and abstraction" (Göncz and Kodžopeljić 1991: 137). Importantly, all these faculties are employed in early stages of reading.

As has been noted before, word awareness is more than the ability to perceive words as discrete units. Word awareness also entails awareness of the arbitrariness of language – that is, the understanding "that language is essentially symbolic and that the relationship between form and function is completely arbitrary" (Bee Chin and Wigglesworth 2007: 63) – based on convention rather than contiguity or similarity (Dirven and Radden 2004: 5). The suggestion that such awareness may be greater in individuals who have command of a foreign language is by no means new – it has already been proposed by Goethe ([1893] 1906: 154), who asserted that "[a] man who ha[d] no acquaintance with foreign languages kn[ew] nothing of his own." Vygotsky ([1934] 1986), expanding on this idea, wrote that children who learn a second language gain a better understanding of their mother tongue: their approach towards language "becomes more abstract and generalised", as familiarity with the new system "liberates [them] from the dependence on concrete linguistic forms and expressions" (Vygotsky 1986: 160).

Experimental explorations of children's awareness of the arbitrariness of language have largely focussed on word meanings – and not without reason. The relationship between word and its meaning has long been considered to be of a unique nature: the two are so closely linked that the latter is a necessary element of the former. To Vygotsky (1986), a word which lacks meaning is nothing more than “an empty sound” (Vygotsky 1986: 212); thus, he sees meaning as “a criterion of ‘word’” (Vygotsky 1986: 212). Dissociating meaning from form is an ability whose acquisition has important implications for the study of children's developing linguistic competence: Vygotsky (1986: 224) postulates that it is only when children have fully mastered this skill that they “become fully able to formulate [their] own thought[s] and to understand the speech of others.” It is important to note here that acquiring this ability is a process rather than a single step. At first, children use “forms and meanings without being conscious of them as separate” (Vygotsky 1986: 222); they consider the word to be a necessary and indispensable component of the object that it refers to. That “children regard names as belonging to things and emanating from them” has already been noted by Piaget (1929: 63), author of a task which probably is the best-known tool for studying children's understanding of the relationship between words and the concepts they denote. In his classic experiment, Piaget (1929) asked children a number of different questions concerning the possibility of exchanging the names of the sun and moon and the consequences of such an exchange. It was found that most children were able to carry out the name reversal; they were also able to recognise that it would be the “sun”, and not the “moon”, that would be up in the sky at night if the names of these objects were interchanged. However, there was one question which was particularly problematic for Piaget's (1929) young participants: when he asked them what night sky would look like if the sun-moon name change was performed, the children tended to respond that it would be light at night. Such answers demonstrate that they were not yet able to fully dissociate the word – that is the name “sun” – from the object that it denoted. Rather than this, the children linked the word with the properties of its referent; hence the association between brightness and the name “sun”.

About half a decade after Piaget's (1929) pioneering work, the task he devised was widely used – both in the original and its numerous adapted versions – by researchers interested in finding out of how mono- and bilingual children understand the relationship between words and their referents. Among the earliest of these explorations was the study by Ianco-Worrall (1972), aimed at verifying “Leopold's observations on the earlier separation

of word sound from word meaning by bilingual compared to matched unilingual children” (Ianco-Worrall 1972: 1390). To this end, the researcher tested thirty Afrikaans-English bilingual children, who belonged to two age groups: 4-6- and 7-9-year-olds. To each bilingual participant, two monolingual controls were matched, one of whom spoke English, and the other – Afrikaans. The children took part in two experiments: a semantic and phonetic preference test, and a word-reference questionnaire, modelled on the one used by Vygotsky (1986).¹⁵¹ The results of the first experiment showed that as many as 54% of the younger bilinguals “consistently chose to interpret similarity between words in terms of the semantic dimension” (Ianco-Worrall 1972: 1398). This indicates that they understood the link between words as based on “symbolic rather than (...) acoustic properties” (Ianco-Worrall 1972: 1398). Interestingly, such behaviour was unique to the bilinguals in this age group, as it did not occur in any of the matched monolingual controls. Drawing on these results, Ianco-Worrall (1972: 1398) concluded that “bilinguals, brought up in a one-person, one-language home environment, reach a stage in semantic development, as measured by [her] test, some 2-3 years earlier than their unilingual peers.” The conclusions she drew from the second experiment were less definitive, as little difference was found in how the mono- and bilingual participants dissociated the objects from their names. There was one area, however, in which bilinguals, regardless of their age group, outperformed the monolinguals: this result was found “where the question of whether names can be interchanged required the formulated concept that names are arbitrarily assigned to things” (Ianco-Worrall 1972: 1399).

Bilinguals’ understanding of the symbolic nature of words was also studied by Ben-Zeev (1977), who tested four groups of children: Hebrew-English bilinguals from the United States and matched English monolingual controls, as well as Hebrew-English bilinguals from Israel and Hebrew-speaking monolingual controls. Before administering the proper experimental tasks, the researcher screened the participants for the degree of bilingualism, and measured their intelligence using the Wechsler Intelligence Scale for Children (henceforth WISC). The materials used by Ben-Zeev (1977) measured a wide array of participants’ linguistic skills, such as semantic knowledge or flexibility in the use of syntactic rules, as well as their ability to perform various nonverbal manipulations. At this point,

¹⁵¹ It is important to remember that Vygotsky’s (1986) method was fundamentally based on the one devised by Piaget (1929). Thus, the procedure employed by Ianco-Worrall (1972) in her second experiment actually has its roots in the Piagetian Method, which, however, this author does not acknowledge.

however, we will focus on the Piagetian-type seven-item task which consisted in symbol substitution, where the children were supposed to “substitute one meaningful word for another, usually within a fixed sentence frame” (Ben-Zeev 1977: 1012). Importantly, not all items were of the same complexity: for a successful completion of the first two, the participant was only required to appreciate that the names of two objects can be interchanged; in the case of the remaining five items, however, performing the name substitution meant violating grammatical rules of the language. Here, if the child was to provide a correct answer, he or she had to “resist the mutual interference of the substituted item and the sentence frame” (Ben-Zeev 1977: 1012) and treat the word as if it was nothing more than a meaningless element of a code. The results demonstrated that the bilinguals were significantly superior on this task – a finding which was consistent across both the easier and the more complex items. A possible explanation could be that the bilinguals were less familiar with the grammatical rules of the test language than their monolingual peers – this, however, was not the case, as Ben-Zeev’s (1977) participants’ linguistic competence was strictly controlled for: the children were pre-tested with an adapted version of Berko’s (1958) Wug Test, whose results yielded no group differences.¹⁵² Thus, the bilingual advantage which evinced in the study cannot be attributed to differences in the children’s competence in the test language.

A further study into bilinguals’ word awareness was conducted by Cummins (1978). Here, English-Irish bilingual children and matched monolingual controls were tested on a range of tasks measuring participants’ metalinguistic awareness, as well as their ability to assess contradictory and pleonastic statements. The first of the test materials was the Meaning and Reference Task, aimed at determining whether the child perceived word meaning as stable – especially in the situation where the actual physical referent of the word was destroyed (Cummins 1978: 135).¹⁵³ Here, the performances of grade 3 mono- and bilingual children did not differ significantly; however, significant differences were found in the grade 6 analysis, where the bilinguals outperformed their monolingual peers. The second task administered was the Arbitrariness of Language task: a variation on Piaget’s (1929) “sun – moon” problem. Marked differences were found here as early as in grade 3: “[a]most 70% of bilingual children compared to only 27.5% of unilingual children asserted

¹⁵² Berko (1958) developed the Wug Test to study children’s knowledge of morphology – and specifically, to verify whether children are capable of applying basic morphological rules to novel words.

¹⁵³ Cummins’ (1978) tasks were modelled on those developed by Osherson and Markman (1975), and many of them employed similar, or even identical, experimental procedures and scoring criteria.

that the names [of objects] could be interchanged” (Cummins 1978: 141). Analysis of the reasons that the children provided to justify their responses yielded less pronounced differences, which were nevertheless statistically significant. Cummins (1978) classified the justifications into three major groups. The first, and most basic, were “empirical” justifications, where the child referred to physical properties of the objects, as in “You could change the names because both the sun and the moon shine” (Cummins 1978: 141). The second group were “rigid conventional” justifications, where the child asserted that people could not change the names of objects because the names were the “right names”, or because they were given by God. The third group consisted of justifications which demonstrated children’s understanding that names are arbitrarily assigned to objects, as in “[I]t doesn’t matter what things are called” (Cummins 1978: 141). Cummins (1978) added to this third group one other response type: these were the claims that one could not change the names of objects “because people would get confused” (Cummins 1978: 141). Taken together, the results from the Arbitrariness of Language task reveal an interesting paradox: although the bilingual children were more successful in articulating the fact that the relationship between words and their referents was arbitrary, analysis of the justifications provided by these participants demonstrated that “they were almost as likely as unilingual children to assert that an exchange of names (...) implied an exchange of empirical characteristics” (Cummins 1978: 143). Further to the Awareness of Language task, the children were administered the Nonphysical Nature of Words task, which tested whether participants were able to realise that words did not share the physical properties of the objects that they denoted. No significant differences were found here between the bilingual and monolingual groups. The final part of Cummins’ (1978) study was “Empirical and Nonempirical Questions”, whose scope was far beyond testing participants’ word awareness. Modelled on the task devised by Osherson and Markman (1975), this material checked children’s understanding of different types of statements. Before each experimental session, plastic chips and counters of different colours were put on a table which stood between the participant and experimenter. Subsequently, the experimenter made a comment about a given counter, and the participant was supposed to determine whether this statement was true, false, or whether it was impossible to tell. The statements differed in structure; out of the total number of 11 items, 7 were either contradictions or tautologies. It is important to note that statements of this type are different from the others: to verify them, the participant only has to attend to their linguistic form, without resorting to “any extra-linguistic states of affairs”

(Osherson and Markman 1975: 214). To illustrate, if one is to determine the truth value of the sentence “The counter in my hand is not white and it is white” (Cummins 1978: 144), he or she does not need to see the counter; no reference to empirical evidence is needed. Hence, just as it was in the study by Osherson and Markman (1975), the contradictory and tautological sentences were referred to as “nonempirical” statements – as opposed to “empirical” ones, whose truth could only be determined by examining the object which they described, as in “The counter in my hand is yellow and it is not green” (Cummins 1978: 145). For five of the seven nonempirical, and two of the four empirical items, the child could not see the counter, as it was held by the experimenter in the hand. Upon responding to each particular item, the child was asked to justify the answer. The results from this task show significant differences between the mono- and bilingual groups as early as at the grade 3 level; “[a]t least twice as many bilingual children as unilingual children were correct on each of the four contradictory items” (Cummins 1978: 146). A bilingual superiority was also found in the older group – at the grade 6 level, where the bilinguals outperformed their monolingual peers on those nonempirical items in which the chip was hidden from participants’ sight. Also, a significant difference was registered for the total number of correct answers to the empirical questions; here, too, the bilingual group turned out to be more successful – a result which Cummins (1978: 148) interpreted as indicative of the monolinguals’ “less flexible and analytic orientation to linguistic input.” Taken together, the findings of the study point to the existence of a bilingual advantage not only in word awareness, but also in understanding of contradictory expressions.¹⁵⁴

A further relevant area of metalinguistic ability which has been studied in bilingual populations is semantic awareness – “the knowledge about how meanings are organized in language and the sensitivity to different semantic domains” (Kuo and Anderson 2008: 46). Bee Chin and Wigglesworth (2007: 66) make the important point that “an assortment of tasks (...) qualify as semantic awareness tasks even though the researchers who used these tasks did not label them as ‘semantic awareness’ tasks.” Moreover, semantic awareness has often been explored in relation to other aspects of metalinguistic ability. Among such studies is the one by Ianco-Worrall (1972), which has been discussed earlier with reference to word awareness. One of the tasks used in this research was a semantic and phonetic preference test: “a two-choice test in which similarity between words could be interpreted on the

¹⁵⁴ As has been noted before, “word awareness” is understood here as “awareness of the arbitrary nature of word-referent relationships” (Cummins 1978: 148).

basis of shared meaning or shared acoustic properties” (Ianco-Worrall 1972: 1390). This material was employed in order to compare the ability of mono- and bilingual children to concentrate on similar meanings rather than similar auditory forms of words. The results demonstrated that the bilingual children were indeed more semantics-oriented than their monolingual peers. Ben-Zeev (1977), who employed a related task, obtained different results. In her “Paradigmatic Associations Test”, participants were supposed to provide a one-word response to each of 18 stimulus words. The stimuli represented all parts of speech, and the responses could be of two kinds. The first were paradigmatic associations; these “tend[ed] to categorize the stimulus word along some concept dimension” and were “of the same part of speech as the stimulus word” (Ben-Zeev 1977: 1013). Syntagmatic associations, in contrast, were those “which could follow the stimulus word in a normal sentence” (Ben-Zeev 1977: 1013). The author hypothesised that bilingual children, having a better developed semantic classification system, would provide a greater number of paradigmatic-type responses than the monolingual children. On the other hand, she entertained the possibility that the expected effect might be attenuated by the bilinguals’ limited vocabulary span. The results yielded no group differences in the two response types; however, it was found that the bilinguals provided a significantly greater number of clang responses – “an immature type of response” (Ben-Zeev 1977: 1015) which is based on sound associations. Such responses are often considered to be indicative of task difficulty. Another finding which demonstrates that Ben-Zeev’s (1977) semantic understanding task was challenging for her bilingual participants was that their response latency was increased for the paradigmatic-type responses. The author considers this to be indicative of “more search effort than was required by monolinguals” (Ben-Zeev 1977: 1015).

Semantic awareness in bilinguals has also been studied with relation to vocabulary breadth – that is the “number of known words” (Schmitt 2014: 913). Researchers exploring this area often make use of another important concept, termed “depth of (word) knowledge”, “depth of vocabulary”, “semantic-”, or “vocabulary depth”; all these labels refer to “how well (...) words are known” (Schmitt 2014: 913).¹⁵⁵ Such knowledge entails “the ability to provide precise delimitations, specific terminology, more associations, essential features, and functional characteristics” (Vermeer 2001: 222f.) of the object denoted by a given word. While certain authors, such as Ouellette (2006: 556), consider depth of vo-

¹⁵⁵ Accordingly, these terms will be used synonymously in the following discussion.

cabulary knowledge to be equivalent to semantic awareness, others consider it to be a somewhat different kind of metalinguistic awareness. In the latter group are Proctor and colleagues (2012), who postulate that one's word knowledge entails three constructs, or is affected by three "related but distinct linguistic domains" (Proctor et al. 2012: 1637). It is among these domains that the authors locate semantics – next to morphology and syntax. This should not be taken to mean that the three areas exhaust the phenomenon of knowing a word; in an earlier study, Proctor and colleagues (2009) listed as many as six domains implicated in depth of vocabulary: "(a) [a word's] phonology and orthography, (b) its morphology, (c) the range of syntactic constructions, (d) its semantic representation, (e) the pragmatics of how to use it, and (f) its etymology" (Proctor et al. 2009: 312). Thus, it is important to note that while some scholars consider research into depth of vocabulary knowledge to be an area of semantic awareness research, others claim that what such studies actually show is the resultant of several levels of participants' metalinguistic awareness.

An interesting study into word knowledge has been conducted by Vermeer (2001), who wanted to check whether Dutch mono- and bilingual kindergarten children would obtain similar or different scores on measures of vocabulary breadth and depth. The results demonstrated that although the monolinguals produced almost twice as many characteristics of the target words as did the bilinguals, the groups did not differ with regard to the structure of the association networks which were created for each stimulus. The bilinguals provided "fewer visual, functional, or material characteristics" than their monolingual peers – not because they had insufficient word knowledge, but because they simply "lacked the words to describe [these characteristics]" (Vermeer 2001: 225).¹⁵⁶ Therefore, they used nonverbal cues and signals to demonstrate the intended meaning. Another interesting finding of Vermeer's (2001) exploration was that the vocabulary breadth and depth measures employed were strongly correlated; thus, the children who were familiar with a greater number of words were also able to provide such descriptions of the stimulus words that

¹⁵⁶ It is important to note that Vermeer (2001) did not provide a detailed profile of the bilingual sample. He wrote that all the children in this group were born in the Netherlands, belonged to "the second or third generation of immigrants who had come to the Netherlands over the past few decades", and "spoke entirely or almost entirely their native language (e.g., Turkish or Arabic) at home" (Vermeer 2001: 224). However, the author provided little, if any, information as to how good these children's command of Dutch was, and whether their levels of proficiency in this language were roughly comparable. The differences in semantic depth obtained in the study may have been caused by the bilinguals' insufficient exposure to Dutch – a possibility that Vermeer (2001: 231f.) himself entertained: "differences in word knowledge between monolinguals and bilinguals may be largely attributed to differences in the frequency of majority language contacts."

were of “greater depth” (Vermeer 2001: 225). Moreover, vocabulary breadth and depth were found to be influenced by the same factors for both participant groups.

Proctor and colleagues (2009) explored the relationship between vocabulary depth and reading comprehension in older children: fifth-graders. In the study, 11 bilinguals and 24 monolinguals performed a series of vocabulary-oriented tasks aimed at developing their depth knowledge of eight low-frequency target words. These activities were created in such a way so as to expose the participants to different representations of the stimuli. The main task consisted in providing captions for photographs or clip arts illustrating each target word; the captions were then rated for vocabulary depth on a four-point scale. The results demonstrated that although the oral language skills – especially vocabulary breadth and oral comprehension – of the monolingual students were higher than those of the bilinguals, the bilingual students “tended to outperform their monolingual counterparts” (Proctor et al. 2009: 323) on the measure of semantic depth, though this trend failed to reach significance.¹⁵⁷ Regression analyses found that “semantic depth contributed significantly to explaining reading proficiency” and that “an interaction between semantic depth and oral proficiency proved significant in explaining reading comprehension” (Proctor et al. 2009: 326). In their discussion of these findings, the authors of the study make an important point: if the obtained interaction is to be interpreted correctly, one needs to bear in mind that the participants in the two groups differed with regard to their levels of oral language proficiency. To illustrate, in the bilingual group were both the student with the highest and the one with the lowest oral proficiency. Interestingly, when the authors entered “language status (i.e., bilingual or monolingual) (...) into the regression equation that included oral language proficiency, its effect was nonsignificant” (Proctor et al. 2009: 327). Thus, it was not participants’ mono- or bilingual status, but their oral proficiency level that was the factor influencing the link between semantic depth and reading.

As has been discussed earlier, the approaches to semantic depth vary. It is important to remember that the definition of this concept that we choose to adopt will also affect our view of other types and layers of metalinguistic awareness. It is not different in the case of sentence awareness, also referred to as syntactic or grammatical awareness,¹⁵⁸ the last aspect of metalinguistic awareness that we are going to discuss: it may be considered either a

¹⁵⁷ The difference in vocabulary breadth was statistically significant, while the difference in oral comprehension was approaching significance.

¹⁵⁸ These terms will be used interchangeably throughout the discussion.

further level of metalinguistic awareness, or one of the elements that contribute to semantic depth. Regardless of the approach we choose to employ, it is important to remember that semantic- and grammatical awareness, being awareness of meaning and awareness of the form in which meaning is conveyed, cannot but be related.

Bee Chin and Wigglesworth (2007: 65) define sentence awareness as “the ability to recognize utterances which are grammatically acceptable within the language.” Research into this area of metalinguistic awareness has tended to employ one major task type: judgments of sentence grammaticality or acceptability, whereby participants are supposed to determine whether a presented target sentence is correct (or acceptable) in a given language, and, often, to “detect, correct and explain errors” (Bee Chin and Wigglesworth 2007: 65).¹⁵⁹ One of the earliest studies into grammatical awareness, conducted by Gleitman and colleagues (1972) with a group of monolingual children, has reported rudiments of metalinguistic reasoning as early as in two-year-olds, who “provided nonrandom classifications of simple sentences” (Gleitman et al. 1972: 160). The authors illustrate this finding with a compelling comparison: “[a] child who can do this must already be said to know something about language that the spider does not know about webweaving” (Gleitman et al. 1972: 160). Later, the authors note that as children get older, their metalinguistic ability “dramatically increases” (Gleitman et al. 1972: 160). Still, the majority of the five-year-olds in their study – when asked for their opinions about the target sentences – tended to provide nothing more than paraphrastic corrections; it is only the older children that made explicit use of linguistic categories. Similar conclusions can be drawn from the exploration by Karmiloff-Smith (1986), in which children as young as 4 demonstrated some sensitivity to linguistic markers while self-correcting their utterances, but only those who were 6 or more were able to use these same markers as points of reference when making sentence grammaticality judgments. Interestingly, bilingual children seem to develop such abilities at an earlier age. A number of sentence awareness studies conducted with mono- and bilingual children have reported bilinguals outperforming their monolingual peers. Of special interest here are studies examining participants’ ability to identify errors in sentences which

¹⁵⁹ The notions of grammaticality and acceptability are not the same; a grammatical sentence may be unacceptable, and vice-versa. Linguists employ various definitions and criteria; here, we will follow the distinction proposed by López-Serena (2009: 638), who links the concept of grammaticality to correctness – in the sense of conforming to the grammatical rules of the language, and considers acceptability to be “a more general criterion that also includes conformity with logical thought and knowledge of the world (congruence) and correspondence to the norms of the speech situation, discourse genre, etc. (appropriateness)” (López-Serena 2009: 638).

“have a plausible interpretation and where the error is more formal in kind” (Galambos and Hakuta 1988: 146), as in “Boy is drinking”. Although monolingual children do not make errors of this kind in their own speech, they still find it difficult to fix such sentence problems before reaching the age of 5 or 6. In contrast, bilingual children competent in both of their languages identify these types of errors with ease as early as at the mere 4.6 years of age, as demonstrated by Galambos and Goldin-Meadow (1983).¹⁶⁰ To understand these findings, one needs to consider them in terms of which aspect of the stimulus the two groups of children tended to focus on. Galambos and Hakuta (1988: 147) point out that while young monolinguals direct their attention towards the message that a given sentence aims to get across, bilinguals readily concentrate on the form of that sentence. This seems to be valid for different types of sentences: when the children in the Galambos and Goldin-Meadow (1983) study were presented with sentences that were grammatically well-formed, but contained a semantic anomaly, the bilinguals were found to be “more likely to ignore the semantic distraction and focus on the structure” (Bee Chin and Wigglesworth 2007: 65). The idea that “becoming a bilingual requires attention to the form of the languages being learned on a routine basis” served as the theoretical framework for the two longitudinal studies by Galambos and Hakuta (1988), who tested several groups of Puerto Rican Spanish- and English-speaking children. As expected by the authors, the study found that more proficient bilinguals performed better than did their less proficient peers. Similar results were obtained by Ricciardelli (1992), who conducted an extensive study which – among many other tasks – included “Word Order Correction”. The task, administered to English mono- and Italian-English five- to six-year-old children, consisted in helping a puppet, Miss B, “say things the right way round” (Ricciardelli 1992: 306). The results yielded a bilingual advantage, but “only for those children who had attained a high degree of bilingualism” (Ricciardelli 1992: 301), and grammatical awareness was one of the domains in which such bilingual superiority was found. A slightly older study into grammatical awareness was conducted by Goldin-Meadow and Galambos (1990). Here, Spanish-speaking and English-speaking monolinguals and Spanish-English bilinguals performed a task which checked their ability to detect, correct, and explain grammatical errors in different sentences. The results showed that there existed a developmental progression in participants’ approach to language: the children moved “from a content-based orientation to a

¹⁶⁰ The children were Spanish-English bilinguals.

form-based orientation” (Goldin-Meadow and Galambos 1990: 1f.), a regularity which was visible at each level of the task: from error identification, through its correction, and to explanation. For two of these levels – error identification and correction – the bilinguals were found to be at a more advanced stage of the shift in approach towards language. Drawing on these findings, Goldin-Meadow and Galambos (1990: 2) postulate that “the experience of learning two languages hastens the development of certain metalinguistic skills in young children, but does not alter the course of that development.” The authors point out that while acquiring two languages may tune an individual’s “ear” – understood as one’s aptness at noting various regularities of form, it does not seem to boost his or her “‘mind’ for understanding those regularities” (Goldin-Meadow and Galambos 1990: 2). Grammatical awareness in bilinguals was also explored empirically in more recent research. Davidson and colleagues (2010) examined this problem in English mono- and Urdu-English bilingual children. Here, again, it was found that bilingual 5- to 6-year-olds were better than their monolingual peers at detection of grammatically incorrect sentences. A bilingual advantage was also observed for the younger group: 3- to 4-year-olds, but only when they were tested in Urdu, their first language. Interestingly, no differences were found in mono- and bilinguals’ ability to identify grammatically correct sentences. A task which was found to be particularly difficult for all the children tested was explaining the detected errors: “[a]cross both groups, only about 20% of the children were able to provide any type of coherent explanation as to why a sentence was not grammatically correct” (Davidson et al. 2010: 173). This result is in line with the findings of Goldin-Meadow and Galambos (1990), whose participants also had problems explaining errors.

Taken together, research findings into mono- and bilinguals’ metalinguistic awareness seem to leave at least as many questions to be asked as they answer. Varied, if not contradictory, results have been obtained at all of the discussed levels of metalinguistic ability – from phonological to grammatical awareness. However, one should remember that these findings were obtained with populations that differed dramatically on numerous dimensions. To illustrate, the “marginal bilinguals” from the exploration of Yelland and colleagues (1993) would not qualify as bilinguals if they were to take part in the study by Davidson and colleagues (2010). With definitional differences thus great, inconsistencies in research findings seem to be rather inevitable. Another reason for these inconsistencies is differences in the cognitive demands posed by the various tasks that have been employed to explore metalinguistic awareness – a problem extensively discussed in Bialystok (2001b).

Having re-examined a number of relevant studies, this author postulates that “two cognitive processes, analysis and control, are directly responsible for task performance” and that “bilingual advantages occur reliably [only] on tasks that make high demands on control” (Bialystok 2001b: 169). The link between bilingualism and control will be discussed in more detail in the section on cognitive flexibility; for now, it is important to stress that not only subject-specific, but also “task-specific factors are important in understanding the relationship between bilingualism and metalinguistic awareness” (Galambos and Hakuta 1988: 141). Thus, one has to take all these factors into account when studying the link between the two phenomena. That the bilingual experience is related to an advantage in metalinguistic awareness has been demonstrated in numerous studies; it has to be remembered, however, that this advantage is not unconditional, but occurs under certain circumstances.

3.3.2.2. Verbal abilities

While research into the metalinguistic awareness of mono- and bilinguals has tended to favour the latter group, there is an important area of language proficiency in which the performance of bilinguals has been found to be compromised: a number of studies have demonstrated that “bilinguals generally control a smaller vocabulary in each language than monolinguals” (Bialystok 2009: 4). This has been shown to be true for both young and adult speakers.

It is already the study by Ben-Zeev (1977), discussed earlier with reference to metalinguistic awareness, that signalled that bilinguals might have a deficit in receptive vocabulary. Ben-Zeev (1977) obtained this finding on a task which employed the Peabody Picture Vocabulary Test (henceforth PPVT). This tool, published by Dunn (1959), “assesses the lexicon of words that a person can understand when he or she hears them” (Eigsti 2013: 2143), and may also be used to test verbal ability.¹⁶¹ The procedure is simple: for each test item, the experimenter speaks out a word, and the participant is supposed to choose one out of four pictures that best represents the meaning of that word. In the study by Ben-Zeev (1977), the PPVT scores obtained by the bilingual children were significantly lower than those of their monolingual peers. Importantly, the mean IQ score of the bilinguals was

¹⁶¹ The current version of the PPVT is the fourth edition, referred to as the PPVT-IV, and authored by Dunn and Dunn (2007).

slightly higher than that of the monolinguals, so the obtained difference in receptive vocabulary scores cannot be attributed to disparate intelligence levels of the two groups.

An interesting study into the lexical development of very young bilinguals has been conducted by Zurer Pearson and colleagues (1993). The authors collected data from 25 English-Spanish simultaneous bilingual and 35 monolingual infants and toddlers. The materials that were employed in order to assess participants' vocabulary sizes were normed English parent report instruments and their Spanish versions. Depending on the particular report form, the parent was supposed to "mark the words that their child spontaneously produces", or "to mark words their child produces and comprehends as well as words only comprehended" (Zurer Pearson et al. 1993: 99). In contrast to the implications of Ben-Zeev's (1977) exploration, the results obtained by Zurer Pearson and colleagues (1993) demonstrate that "bilingual children's ability to understand two languages may be comparable in each language to monolingual children's" (Zurer Pearson et al. 1993: 113). When the number of words produced was calculated for each language separately, the performance of the monolinguals was better; however, when the production of the bilinguals was calculated for both languages together, the vocabularies of the two groups were found to be similar. Discussing this finding, Zurer Pearson and colleagues (1993) make the important point that the decision whether to employ single- or double-language measures of bilingual children's skills is not made once for all, but will depend on the purpose of each particular exploration.

Different results were obtained by Mahon and Crutchley (2006), who have found that the vocabulary span of bilingual children is smaller in each of their languages than that of their monolingual peers. However, the authors themselves note that their findings "must be treated cautiously because of the limited sampling frame" (Mahon and Crutchley 2006: 1). A more comprehensive study into these problems has been conducted by Bialystok and colleagues (2010), who tested as many as 1738 participants, aged between 3 and 10 years. In this sample, "772 children were English monolingual speakers and 966 were bilingual speakers" (Bialystok et al. 2010: 526).¹⁶² These children were administered the PPVT-III –

¹⁶² The authors of the study recruited the participants from multiple "studies conducted by the first author over a period of five years" (Bialystok et al. 2010: 526). Nonetheless, the bilinguals all fulfilled strictly laid out selection criteria: they received school education in English and used "a non-English language at home with family members" (Bialystok et al. 2010: 526). They were, moreover, fluent in that language as well as in English, and had direct contact with both of these languages on a day-to-day basis. To ensure a representative sample, Bialystok and colleagues (2010) excluded learners of English as a second language from their analysis.

the third edition of the Peabody Picture Vocabulary Test (Dunn and Dunn 1997). The results demonstrated that the monolinguals significantly outperformed their bilingual peers “at every age comparison” (Bialystok et al. 2010: 526). To further explore this problem, Bialystok and colleagues (2010) decided to take a closer look at the bilingual sample. The authors had precise information as to the non-English language spoken by the bilinguals for about two-thirds of this population. Aiming to differentiate between these children’s linguistic and cultural backgrounds, the authors divided them into two major subgroups: speakers of an East Asian language, and speakers of a non-Asian language, encompassing 329 and 247 children, respectively.¹⁶³ The PPVT-III scores obtained by these two groups of children were compared to one another, and to the score obtained by the monolinguals. The results found no difference between the two bilingual groups; however, a significant difference was obtained between each of these two groups and the monolingual group. As the next step, Bialystok and colleagues (2010) checked whether the vocabulary difference was consistent across the two major contexts of language use: the home and school environments. To this end, the authors conducted an item analysis of the words in the PPVT-III, assigning them to either the “home” or “school” category.¹⁶⁴ Data from 161 participants were then re-analysed in terms of these two vocabulary subsets. The results showed that the monolinguals were familiar with more words from the home category than were the bilinguals. However, for the vocabulary from the school category, the performance of the two groups was – as the authors put it – “more comparable” (Bialystok et al. 2010: 529f.).

Bilingual deficit in receptive vocabulary has also repeatedly been reported for adult speakers, though, as pointed out by Bialystok (2009: 4) – “the measure in this case is not usually vocabulary size but rather access to vocabulary, or lexical retrieval.” Studies by Roberts and colleagues (2002), Gollan and colleagues (2005) and Bialystok and colleagues (2008) have found bilinguals to be slower than monolinguals on picture naming. Parker Jones and colleagues (2012), who performed an fMRI study of mono- and bilinguals engaged in picture naming and reading, report that compared with monolingual speakers, bi-

¹⁶³ Bialystok and colleagues (2010: 528) provide two reasons for their decision to use such a non-typological distinction. Firstly, it allowed them to obtain large samples of relatively comparable size. Secondly, the authors wanted to address a recent claim made by certain scholars, including Lewis and colleagues (2009), according to whom it may be “East-Asian culture, rather than bilingualism, [that] is responsible for the performance differences reported in studies comparing monolingual and bilingual children” (Bialystok et al. 2010: 528).

¹⁶⁴ To be precise, the classification was not performed on all PPVT-III words, but on “all the items from sets 1–10 of the test” (Bialystok et al. 2010: 528).

lingual speakers “have increased activation in 5 left frontal and temporal [brain] regions when they name pictures or read words aloud in a single language context” (Parker Jones et al. 2012: 899), a result that has been obtained for both languages spoken by the bilingual participants. The authors consider this increased activation to be indicative of greater processing effort: bilinguals experience “greater demands on the processes of word retrieval, articulation, and postarticulatory monitoring that are in common with word processing in monolinguals” (Parker Jones et al. 2012: 901). This is not surprising given the findings of Kaushanskaya and Marian (2007), who – having conducted two eye tracking experiments with Russian-English bilinguals performing a picture-naming task – conclude that “nontarget-language information is processed during a target-language task” (Kaushanskaya and Marian 2007: 119).¹⁶⁵ Such activation of both languages has to bear upon the performance of bilinguals, and its effects are by no means restricted to picture naming; they have been demonstrated for a wide array of tasks. For instance, it has been repeatedly reported that bilinguals perform more poorly than monolinguals on verbal fluency measures (Rosselli et al. 2000; Gollan et al. 2002; Portocarrero et al. 2007; Sandoval et al. 2010). Ransdell and Fischler (1987) note that their bilingual participants were slower than the monolingual group in making lexical decisions – an effect obtained for both words and nonwords. Similar results were reported earlier by Soares and Grosjean (1984), who explored lexical access in fluent Portuguese-English bilinguals and in English monolinguals with the use of an on-line lexical decision task. The bilingual participants of the study “were tested in two distinct speech modes: a monolingual, English or Portuguese, speech mode, and a bilingual, codeswitching, speech mode” (Soares and Grosjean 1984: 380). The results demonstrated that the bilinguals were slower at identifying nonwords, regardless of the mode of the task. The situation was more complex for word targets: here, the bilinguals took longer to respond to code-switched items – that is, to the items that were presented in the bilingual mode. However, the two groups were just as quick in responding to word items that were presented in the monolingual mode. The authors conclude that “bilinguals cannot totally deactivate their other language” and “search both lexicons when confronted with nonwords” (Soares and Grosjean 1984: 380) – hence the extended duration of lexical access.

¹⁶⁵ This is by no means a novel finding. Ample research has documented that “fluent bilinguals show some (...) activation of both languages and some interaction between them at all times, even in contexts that are entirely driven by only one of the languages” (Bialystok et al. 2012: 241).

The consequences of having two languages activated are not restricted to experimental psycholinguistic tasks; bilinguals experience them on a routine basis in their everyday language use. Among the examples are tip-of-the-tongue states. The tip-of-the-tongue experience, abbreviated TOT, is a “type of speech error in which a word retrieval failure is coupled with a strong feeling of knowing and often with a considerable sense of frustration at the inaccessibility of the desired word” (James and Burke 2000: 1378). TOTs “appear to be a universal experience” (Schwartz 1999: 379) that “occur[s] on a regular basis” (Gollan and Silverberg 2001: 63). Their approximate incidence in monolinguals is around once a week, an estimate that has been calculated for natural settings (Reason and Lucas 1983). The situation is different in laboratory settings, where TOTs “occur on about 10-20% of attempts to retrieve low-frequency targets” (Gollan and Silverberg 2001: 63). TOTs are believed to be more common in older age (Burke et al. 1991; Heine et al. 1999); more importantly, however, it has also been found that bilinguals experience them more often than monolinguals do. Gollan and Silverberg (2001) obtained this result with proficient Hebrew-English bilinguals and matched English monolingual controls. These authors also found that – apart from bilingualism – there were two other factors that influenced TOT incidence: one was age, with younger participants experiencing more TOTs, and the other was word frequency, with more frequent words causing fewer TOTs. Importantly, this last effect was far more robust among the bilinguals. Another interesting study into TOTs in mono- and bilinguals has been conducted by Gollan and Acenas (2004: 246). These authors carried out two experiments in which they compared bilinguals to matched monolingual controls.¹⁶⁶ In Experiment 1, they tested Spanish-English bilinguals “who learned both languages at an early age but who spent most (or all) of their lives immersed in an English-speaking environment” (Gollan and Acenas 2004: 249). In Experiment 2, the researchers tested Tagalog-English bilinguals “who had spent a more balanced number of years living in both English- and Tagalog-speaking environments” (Gollan and Acenas 2004: 249). The

¹⁶⁶ The authors admit that the participants of the control groups in their study “were not purely monolingual”, as “many [of them] studied another language in school” (Gollan and Acenas 2004: 249). The criterion for monolingualism used by Gollan and Acenas (2004: 249) was “not [being] fluent in any language other than English.” The researchers point out that selecting pure monolinguals may be undesirable, as it is fraught with the risk of arriving at a control group which displays systematic differences from the studied bilingual group. Here, Gollan and Acenas (2004: 249) give the example of individuals who shun language study, a behaviour which may be indicative of “a subtle or even obvious cognitive disadvantage or deficit.”

stimuli employed in the study were pictures that had cognate and noncognate names.¹⁶⁷ The results found that overall, bilinguals had approximately twice as many TOTs as did the monolinguals – a statistically significant result that was consistent for both experiments. However, when the obtained data were analysed in terms of stimulus type, a slightly different pattern emerged: “[b]ilinguals had more TOTs than did monolinguals unless the target pictures had translatable cognate names, and bilinguals had fewer TOTs for noncognates they were later able to translate” (Gollan and Acenas 2004: 246). Drawing on the incidence of TOTs elicited by the same target pictures from the monolingual participants, Gollan and Acenas (2004) conclude that the obtained cognate facilitation effects cannot be an artifact of the stimuli used and postulate that compared with monolinguals, bilinguals have less ability “to activate representations specific to each language” (Gollan and Acenas 2004: 246).

The performances of mono- and bilinguals have been compared on yet another important area of language processing. Rogers and colleagues (2006) devised an experiment in which they explored how bilingualism, noise and reverberation affected the speech perception of normal-hearing listeners. These authors administered a monosyllabic word recognition task to monolingual American English speakers and Spanish–English bilinguals.¹⁶⁸ The testing was carried out in three experimental conditions: in quiet, in noise, and in noise with reverberation. The results demonstrated that the bilinguals obtained significantly lower recognition scores than the monolinguals did – a finding that was obtained both in the noisy and in the simulated noisy and reverberant environments. In quiet, however, the scores of the mono- and bilinguals did not differ, as both groups reached ceiling performance. Drawing on these findings, Rogers and colleagues (2006: 476) conclude that even though “early bilinguals have little difficulty understanding quiet speech, they are less able than monolingual listeners to tolerate acoustic degradations typical in everyday listening environments.”

Taken together, the findings discussed here demonstrate that being bilingual confers an advantage that comes at a certain cost – that of “increased demands on word retrieval and articulation, even in simple picture naming and reading tasks” (Parker Jones et al.

¹⁶⁷ Gollan and Acenas (2004: 246) define cognates as “translation equivalents that are similar in form.” One example that the authors give is the word “*vampire*, which is *vampiro* in Spanish”; the example that they give of a noncognate name is “*funnel*, which is *embudo* in Spanish” (Gollan and Acenas 2004: 246).

¹⁶⁸ The bilinguals who participated in this study “had learned English prior to 6 years of age and spoke English without a noticeable foreign accent” (Rogers et al. 2006: 465).

2012: 901). Indeed, as pointed out by Bialystok and colleagues (2012: 241), “the simple act of retrieving a common word is more effortful for bilinguals.” However, there are other areas in which bilinguals have been found to be far more skilled than their monolingual peers. One of the best documented of these is cognitive flexibility.

3.3.2.3. Cognitive flexibility and executive function

The term “cognitive flexibility” was first used with reference to bilinguals by Peal and Lambert (1962), whose study is currently considered “pivotal in research on bilingualism and cognitive functioning” (Baker 2001: 141).¹⁶⁹ The researchers thoroughly re-examined earlier studies into the link between bilingualism and intelligence, paying special attention to methodological concerns. Doing so, they demonstrated that the authors of previous explorations tended to define their bilingual populations “at best inadequately and at worst totally haphazardly and arbitrarily” (Bee Chin and Wigglesworth 2007: 189). To address this research problem more adequately than their predecessors did, Peal and Lambert (1962) conducted an extensive and carefully controlled study with 364 participants – ten-year-old¹⁷⁰ schoolchildren attending six middle-class¹⁷¹ French schools in Montreal. These participants filled out a questionnaire, as well as several tests that were aimed at determining their degree of bilingualism. In addition, they provided self-ratings of their ability to speak, read, write, and understand English. On the basis of these data, the children were then classified into three major groups: monolinguals, bilinguals, and “a third group which could not be unambiguously classified as either monolingual or bilingual” (Peal and Lambert 1962: 8). It is only the children from the first two groups – 75 monolinguals and 89 bilinguals – that took part in the subsequent stages of the study, in which they were administered three different intelligence tests measuring verbal as well as nonverbal skills, and a series of different measures of attitude. The results demonstrated that there was not a single subtest whose results would point to monolingual superiority: “[o]n certain subtests of the nonverbal type there were no significant differences between the groups, while on others, both nonverbal and verbal, the bilinguals performed better in differing amounts” (Peal and

¹⁶⁹ This is not to say that the study had no limitations; these will be discussed later in the section.

¹⁷⁰ The criterion here was age, and not school grade.

¹⁷¹ As classified by the School Commission.

Lambert 1962: 12). One of the questions that these results raised was “why (...) the bilinguals [did] not do better on *all* the different nonverbal subtests” (Peal and Lambert 1962: 13). In order to clarify this issue, Peal and Lambert (1962) drew on the observation made by Anastasi (1961: 253), who points out that various non-language tests differ with regard to how much they rely on “spatial and perceptual functions, as contrasted to the symbolic manipulation of abstract relations, concepts, and factual information.” While certain measures “stress spatial and perceptual factors almost to the exclusion of other functions”, she posits, other “employ a greater proportion of items calling for ideational or symbolic responses” (Anastasi 1961: 253). In light of this, Peal and Lambert (1962) divided the employed tests into two groups, depending on the demands that these materials placed on the participants: thus, there were tests with spatial-perceptual requirements, and those with symbolic reorganisation requirements. When the researchers re-examined the obtained data in view of task demands, they found that the bilingual advantage was found only on those nonverbal tasks that relied on concept formation or – as they put it – “symbolic ‘flexibility’” (Peal and Lambert 1962: 14).¹⁷² The authors proposed several hypotheses to account for this finding. One is that “bilinguals, because of their training in two languages, have become more adept at concept formation and abstract thinking than the monolinguals” (Peal and Lambert 1962: 14). Another possibility is that individuals using two languages on a daily basis “may have developed more flexibility in thinking” (Peal and Lambert 1962: 14), which is all the more probable given their training in switching between the two languages. Moreover, bilinguals, being immersed in two different cultures, are likely to have amassed more diverse experiences than their monolingual peers – and a richer and more robust environment may be translated into improved performance on nonverbal tasks (Peal and Lambert 1962: 15).

Although Peal and Lambert’s (1962) study was strictly controlled, it nevertheless had some methodological limitations. Baker (2001: 141) lists four weaknesses that “need to be (...) considered before accepting the research at its face value.” The first of these problems is that the bilingual sample tested by Peal and Lambert (1962) cannot be generalised to a larger population – the more so as the results were obtained with only a part of the original sample. In addition, as pointed out by Baker (2001: 141), the bilinguals that partic-

¹⁷² In their use of the term “flexibility”, Peal and Lambert (1962) drew from Ahmed (1954: 23), who – arguing for the separate status of spatial visualisation and mental manipulation – wrote about “mental flexibility which is involved in the process of mentally reorganizing the elements of a problem or situation.”

ipated in the study were all balanced bilinguals – a group which could be unique “in terms of their motivation, aptitude for languages, cognitive abilities and attitudes”, as well as in terms of their general intelligence.¹⁷³ The next problem noted by Baker (2001: 141) is – as this author puts it – “the chicken and egg problem”: when research findings point to the existence of a positive correlation between bilingualism and intelligence, this tells us nothing about the causal relationship between the two phenomena. It may be the case that using two languages has a facilitative effect on intelligence; however, it may also be that that highly intelligent individuals are just more likely to become bilingual than are their less intelligent peers. There is also a third possibility: “(t)he relationship may (...) be such that one is both the cause and the effect of the other” (Baker 2001: 141). The final problem listed by Baker (2001: 141) is related to the socioeconomic status of the children who took part in Peal and Lambert’s (1962) study. These authors tried to control the differences in participants’ socioeconomic class; however, this solved only part of the problem.¹⁷⁴ Drawing on Cummins (1976, 1984) and MacNab (1979), Baker (2001: 141) points out that levelling out the differences in children’s socioeconomic class does not mean levelling out the differences in their home environments. Being a “rough, simple and very partial measure” (Baker 2001: 141), the criterion of socioeconomic class is not sensitive enough to capture the variability that exists in the environmental backgrounds of monolingual children. Such variability is likely to be even greater among bilingual and bicultural children, and it needs to be remembered that one’s home environment – family values and attitudes – are not without impact when it comes to one’s intellectual development. Hence, it appears that the results obtained by Peal and Lambert (1962) would be more reliable if these authors controlled participants’ socioeconomic status in addition to socioeconomic class.

Despite the weaknesses of Peal and Lambert’s (1962) research, their study “marked a major watershed in the history of bilingual research” (Bee Chin and Wigglesworth 2007: 59): these authors were the first to express an unequivocally positive view of the cognitive consequences of bilingualism, and to do so with confidence – drawing on experimental results obtained with a carefully controlled population. Peal and Lambert’s (1962) study is

¹⁷³ Here, Baker (2001: 141) speculates that balanced bilinguals could be “a special group of children who have a higher IQ that is due not only to owning two languages, but due to other factors as well (e.g. parental values and expectations)”; this possibility cannot be ruled out.

¹⁷⁴ Although Peal and Lambert’s (1962) participants all attended middle-class schools, a significant difference was found between the socioeconomic level of the mono- and bilinguals. To equate the groups on SES, the authors performed separate analyses on “a small sample having equal numbers of bilinguals and monolinguals in each of seven socioeconomic status categories” (Peal and Lambert 1962: 10).

also significant for another reason – and one that is more important to our current discussion: the conclusions drawn by these authors seem to have been in the right direction. As has been discussed earlier, one of the findings that drew Peal and Lambert’s (1962) attention was that bilingual superiority was obtained only on some of the nonverbal tasks, which turned out to be those relying on symbolic manipulation – an ability that Peal and Lambert (1962) referred to as “mental flexibility”. Interestingly, a growing body of research is being accumulated which shows that “bilinguals at all ages demonstrate better executive control than monolinguals matched in age and other background factors” (Bialystok et al. 2012: 241). Broadly understood, “‘executive functions’ is an umbrella term for functions such as planning, working memory, inhibition, mental flexibility [sic!], as well as the initiation and monitoring of action” (Chan et al. 2008: 201). Executive functions are involved in activities such as multi-tasking, sustained attention, and high order thought (Bialystok et al. 2012: 241). The neural wiring underlying executive functions is “centred in the frontal lobes” (Bialystok et al. 2012: 241); here, a special role is played by the prefrontal cortex (henceforth PFC), which is “uniquely positioned to coordinate executive skills as they share associated circuitry with all other major functional systems of the brain” (De Luca and Leventer 2010: 25). Executive functions emerge relatively late in childhood, “[continue] to develop into adolescence, with possibly a focus during adolescence on fine tuning skills acquired during the rapid changes during the elementary school years” (Best et al. 2011: 335), and decline early as people age (Bialystok et al. 2012: 241).¹⁷⁵

The evidence that has been accumulated for the bilingual advantage in executive control spans a range of methods choices. Studies conducted with children have demonstrated that bilinguals master the ability to solve problems that involve contradictory or ambiguous information at a younger age than monolinguals do. Among these explorations are the studies by Bialystok (1999) and by Bialystok and Martin (2004), both of which employed Zelazo and colleagues’ (1996) dimensional change card sort task. In this task, participants are presented with stimuli that have two properties; in the study by Zelazo and colleagues (1996), these were laminated cards with pictures that differed in colour or shape. Participants are first asked to sort the stimuli according to one dimension, and then – immediately after – to sort them again; this time, however, according to the other dimension.

¹⁷⁵ The fact that executive functions emerge late is not surprising given that the frontal lobes are the latest maturing brain regions. Although the PFC starts to develop already before birth, in a woman’s uterus, it is well into adulthood that “its complex connections both within the frontal lobes and to other brain areas continue to remodel and mature” (De Luca and Leventer 2010: 25).

What typically happens in children who are under 4 or 5 is that they keep sorting the cards according to the first dimension at the second turn, and they do so even though they are perfectly able to state the new rule. This difficulty stems from the fact that the second time round, children have to focus on the new dimension and to disregard the old one – and the latter is not only still present, but also highly salient, as it was relevant shortly before (Bialystok 2009: 5). As postulated by Bialystok and Martin (2004), the demands of this task resemble those that bilinguals are well familiar with. Here, the authors draw on an earlier article, in which Bialystok (1988), focussing on task demands, proposed a framework for relating levels of bilingual proficiency to performance on different types of metalinguistic tasks, and reported two relevant studies. She hypothesised that bilingual children would be more apt than their monolingual peers at “metalinguistic tasks requiring high levels of control of processing and that fully bilingual children would perform better than partially bilingual children on tasks requiring high levels of analysis of knowledge” (Bialystok 1988: 560). The obtained findings were highly in line with these hypotheses. In her further analysis of studies into mono- and bilinguals’ metalinguistic awareness, Bialystok (2001b) concluded that the contradictories in research findings could only be resolved when analysed in terms of “the primary demands imposed by each set of tasks” (Bialystok 2001b: 179). Therefore, she grouped the different tasks into two major categories, depending on the cognitive process that the task relied on: tasks requiring detailed knowledge, and therefore “high in their demand for analysis of representations”, and those involving contradictory information, and hence “high in their demand for control of attention” (Bialystok 2001b: 180). According to Bialystok (2001b), it is the second of these processes – control of attention – that bilinguals are particularly good at. It is both of these processes, however, that are required for a successful performance at Zelazo and colleagues’ (1996) dimensional change card sort task – and this, in turn, is what makes this task perfect for studying executive control in bilinguals. As postulated by Bialystok and Martin (2004: 327), the representational demands linked with arriving at a suitable interpretation of the rule structure of the sort are a lot like those that bilinguals are faced with when they select their language: “the selection (...) is determined by contextual instructions or circumstances.” The control demands linked with suppressing attention to an obsolete feature and directing focus at another feature of the same stimulus are like “the processes in which bilingual children have been shown to excel” (Bialystok and Martin 2004: 327). In her seminal study, Bialystok (1999) found that the performance of the bilingual children at solving Zelazo and colleagues’

(1996) dimensional change card sort task was about one year ahead of that of the monolinguals. The author considered this advantage to be attributable to bilinguals' superiority in inhibition of attention. This problem was further explored by Bialystok and Martin (2004), who conducted a series of three studies. In the first study, mono- and bilingual preschoolers were presented with four variations of the original task that differed with regard to the representational demands of both the sorting rules and the stimuli. Here, the results demonstrated a bilingual advantage on those experimental conditions that posed moderate representational demands, and not on a more demanding one. In the second and third study, the bilingual participants were found to outperform their monolingual peers when the target features were perceptual properties of the stimulus, such as colour. When the target features were semantic properties – category classifications, such as “toy”, then the performances of the two groups were equivalent. Drawing on these findings, the authors conclude “that bilinguals have better inhibitory control for ignoring perceptual information than monolinguals do but are not more skilled in representation” (Bialystok and Martin 2004: 325). Importantly, this interpretation of the results is consistent with the findings of Bialystok's (1999) earlier study.

The dimensional change card sort task was also employed by Okanda and colleagues (2010) to explore the link between language and cognitive shifting. Here, the authors were mostly interested in the effects of “second language experiences from infancy as well as individual differences in monolingual language experience” (Okanda et al. 2010: 68), and hence, three groups of participants were studied: Japanese-French bilingual children, monolingual children matched on age and verbal ability, and monolingual children matched on age, but with higher verbal ability.¹⁷⁶ The results demonstrated that the bilingual children and the children with higher verbal ability (monolinguals) performed significantly better than the monolinguals that were matched on verbal ability. Okanda and colleagues' (2010) finding of bilingual superiority on the dimensional card sort task replicates those obtained by Bialystok (1999) and by Bialystok and Martin (2004). In addition, their study has demonstrated that “individual differences in language experience may affect the development of executive function” (Okanda et al. 2010: 75).

¹⁷⁶ In Okanda and colleagues' (2010) study, the two monolingual groups were referred to as VC monolingual group, and C monolingual group, respectively; the same labels will be employed throughout the present discussion.

The dimensional card sort task is by no means the only task that has been employed to study mono- and bilinguals' executive control. Another such task is the Simon task, designed to explore the impact of stimulus location on the processing of visual information. In this task, participants are seated in front of a monitor screen and a response keyboard with two buttons. On the screen, stimuli are flashed – one at a time – which differ with regard to a target feature, which typically is stimulus colour, and with regard to an irrelevant feature, which is stimulus location – on either the left or the right side of the screen. Participants are supposed to press the left response key when they see a stimulus of one colour, and the right response key when they see a stimulus of a different colour. The combination of the two dimensions – stimulus colour and location – “creates trials that are congruent, because both features converge on the same response, or incongruent because they indicate contrary responses” (Bialystok 2009: 6). In addition, the presentation of the congruent and incongruent trials is normally carried out in a mixed block, with randomly sequenced items; this means that in order to perform this task, one has to engage the executive control processes for monitoring as well as those for switching (Bialystok 2009: 6). What typically happens is that participants respond faster and with greater accuracy when the location of the stimulus overlaps with that of the response assigned to it (Lu and Proctor 1995: 174) – a phenomenon referred to as the Simon effect.¹⁷⁷ As pointed out by Bialystok (2009: 5f.), “the Simon task (...) incorporates the type of conflict that is more easily resolved by bilinguals and illustrates their advantage in executive processing.” It is, therefore, not surprising that bilinguals of all ages have been found to outperform their monolingual peers on the various adaptations of this task. In their study conducted with mono- and bilingual children, Martin-Rhee and Bialystok (2008) found a bilingual advantage on “complex tasks requiring control over attention to competing cues (interference suppression)”; this advantage was not obtained on tasks that required “control over competing responses (response inhibition)” (Martin-Rhee and Bialystok 2008: 81). A different age group was studied by Bialystok (2006): here, the participants were young adults who were either mono- or bilin-

¹⁷⁷ Both the task and the effect owe their name to J. Richard Simon, who – together with James D. Wolf – first obtained and described this effect in 1963, in their study into “the role of spatial cues in determining the effectiveness of control-display relationships, and (...) the effect of ageing on perceptual-motor performance” (Simon and Wolf 1963: 99). However, it is another of Simon's studies that is typically considered to be the first actual presentation of the Simon effect: the 1967 study, in which Simon and Rudell (1967) asked participants to “[press] the right- or left-hand key in response to the words ‘right’ or ‘left’ which were presented to the right or left ear” (Simon and Rudell 1967: 300). The results demonstrated significantly faster response latencies for stimuli whose content was consistent with the ear stimulated.

gual, and who either did or did not have “extensive practice playing computer video games” (Bialystok 2006: 68). Interestingly, the results demonstrated that both bilingualism and experience with playing video games affected participants’ performance; however, each of these variables had impact on its different aspect. The players were found to be faster in the majority of experimental conditions. Bilinguals, in turn, were faster in only one – the most complex – condition, which “required the most controlled attention to resolve conflict from the position and the stimulus” (Bialystok 2006: 68). Thus, the bilingual advantage observed here was obtained on the experimental condition that imposed greatest demands on executive function. Bialystok and colleagues (2004) sought to determine whether the bilingual advantage in cognitive control “persists for adults and whether bilingualism attenuates the negative effects of aging on cognitive control in older adults” (Bialystok et al. 2004: 290). In their study, these authors tested mono- and bilingual middle-aged and older adults in three experiments employing the Simon task. The results demonstrated that “adult bilinguals performed more efficiently than their monolingual counterparts” (Bialystok et al. 2004: 301) – a finding that was consistent across all three experiments. Bilinguals in both age groups were not only faster at responding to both the congruent and incongruent types of trials, but they also generated smaller Simon effects, which points to “less disruption from the incongruent items regardless of speed” (Bialystok et al. 2004: 301). The bilinguals were, moreover, faster to respond to those experimental conditions which were associated with greater working memory demands. Interestingly, the bilingual advantage was always found to be greatest for participants belonging to the older age group. The authors conclude from this that the cognitive benefits associated with bilingualism that were earlier observed for children are preserved into adulthood, and that it may be the case that bilingualism constitutes a protective shield against the decline of executive processes that is associated with normal aging¹⁷⁸.

Yet another task that has been employed to study the differences in mono- and bilinguals’ executive function is the child Attention Network Test (henceforth, ANT), “a child-friendly version of the classic flanker task” (Barac et al. 2014: 703). The original flanker task was designed by Eriksen and Eriksen (1974), who were interested in the effects of noise letters on one’s ability to identify target letters in a nonsearch task. In their study, participants looked at a display on which a target letter appeared, always in the same loca-

¹⁷⁸ We will get back to this issue in the following sections.

tion, and were supposed to “ignore any and all other letters that might appear simultaneously with the target” (Eriksen and Eriksen 1974: 144). They were asked to press one lever if the target letter was an H or K, and another, if it was an S or a C. The target letter was flashed alone on the screen in two control conditions; for all the remaining trials, the target letter “was always flanked on either side by three noise letters” (Eriksen and Eriksen 1974: 144) – these were the different noise conditions. In addition to this, Eriksen and Eriksen (1974) also manipulated the spacing between the letters flashed on the display. It needs to be remembered that the stimuli on a flanker task do not necessarily need to be letters; numbers, patches of colour, or arrows may be used just as well, as long as these enable creating three major stimuli types: congruent, or compatible, where the flankers direct the participant towards the same response as the target does; incongruent, or incompatible, where the flankers direct the participant towards the response that is opposite of the one that the target does; and neutral, where the flankers do not interfere with the response prompted by the target. What typically happens in this kind of task is that participants respond faster on congruent, and slower on incongruent trials. As the classic flanker task, using letters or arrows, is not particularly child-friendly, Rueda and colleagues (2004), in their study into attention in children, adapted this task for their young participants, replacing the numbers or arrows with colourful pictures of fish, pointing to the right or left direction.¹⁷⁹ This test, referred to as the child ANT, was employed by a number of researchers interested in comparing the performances of various groups of children. Mezzacappa (2004), who did not address the impact of bilingualism directly, studied children from Chicago, who differed with regard to ethnic or racial identification (African American, Caucasian or Hispanic), gender (girls and boys), and socioeconomic status (low, middle, and high strata). Overall, and – perhaps – not surprisingly, older children and socially advantaged children were found to be more proficient in terms of overall accuracy and speed of responding. In addition, older children, socially advantaged children, African American, and Hispanic children were found to have better resisted “the interference of competing demands” (Mezzacappa 2004: 1373). The author makes an interesting point with reference to the proficient performance of one particular group of participants: “one factor that may have helped some Hispanic children perform proficiently on tests of executive attention is exposure to two lan-

¹⁷⁹ To be precise, Rueda and colleagues (2004) adapted the Attention Network Test (ANT), which was devised by Fan and colleagues (2002: 340) in order to “evaluate alerting, orienting, and executive attention within a single 30-min testing session that [could] be easily performed by children, patients, and monkeys.”

guages” (Mezzacappa 2004: 1384). Expanding on this, he notes that although he did not test these children’s bilingual competence, “69% of Hispanic primary caregivers reported speaking mostly or only Spanish to their children in the home” (Mezzacappa 2004: 1384). Thus, it is the bilingual experience that may have aided these participants’ performance on the flanker task.

The problem of the bilingual advantage on the flanker task received more attention from Yoshida and colleagues (2011), who studied mono- and bilingual three-year-olds with similar vocabulary development. These authors hypothesised “that bilingual children, because of their history in learning two languages and more advanced attentional control [might] be better lexical learners in some tasks” (Yoshida et al. 2011: 1). To address this issue empirically, the researchers employed Rueda and colleagues’ (2004) child version of the ANT test, as well as an artificial adjective-learning task. The results demonstrated that only the bilinguals performed above chance level at the adjective-learning task, a finding that “show[ed] for the first time an advantage for bilingual children over monolingual children in mapping a novel adjective to a novel property” (Yoshida et al. 2011: 6). This activity is “known to be difficult for young children across languages” (Yoshida et al. 2011: 8), and the difficulty is often associated with children’s tendency to interpret novel words as nouns – labels for objects, rather than their properties.¹⁸⁰ The results from the ANT test were not very different: the bilingual children were significantly more accurate than their monolingual peers. They were also faster; however, the difference in reaction times failed to reach statistical significance. Discussing these findings, Yoshida and colleagues (2011: 9) propose that the advanced control of attention that they observed in the bilingual children is likely to be the effect of “several different components of language learning and use, including learning two lexicons, managing the contexts of language use, and managing lexical access.”

Another study in which the child ANT was employed for the study of executive attention was conducted by Yang and colleagues (2011), who aimed at researching the consequences of bilingualism in terms of cognitive development. The first step of these authors was “to dissociate bilingualism effects from other possible socio-cultural effects related to geography and general SES” (Yang et al. 2011: 413). Here, the researchers were motivated by findings indicating that one’s cultural context impacts the development of his or her

¹⁸⁰ This problem is reviewed and explored in detail in Gasser and Smith (1998).

executive function.¹⁸¹ To be able to account for such cultural differences, Yang and colleagues (2011) tested as many as four groups of participants; in addition to four-year-old developing Korean-English bilinguals living in the United States of America, they recruited three different monolingual control groups, two of which – English (E) and Korean (K) – encompassed children living in the USA, and one – Korean (ROK) – those living in the Republic of Korea. The rationale behind choosing such groups of participants was that there exist significant cultural differences between Korea and the U.S.: while children living in the former environment are likely to be taught the importance of restraint and self-control, their peers growing up in the latter environment are more likely to be nurtured in the principles of independence and self-expression (Chao and Tseng 2002). The participants were administered the PPVT-III (Dunn and Dunn 1997) as a measure of receptive vocabulary, and were then given the child version of the ANT. The results showed that although the bilinguals participating in the study “were still developing balanced bilingualism and English was their weaker language” (Yang et al. 2011: 419), they turned out to be the fastest and most accurate of all groups when it came to overall executive attention accuracy and reaction time. Moreover, the authors also found that the bilingual advantage related with simultaneous management of two languages “superseded potential culture benefits that may be built upon the East Asian values of disciplined behavior and behavioral regulation (...) at the same time that [their] results replicated these cultural benefits on development of executive attention” (Yang et al. 2011: 419f.).

So far, we have been discussing the bilingual advantage in executive function largely in terms of the different tasks that have been employed in its study. However, it needs to be remembered that, as indicated by recent research (Garon et al. 2008), “the executive function is not unitary[, but] instead, it consists of several components” (Okanda et al. 2010: 68). Hence, it seems reasonable to explore the executive function in terms of its different components. Driven by this very idea, Carlson and Meltzoff (2008) conducted a comprehensive study, in which they employed an executive function battery which comprised as many as nine different tasks.¹⁸² In their discussion of the demands posed by these tasks, Carlson and Meltzoff (2008) draw on the distinction between “conflict” and “delay

¹⁸¹ For an overview of these problems, see the chapter by Lewis and colleagues (2009), in which they postulate that “social and executive skills are underpinned by key cultural processes” (Lewis et al. 2009: 69).

¹⁸² In their paper, Carlson and Meltzoff (2008: 284) point out that “[e]xecutive function is a multifaceted set of skills” and that it is a serious limitation of earlier studies that they used only “a small number of executive function measures (...), thus making it difficult to examine the specificity of the effect.”

tasks” made by Carlson and Moses (2001).¹⁸³ Conflict tasks are those which “require children to respond a certain way in the face of a highly salient, conflicting response option”, while delay tasks are those which “measure children’s ability to delay, temper, or altogether suppress an impulsive response” (Carlson and Moses 2001: 1033). Carlson and Meltzoff’s (2008: 284) executive function battery was composed in such a way so as to “tap both conflict (...) and delay” processes. The first executive function task that the researchers employed in the study was Hammill and colleagues’ (1997) Comprehensive Test of Nonverbal Intelligence (CTONI), a tool “designed to assess the intellectual ability of individuals for whom most other mental ability tests are either inappropriate or biased” (Carlson and Meltzoff 2008: 288).¹⁸⁴ CTONI is aimed at measuring “three different but interrelated nonverbal intellectual abilities: (1) analogical reasoning, (2) categorical classifications, and (3) sequential reasoning” (Wiederholt and Rees 1998: 224). Each of these skills is tested in two modes: with the use of familiar items, such as people, animals and toys, and with geometric forms which are not familiar to the participants. Thus, the CTONI is made up of six components: “pictorial analogies, geometric analogies, pictorial categories, geometric categories, pictorial sequences, and geometric sequences” (Wiederholt and Rees 1998: 224). In each of these subtests, participants look at sets of pictures that pose a given type of problem, and respond by pointing to the picture that is in the correct relation to the target drawings. For example, participants are presented with two drawings: of an elbow chair and of an armchair, and, from an array of pictures showing different pieces of furniture, they are supposed to point to the drawing of an object most similar to the two; here, the correct response is the picture of a chair. Once the participants of Carlson and Meltzoff’s (2008) study completed the CTONI, the executive function battery was suspended, and an extra task – the Expressive One-Word Picture Vocabulary Test (henceforth EOWPVT) – was administered, so that the experimenters could “control for group differences in verbal ability” (Carlson and Meltzoff 2008: 286). Then, the battery was resumed, and the participants were given the next task: Zelazo and colleagues’ (1996) DCCS, together with its advanced version, developed by Hongwanishkul and colleagues (2005). In the advanced DCCS, the stimuli were the same card types as in the original task, “except that some of them had a gold star sticker located above the colored shape” (Carlson and Meltzoff 2008: 287). In the

¹⁸³ Carlson and Moses (2001) propose this distinction after analysing various measures of executive function that have been employed in research into pre-schoolers’ inhibitory control.

¹⁸⁴ In more recent studies, the revised version of the CTONI – CTONI-2 (Hammill et al. 2009: 2) is used.

course of the task, the experimenter demonstrated the stars to the participants, and then stated the rule, according to which the sorting was to be carried out: the cards with the star were to be sorted by colour, and those without it – by shape. The next task on the battery was Simon Says as originally employed by Strommen (1973). Here, participants were asked to follow the experimenter's directions, but only if these were preceded by the phrase "Simon says". If the experimenter did not utter the phrase, participants were supposed to stand still. Following this task was a short break, during which participants watched a video. After the break, they were administered a Delay of gratification task, modelled after the experimental procedures described in Mischel and colleagues (1989). The task was designed to measure participants' ability to delay immediate gratification if they are to receive a more desirable outcome later. In Carlson and Meltzoff's (2008) study, participants received a greater amount of snacks if they were patient enough to wait for the reward. They were told that the experimenter needed to leave the room, but that they could summon him back using a hotel bell. If they got impatient and rang the bell, the experimenter would come back almost immediately, and in this case they would receive two treats. If they patiently waited in their seats for the experimenter's return, however, then they would receive a more attractive reward: a large pile of ten snacks. The next task Carlson and Meltzoff's (2008) participants were presented with was Kansas Reflection-Impulsivity Scale for Preschoolers (henceforth, KRISP), as developed by Wright (1972). In this task, participants are presented with sets of drawings and are asked to pick the one that is exactly the same as the target item. The next task on the battery was Zelazo and colleagues' (2002) visually cued recall, in which participants were presented with a puppet named Pat, shown arrays of pictures of various activities that he did and did not like, and were asked to memorise those that he did, so as to be able to pick them out from other pictures later.¹⁸⁵ The level of difficulty increased with each trial, as every time a new array was added, and participants were supposed to memorise one more item than was the case in the preceding trial. Owing to its structure, the task makes it possible to explore updating in participants' working memory (Carlson and Meltzoff 2008: 288). The next, seventh, task on Carlson and Meltzoff's (2008) battery was Statue, one of the subtests on Korkman and colleagues' (1998) Developmental Neuropsychological Assessment (NEPSY), a complex series of neuropsychologi-

¹⁸⁵ In Zelazo and colleagues' (2002) version, Pat was a female puppet.

cal tests.¹⁸⁶ Statue is aimed at measuring “the ability to suppress motor action during a delay” (Carlson and Meltzoff 2008: 289). Participants are asked to “stand up like a statue holding a flag” (Carlson and Meltzoff 2008: 289), to have their eyes closed, and to keep silent and motionless until the experimenter says that the time is up. Once the 75-sec delay is started, the experimenter creates four different distractions; any movements or sounds that the participants make are counted as errors (Carlson and Meltzoff 2008: 289).¹⁸⁷ The last but one, eighth, task that Carlson and Meltzoff (2008) gave to their participants was Gift delay with cover, developed by the authors of the study. In the task, participants were shown a box with a present inside. They were told to refrain from peering into the box until the experimenter came back to the room. Performance was rated “according to the level of restraint shown in not attending to the box” (Carlson and Meltzoff 2008: 290). The last task that was performed by Carlson and Meltzoff’s (2008) participants was the child version of the ANT, as developed by Rueda and colleagues (2004), described earlier in the current discussion. Carlson and Meltzoff (2008) administered this complex battery of tasks to three groups of kindergarten children: bilingual children who had exposure to Spanish and English from birth, immersion children who attended “a language immersion public elementary school (...) in which [they] receive[d] instruction in multiple subjects in English for half the day and in either Spanish (...) or Japanese (...) for half the day” (Carlson and Meltzoff 2008: 286), and English monolingual controls.¹⁸⁸ The researchers obtained detailed demographic information about the participants from the children’s parents, who filled out “Family Information and Language Background questionnaires and two questionnaires assessing household rules and their child’s self-control” (Carlson and Meltzoff 2008: 286). The results of a demographic analysis that was conducted on the basis of these data showed that the children in the bilingual group were “significantly socially disadvantaged compared to

¹⁸⁶ Korkman and colleagues (1998) developed NEPSY in order to measure the different aspects of cognitive functioning that are necessary for children’s developing ability to acquire and use knowledge, both in and outside school environment. The battery is comprised of five sections, or “functional domains”: “attention/executive function (e.g., problem solving, planning), language, visual-spatial processing, sensorimotor, and memory and learning” (Ahmad and Warriner 2001: 240); NEPSY-II (Korkman et al. 2007a, 2007b), the currently used edition of the task, has a sixth domain added: social perception. Each of the domains contains a group of tasks that can be used to measure the relevant skills. Statue, the task employed by Carlson and Meltzoff (2008), belongs to the attention/executive function domain.

¹⁸⁷ The distractions are “dropping a pencil, coughing, knocking on the table, and saying ‘ho hum’”, and are performed “in [this very] order at specified intervals” (Carlson and Meltzoff 2008: 289).

¹⁸⁸ As is typically the case, these were not pure monolinguals, but children “with very limited exposure to a second language at school (...) or at home”; here, the maximum exposure was 30 minutes per week (Carlson and Meltzoff 2008: 286).

the other two groups on a number of indicators”, such as “maternal education (...), family income (...), and the amount of time parents read to their children” (Carlson and Meltzoff 2008: 290). The results from measures of verbal ability demonstrated that here, too, the bilinguals scored significantly lower than the immersion children and the monolingual controls. However, when Carlson and Meltzoff (2008) controlled for the differences in participants’ age, verbal ability and SES, the bilinguals were found to perform significantly better on the executive function battery than the children from both the immersion and the monolingual groups, a result that was obtained by comparing the composite executive function scores of the three groups. Even more interesting findings were obtained at the individual task level. A significant effect of language group was observed on three tasks: Visually Cued Recall, the Advanced DCCS, and the C-TONI. The bilinguals significantly outperformed the immersion children on the first of these tasks and the monolinguals on the second, and they marginally outperformed both of these groups on the last task. Reporting these results, Carlson and Meltzoff (2008: 292) point out that the three tasks have an important feature in common: they “all require inhibition of attention to misleading items or aspects of the stimuli.” To find out which particular elements of executive function may be enhanced as a result of bilingual exposure, the authors conducted an additional analysis of the data from the nine executive function tasks. The results confirmed that the bilingual advantage was obtained only on those tasks which involved managing conflicting attentional demands. In their discussion of these findings, Carlson and Meltzoff (2008) point to the fact that the bilingual population in their study was disadvantaged on several levels, including lower SES and expressive vocabulary, and could therefore be “at risk for an achievement gap on a number of indices” (Carlson and Meltzoff 2008: 293). However, the obtained results indicate that bilinguals “may be able to compensate or achieve the same ends by an alternative route”: Carlson and Meltzoff (2008: 293) believe that the bilingual participants in their study fine-tuned and utilised the cognitive processes typically employed in switching between their two languages.

More evidence in favour of the bilingual advantage in executive function comes from research conducted with the use of functional brain imaging. A number of studies have employed event-related potentials to explore conflict resolution processes. Here, one of the “prominent measure[s] of cognitive conflict and executive control” (Coderre et al.

2011: 51) has been the Stroop task.¹⁸⁹ Participants performing a colour-naming Stroop task are presented with names of colour words which are shown in various colours of ink; on many trials, the colour word is different from the colour of the ink that it is printed in. Participants are supposed to disregard the colour word and to say the name of the ink colour – “a task which requires inhibition of the highly practiced reading process” (Coderre et al. 2011: 51). Coderre and colleagues (2011), who explored the electrophysiological measures of conflict detection and resolution in the Stroop task, focussed on an early negativity component that they refer to as the N_{inc} , or “negativity associated with incongruency” (Coderre and van Heuven 2014: 3). This negative-going wave appears “from approximately 300–550 ms post-stimulus over centro-parietal scalp” and is typically registered to “incongruent (...) as compared to congruent or control trials” (Coderre and van Heuven 2014: 3). Although some authors refer to this potential as an N400 or N450, Coderre and colleagues (2011; Coderre and van Heuven 2014) stick with the N_{inc} label so as to “to avoid latency specifications and also to avoid confusion with the N400 component (...) elicited by language and semantic processing” (Coderre and van Heuven 2014: 3).¹⁹⁰ Coderre and van Heuven (2014), who explored the bilingual advantage in executive function using EEG with a Stroop task, employed the amplitude of the N_{inc} as an index of conflict processing. The major goal of their study was to test two hypotheses concerning bilingual executive processing that were earlier proposed by Hilchey and Klein (2011). The first of these, the “bilingual inhibitory control advantage” (henceforth BICA) hypothesis, is based on findings “of smaller interference effects on inhibitory control tasks for bilinguals compared to monolinguals” (Coderre and van Heuven 2014: 2). This is supposed to be caused by bilinguals’ “engag[ing] inhibitory control mechanisms to control crosslinguistic interference during language processing” (Coderre and van Heuven 2014: 2). The hypothesis predicts a bilingual advantage on incongruent trials, and no difference in the performances of mono- and bilinguals on congruent and control trials. The predictions of the second hypothesis are different. The “bilingual executive processing advantage” (BEPA) hypothesis assumes the existence of a bilingual advantage “in domain-general executive processing which is not restricted just to conflict processing, but is manifest as a more general advantage in cognitive monitoring” (Coderre and van Heuven 2014: 2). Hence, what this hypothesis predicts

¹⁸⁹ The task is named after John Ridley Stroop, whose original paper (Stroop 1935) is among the most cited research articles in experimental psychology (MacLeod 1991).

¹⁹⁰ Note that the N400 has already been introduced in the second chapter, where studies into irony comprehension were discussed.

is a global reaction time advantage. To test these two hypotheses, Coderre and van Heuven (2014) recorded EEGs from Chinese-English bilinguals and English monolinguals¹⁹¹ who were performing a Stroop task with two different stimulus onset asynchronies (SOAs) between the word and the colour stimuli: a negative 400 ms SOA (-400 ms SOA), in which the distracting word was pre-exposed 400 ms before the target colour appeared, and a 0 ms SOA, in which the word and the colour were presented at the same time. The first condition is believed to have potential for “eliciting group differences before the onset of conflict”, while the second – to maximise the cognitive demand, and especially “the amount of inhibitory control required” (Coderre and van Heuven 2014: 3). An analysis of the collected data revealed “some significant, but inconsistent, evidence for a conflict-specific bilingual advantage” (Coderre and van Heuven 2014: 1).¹⁹² However, strong evidence was obtained for the existence of a more general bilingual advantage: on the control trials, the bilinguals not only responded faster than the monolinguals did, but they also had smaller ERP amplitudes. Another important finding obtained on the control trials was that “when the control stimulus was presented before the colour, ERPs (...) revealed group differences before the onset of conflict” (Coderre and van Heuven 2014: 1). This shows that the mono- and bilinguals had different strategies for dealing with the pre-exposed distracting stimulus. Coderre and van Heuven (2014: 13) contend that bilinguals may be more effective in employing “a control mechanism such as suppression of distracting or irrelevant information, regardless of the presence of conflict or semantic salience.” The authors conclude that the observed bilingual advantage is of a more general, non-conflict-specific nature and that it “extends to more efficient proactive management of the environment” (Coderre and van Heuven 2014: 1).

A related study has been conducted by Heidlmayr and colleagues (2015). ERPs were recorded from two groups of participants – adult French-German bilinguals and matched monolingual controls – as they were engaged in a combined Stroop/Negative priming task. The neurophysiological results revealed a beneficial effect of bilingualism, as

¹⁹¹ The monolinguals who participated in this study “reported studying other languages, but none considered themselves proficient in anything but English” (Coderre and van Heuven 2014: 5).

¹⁹² For instance, the bilinguals “showed smaller interference effects in their L2 than monolinguals in the 0 ms SOA” (Coderre and van Heuven 2014: 11). However, as pointed out by the authors, this could have been caused by these participants’ lower proficiency in the second language rather than by superior control skills. On the other hand, results from the -400 ms SOA demonstrate that “the bilingual L1 experienced a significantly later N_{inc} (...) compared to monolinguals”, which could point to “enhanced inhibitory control over the L1” (Coderre and van Heuven 2014: 12).

“the ERP effects were reduced in bilinguals in comparison to monolinguals” (Heidlmayr et al. 2015: 1). However, this advantage was only found in the Stroop task, and was “limited to the N400 and the sustained fronto-central negative-going potential time windows” (Heidlmayr et al. 2015: 1).¹⁹³ According to the authors, this finding indicates that rather than improving conflict monitoring ability, bilingualism may enhance the implementation of control, a process which comprises interference suppression and conflict resolution. The authors also report another finding – and one which they consider to be far more important: they have observed a temporal difference in the activation of two brain locations – the anterior cingulate cortex (henceforth ACC) and the prefrontal cortex (PFC) – in conflict processing. In the ACC, major activation was found “in the early time windows (N200 and N400) but not in the latest time window (late sustained negative-going potential)”; in the PFC, in turn, unilateral activation was observed “in the left hemisphere in the N400 and the late sustained negative-going potential time windows” (Heidlmayr et al. 2015: 1). This pattern of activation indicates that the ACC may be instrumental in triggering “transient control as necessary when conflict has been detected”; the PFC, in turn, would have increased activation “for implementing the control when the need has been detected (i.e., applying inhibition and conflict resolution)” (Heidlmayr et al. 2015: 13). Taken together, the results obtained by Heidlmayr and colleagues (2015) demonstrate that bilinguals’ performance on executive function tasks is varied: these participants seem to enjoy an advantage, but only on certain control processes. Hence, the conclusion is that using different languages appears to call for the use of specific control processes as well as to enhance them; this, however, does not have to hold true for other control processes.

An interesting study shedding light on the circumstances that surround bilingual advantages in executive control has been conducted by Barac and colleagues (2016). In this research, mono- and bilingual five-year-olds performed a battery of tasks including the third version of the Wechsler Preschool and Primary Scale of Intelligence, the ANT (Rueda et al. 2004), gift delay with cover (Carlson and Meltzoff 2008), and a go/no-go task. In addition to behavioural data, electrophysiological data were collected from participants, but only for the go/no-go task. The rationale for employing the particular tasks was that they differed with regard to their demands on executive function. Differentiating between simple

¹⁹³ Note that the label “N400” as employed by Heidlmayr and colleagues (2015) refers to “the centro-parietal N400 effect, usually found in Stroop studies (i.e. a larger negativity in the incongruent condition in comparison to the congruent or to the neutral condition...)” (Heidlmayr et al. 2015: 3). Thus, it is the same potential as the N_{inc} investigated by Coderre and colleagues (2011; Coderre and van Heuven 2014).

and complex response inhibition tasks, Barac and colleagues (2016) followed the distinction put forward by Garon et al. (2008). In the gift delay task, the demands for working memory and shifting are low; what the child has to do in order to perform this task successfully is to “withhold the compelling prepotent response to open the gift” (Barac et al. 2016: 1278). The cognitive demands of the go/no-go task are greater. Here, children – seated in front of a computer screen – are presented with different stimuli: “eight geometric shapes—triangle or rectangle, aligned vertically or horizontally, colored white or purple” (Barac et al. 2016: 1282), and supposed to act in accordance with the instructions; they have “to press the mouse button when the shape [i]s white and to refrain from pressing when the shape [i]s purple” (Barac et al. 2016: 1282). Thus, to be successful on the task, the participant has to do three things: “[hold] a rule in mind, [shift] between two different responses, and [inhibit] the prepotent response to respond on every trial” (Barac et al. 2016: 1279). These high demands on attentional control, working memory, and inhibition make the go/no-go task a measure of complex response inhibition. Finally, the ANT – a flanker task in which participants are supposed to aim their attention at a selected piece of information and disregard the remaining part – demands that the participant should suppress interference from a competing prepotent stimulus (Barac et al. 2016: 1279).¹⁹⁴ Importantly, as the task involves three different trial types: congruent, incongruent, and control trials (with the flankers oriented either in the same or opposite direction as the target, or without the flankers, respectively), it is a perfect tool for investigating attentional processes and interference suppression under different circumstances (Barac et al. 2016: 1279).

Analysis of behavioural data found no performance difference between the groups on the gift delay task. A similar result was obtained on the neutral trials of the ANT. However, a significant difference was found on the congruent and incongruent trials of this task, with bilinguals outperforming their monolingual peers. On the go/no-go task, the bilinguals were found to be more accurate than the monolinguals, and also faster – but only on the go trials. In addition, as measured by a discriminability index, the bilinguals had greater perceptual sensitivity to the two experimental conditions in the go/no-go task.

Interesting results were obtained from analyses of electrophysiological data; these were centred around two components: N2 and P3. N2 – a “negative deflection recorded at

¹⁹⁴ As has been described earlier, the target information in the flanker task is the direction of the fish that is in the middle of a row of five fish; the directions of the four flankers of the target – although more salient – have to be disregarded if the task is to be performed correctly.

approximately 200–400 ms after stimulus onset” (Barac et al. 2016: 1279) – is believed to reflect cognitive control, response conflict and inhibition (Brydges et al. 2014), as well as mismatch detection (Folstein and Van Petten 2008), and tends to exhibit a greater amplitude for no-go than go trials (Pfefferbaum et al. 1985). In the study by Barac and colleagues (2016), no group differences were found for the amplitude of the N2 component; however, the bilinguals were found to have “shorter latencies at more anterior electrode sites” (Barac et al. 2016: 1287). More differences were observed in the other of the analysed components: P3, a “positive waveform occurring within 300–500 ms poststimulus onset.” P3 is believed to represent “later stages of inhibition” (Barac et al. 2016: 1279): “response inhibition, or an evaluation/decision process with regard to the expected and/or given response” (Bruin et al. 2001: 1660). Importantly, P3s elicited to go and to no-go trials differ with regard to their scalp distribution (Pfefferbaum et al. 1985): for go stimuli, P3 amplitude exhibits a parietal maximum, while for no-go stimuli, it is “equal at central and parietal sites” (Pfefferbaum et al. 1985: 432). In the study by Barac and colleagues (2016), bilinguals were found to exhibit both larger P3 amplitude, and shorter latencies than the monolinguals did. While the latencies were shorter “at central and posterior electrode sites”, the amplitude was larger “regardless of laterality and anterior-posterior electrode position” (Barac et al. 2016: 1287). Taken together, the N2 and P3 patterns observed in the bilinguals point to these children’s better performance, a finding which was mirrored in the behavioural data. To gain a clearer understanding of the nature of the obtained bilingual advantage, one has to notice that the performance difference between the two tested groups increased together with task demands (Barac et al. 2016: 1287). Hence, the authors conclude that the difference between mono- and bilingual children is incremental rather than categorical: “[b]ilingual children are making more progress in developing executive control so are further ahead on more difficult tasks” (Barac et al. 2016: 1288). As an alternative interpretation of the obtained findings, Barac and colleagues (2016) consider the possible differences in mono- and bilinguals’ attentional processes: they note that “the overall need for attention to perform the congruent and incongruent trials did set the bilinguals aside from the monolinguals” (Barac et al. 2016: 1288). Barac and colleagues (2016) draw here on the proposal of Bialystok (2015), who – having reviewed ample research into cognitive effects of bilingualism – postulates that it is attention that constitutes “a fundamental process that initiates developmental differences in bilingual children from as early as infancy” (Bialystok 2015: 117). In building her argument, Bialystok (2015) points out that none of the

accounts proposing particular executive function components or cognitive phenomena as the critical source of the bilingual advantage – be it inhibition, monitoring, working memory, or joint activation of two languages – has received full and unconditional support from experimental data. Further, she draws on the results of two ingenious studies into mono- and bilingual infants’ processing of talking faces (Weikum et al. 2007; Sebastián-Gallés et al. 2012). In both studies, infants were presented with short silent video clips showing a face articulating a passage in a given language (Bialystok 2015: 120). After several habituation trials during which the participant’s looking time declined, signifying boredom, the silent reading was continued, but in a different language. Interestingly, the results of both experiments showed that only the bilingual infants were able to notice the language switch solely from visual cues, as indicated by these participants’ renewed interest in the clip. This finding was obtained not only when the infants were familiar with the two languages (Weikum et al. 2007), but also when they were presented with two languages that they had previously never been exposed to (Sebastián-Gallés et al. 2012). Discussing these findings, Bialystok (2015: 120) points out that “[w]hatever the babies used to make this discrimination was more general than the facial features associated with known languages.” She concludes that what the experience of bilingualism does is “[change] the way attention is directed to the environment” (Bialystok 2015: 120). The attention of infants brought up exposed to two languages is drawn to the differences and contrasts that exist between the two systems of “sounds, cadences, structures, speakers, and facial configurations” (Bialystok 2015: 120) – and, as Bialystok (2015: 120) puts it, “[c]ontrasts create novelty, attracting more attention and possibly more intense processing than similarity.” Thus, bilingual infants – carefully attending to whatever is happening in their environment – fine-tune their attentional processing abilities and develop two representational structures, one for each language. As these systems are operant, executive function has to be employed so as to help infants keep attending to the given language (Bialystok 2015: 120). In a similar vein, children and adults attend “to the contrasting features of the jointly activated languages”, which in turn necessitates the employment of “a general selection mechanism such as executive function”; otherwise, interference would occur (Bialystok 2015: 120). Thus, on Bialystok’s (2015) account, the bilingual advantage in executive function does not stem from better developed inhibition; rather than that, “it is the failure of bilinguals to inhibit attention to the nontarget language that leads to the involvement of executive function and the eventual consequences for its development and function” (Bialystok 2015: 120).

Whether future findings will corroborate Bialystok's (2015) proposal remains to be seen. What is more important for our discussion at this point is that bilingual gains in executive function have been documented in individuals as young as infants, long before these children have mastered the ability to produce language. One more example here is the finding of Kovács and Mehler (2009), who report cognitive gains in bilingual infants as young as 7 months. In the study, mono- and bilingual infants were presented with a speech or visual cue, after which a reward – a looming puppet – was presented on one side of the screen.¹⁹⁵ What participants had to do was “learn that the cue predicted the appearance of the reward in a specific location” (Kovács and Mehler 2009: 6557). After several trials, postswitch trials ensued whereby infants were presented with different cues, and the reward appeared on the opposite side of the screen. What participants had to do during the postswitch, was “to learn to redirect their gaze from the previously valid side toward the opposite side of the screen” (Kovács and Mehler 2009: 6557). The results demonstrated that only the bilingual infants “rapidly suppressed their looks to the first location and learned the new response” (Kovács and Mehler 2009: 6556), which was to redirect their anticipatory gaze. Drawing on this finding, Kovács and Mehler (2009: 6556) conclude that bilingualism “leads to a domain-general enhancement of the cognitive control system well before the onset of speech.”

3.3.2.4. Theory of Mind

In our discussion of the bilingual advantage in executive function we have deliberately omitted one important problem: that of Theory of Mind. Executive function and Theory of Mind have repeatedly been linked in empirical and theoretical works (Hughes 1998; Hughes et al. 1998; Carlson and Moses 2001; Wellman et al. 2001; Carlson et al. 2002; Perner et al. 2002; Carlson et al. 2004a, 2004b; Hughes and Ensor 2005), and different mutual relationships have been proposed between the two phenomena. This debate aside, empirical results tend to demonstrate strong correlations between individuals' executive functioning and their ability to perform false belief tasks. Hence, it seems reasonable to

¹⁹⁵ As reported by the authors, “[i]nfants were considered bilingual if they had parents with different mother tongues addressing them consistently in their respective native languages and if they had daily exposure to both languages” (Kovács and Mehler 2009: 6557).

hypothesise that bilinguals would outperform their monolingual peers on Theory of Mind measures.

Results of studies thus far conducted are largely in support of this hypothesis. One of the pioneering empirical explorations has been conducted by Goetz (2003), who lists three potential reasons for the expected bilingual advantage on ToM tasks. Firstly, bilinguals' better developed metalinguistic awareness may aid them "in developing the representational abilities (...) proposed to be involved in theory of mind understanding" (Goetz 2003: 5). Secondly, their "greater control of linguistic processes for selective attention" may lead to enhanced inhibitory control, an ability which has repeatedly been implicated in ToM reasoning (Goetz 2003: 5). Finally, bilinguals' expanding sociolinguistic competence – a product of "the increased salience of their interlocutor's linguistic knowledge" – may lead to a greater understanding of the potential differences that exist between their own, and other people's knowledge, values, beliefs, and feelings (Goetz 2003: 5). To check whether bilinguals enjoy an advantage over their monolingual peers on ToM ability, Goetz (2003) presented three groups of three- and four-year-old children: English monolinguals, Mandarin-Chinese monolinguals, and Mandarin-English bilinguals, with a set of appearance-reality (henceforth A-R), level 2 perspective-taking, and false-belief tasks. All these tasks share a common aim, which is to explore children's ability "to dissociate the state of the world from [their] beliefs about that state" (Bialystok and Senman 2004: 562). A-R tasks belong to a paradigm which has been developed by Flavell and colleagues (1983), and involve presenting participants with deceptive objects – for instance, a pen which looks like a fish. Children are supposed to say what the object looks like and what it actually is. In level 2 perspective-taking tasks (Flavell et al. 1981), participants are shown a picture, for instance of an animal, which is "placed horizontally on the table between the child and the experimenter" (Goetz 2003: 7).¹⁹⁶ They are supposed to look at the picture and to determine whether the animal at the picture looks as if it was "standing on its feet or lying on its back" (Goetz 2003: 7). Subsequently, they have to say what the animal looks like from the experimenter's perspective. The two questions are then repeated as the picture is turned around 180 degrees. Finally, false belief tasks can be of different types. Goetz (2003) employed two such tasks: an unexpected contents task and an unexpected transfer task. In the first of these, which was based on Hogrefe et al. (1986), children were presented with two boxes:

¹⁹⁶ The pictures employed by Goetz (2003) depicted a turtle and an elephant.

an M&M's box and a crayon or pencil box, both of which had unexpected contents – a toy car, and a small chocolate bar, respectively. The children were first shown a box, and then asked what they expected to find inside. After this, the contents of the box were revealed, and the object was placed back in the box. Subsequently, participants were supposed to say how other children would answer the question concerning the contents of the box. The second false belief task employed by Goetz (2003) was an unexpected transfer task, modelled on Wimmer and Perner (1983). The task involved two versions of a short story which was acted out for the participants with the use of two small figures and two containers: different-coloured drawers or pails. In both versions of the story, one puppet puts away some candy in one container, and then goes outside to play with his friends. While he is away, the other one comes home and decides to clean the house, in the course of which she takes the candy out of the first container and puts it in the other one instead. Then, she leaves the house to do shopping. Shortly after, the first puppet comes back home and wants to eat the candy. After the story is acted out, participants are supposed to determine where the first puppet will look for the candy: in the first or second container. In the study by Goetz (2003), each of the tasks was administered to the participants twice: “[b]ilingual children were tested first in one language and then a week later in the other one”, and “[t]he monolinguals were tested twice, a week apart, in their own language each time” (Goetz 2003: 6). The results obtained by Goetz (2003) were in line with her hypothesis: “the bilinguals performed significantly better than the monolingual groups” (Goetz 2003: 1), a finding which was particularly salient when participants’ performances on the ToM tasks were calculated together, as a composite measure. Less straightforward results were obtained “when the two testing times were examined separately”: it was found that the bilinguals “had only a near-significant tendency to perform better at the second testing time” (Goetz 2003: 1). A yet more nuanced picture emerged when Goetz (2003) conducted separate analyses for each of the tasks: a bilingual advantage was obtained “in only three of the tasks for only one of the two testing sessions” (Goetz 2003: 10). In her discussion of these results, Goetz (2003) goes back to the three possible reasons that she proposed for a bilingual advantage in ToM. Although her methodology does not enable “determin[ing] which of these explanations is most accurate” (Goetz 2003: 5), the finding of bilinguals’ inconsistent performance on ToM tasks points to an interesting possibility: differences in participants’ inhibitory control could have been at play here. Goetz (2003: 12) points out that the bilinguals outperformed their monolingual peers “on only the appearance-reality, perspective taking, and

false-belief unexpected contents but not the false-belief unexpected transfer task.” These tasks differed in their demands; one area of importance here was the extent to which successful performance depended on the use of words. To illustrate, “to answer the false-belief unexpected contents questions, children needed to respond verbally, but to answer the false-belief unexpected transfer questions, [they] only needed to point to the drawer of their choice” (Goetz 2003: 12). Goetz (2003: 12) speculates that it could be the case that bilinguals’ enhanced inhibitory control is “particularly linked to the linguistic realm” and only improved these participants’ performance on tasks whose completion required the use of language. Further issues raised by Goetz (2003) are related to the final of the three explanations she proposed for the bilingual advantage: bilingual children’s growing sociolinguistic awareness and its impact on how they attain successful communication. The author points out that the bilinguals in her study may have been particularly sensitive to the differences between their own and their interlocutors’ knowledge of language, as “these children were placed into a bilingual environment only after they were about two years old and had already begun acquiring their first language system” (Goetz 2003: 12). Furthermore, the fact that the two experimenters were not speakers of the same language may have further sensitised the children to the differences in the interactants’ linguistic knowledge. Here, Goetz (2003) draws on the findings of Ruffman and colleagues (1998), who report that having “older siblings (...) enhanced children’s understanding of false belief” (Ruffman et al. 1998: 171). Children with older siblings have daily opportunities to practise social interactions and, consequently, to experience situations in which their knowledge, beliefs and wishes differ from those of others. In the same vein, the bilingual children in Goetz’s (2003) experiment had ample contact with individuals “whose linguistic knowledge differ[ed] from their own” (Goetz 2003: 12); this experience could have made these children more sensitive to the mental states of others. It is important to note here that the explanations offered by Goetz (2003) are by no means mutually exclusive: it could be the case that all three mechanisms were at work, a possibility that the author herself entertained.

Shortly after Goetz’s (2003) study, related research was published by Bialystok and Senman (2004). The authors conducted two studies, in which children solved A-R tasks that involved real and representational objects. “In real objects, the perceptual features directly indicate the function that the object is expected to serve; in representational objects, the perceptual features stand for an object that could actually serve that function” (Bialystok and Senman 2004: 564). The major difference between these two types of objects

lies in the kinds of mental representation they call for. In the case of real objects, children recognize the characteristics of the object and make a direct representation, identifying the object; in the case of representational objects, in contrast, they view the characteristics of the object “as an indication of a familiar object” (Bialystok and Senman 2004: 564), i.e. they identify what the object stands for. To illustrate, one of the real objects employed by Bialystok and Senman (2004) was a sponge that looked like a rock, and one of the representational ones was a snowman-shaped book. While it was clear that the book was not a real snowman, but only an image of it, the sponge could easily have been mistaken for an actual rock. Two important concepts need to be considered here: the form and the function of these stimuli. When Bialystok and Senman (2004: 564) discuss the difference between object form and function, they point out that it “corresponds to the difference between the appearance and the reality questions”: to provide a correct answer to an appearance question, one has to focus on the perceptual characteristics of the target object, while to answer a reality question, one has to focus on its functional characteristics. While “mental representations are initially based on perceptual features[,] (...) objects are identified by means of functions” (Bialystok and Senman 2004: 564).¹⁹⁷ Therefore, one has to disregard form and focus on function if he or she is to answer a reality question – that is, to correctly identify an object whose appearance and use seem to be maladjusted, as is the case in A-R tasks. The need to inhibit attention to misleading perceptual cues is what makes reality questions “more directly tests of inhibitory control”; appearance questions, in contrast, “are more directly tests of representational ability” (Bialystok and Senman 2004: 564). Employing two types of objects and two types of questions in their experimental paradigm, Bialystok and Senman (2004) hoped to clarify what processes are instrumental in performing A-R tasks. To gain further insight into this problem, they additionally administered executive processing measures to the participants of the research. While only monolinguals took part in Study 1, Study 2 involved both mono- and bilingual four- and five-year olds. Since the bilingual participants were not only likely to have been lower in socioeconomic status (Bialystok and Senman 2004: 573), but were also “disadvantaged relative to the monolinguals in a formal test of language proficiency” (Bialystok and Senman 2004: 575), the authors conducted an analysis which took into account differences in the children’s language proficiency. While no difference was found between the performances of the two groups on

¹⁹⁷ Here, Bialystok and Senman (2004: 564) draw on Nelson (1973).

appearance questions, the bilinguals scored significantly better than the monolinguals on reality questions. Bialystok and Senman (2004) attribute this finding to bilinguals' better developed inhibitory control and propose that it is the bilingual advantage that "allows [these children] to solve typical ToM tasks at a more advanced level than would be expected by their conceptual stage" (Bialystok and Senman 2004: 577).

A related study has been conducted by Berguno and Bowler (2004). Apart from exploring the link between knowledge of a second language and one's ToM ability, these authors wanted to study "the effect that that particular patterns of communicative interactions may have on young children's understanding of representations" (Berguno and Bowler 2004: 293). To this end, they administered a complex deceptive task to four groups of participants: single and dual language users, who were either three or four years old.¹⁹⁸ The task had three experimental conditions: the standard-task condition, the deceptive-context condition, and the older-peer condition. In the first of these, children were presented with a deceptive object: a pen that looked like a fish, placed in an aquarium. They were supposed to say what the object looked like, after which it was taken out of the water, and its true identity was revealed: children were encouraged to write something with the pen, and to say what the object really was. Finally, the pen was returned to the aquarium, and participants were asked three test questions: a reality question (what the object really was), an appearance question (what the object looked like), and a false-belief-for-self question (what the participant thought the object was when he or she first saw it). The deceptive-context condition was modelled on the standard condition, with one exception: before asking the test questions, the experimenter said to the participant that the situation was tricky, "because [the object] look[ed] like one thing but it really [wa]s another" (Berguno and Bowler 2004: 300). Finally, the older-peer condition was also modelled on the standard condition; here, however, all the manipulations were performed by a 5-year-old child. Consequently, when the experimenter asked the false-belief question, he did so "in reference to the child's older peer" (Berguno and Bowler 2004: 300).¹⁹⁹ The most important finding of Berguno

¹⁹⁸ The authors "do not claim that the dual language users were bilingual" (Berguno and Bowler 2004: 304); children were categorised as belonging to this group "if the school staff members could confirm that the child used English in the school setting and if parents also could confirm that the child preferred to use a language other than English at home" (Berguno and Bowler 2004: 299). Single language users, in contrast, were those with "little or no knowledge of any language other than English" (Berguno and Bowler 2004: 299), as reported by the children's parents.

¹⁹⁹ The question was as follows: "When Danielle first showed this to you, what did you think it was?" (Berguno and Bowler 2004: 300).

and Bowler's (2004) research was that "the knowledge of a second language made a significant difference to children's performances on both the appearance-reality and the false-belief-for-self tasks" (Berguno and Bowler 2004: 303f.). One of the potential reasons for the obtained advantage could be the dual language children's greater metarepresentational abilities, which – according to the authors – "extend beyond the domain of linguistic processing" (Berguno and Bowler 2004: 304): those who are fluent in two different languages can be claimed to function "in two social worlds", and hence, "[t]he dual language child could (...) be expected to be more attuned and sensitive to subtleties of communicative interactions" (Berguno and Bowler 2004: 304).

The link between knowledge of two languages and ToM ability was further explored by Kovács (2009). In her study, mono- and bilingual three-year olds were administered three tasks: "a standard ToM task, a modified ToM task and a control task involving physical reasoning" (Kovács 2009: 48). The first of these was Wimmer and Perner's (1983) false-belief task, in which children were presented with the short story of a boy who placed his chocolate in a drawer and whose mother took the candy out and put it into another cupboard while the boy was away. The children were supposed to determine where the boy would look for his candy. The modified task was devised in such a way that it had similar ToM demands and its structure resembled that of the standard task. What was different was that it "mimicked a language-switch situation" (Kovács 2009: 51): to attain successful performance, participants had to consider how others understand different languages. The children were presented with a short scenario in which two puppets, a monolingual and a bilingual, both of whom wanted to buy some ice-cream, stood in front of two stalls – one with ice-cream, and the other with sandwiches. When the puppets came closer to the stalls, the person at the ice-cream counter announced – speaking a language that the monolingual puppet did not know – that they sold out of ice-cream, but that some was still available at the sandwich stall. The words of the ice-cream vendor were translated for the participants of the study; at the same time, it was also made clear that the monolingual did not understand the vendor's utterance. Subsequently, the children were asked to determine where the monolingual character would go to get some ice-cream (Kovács 2009: 51). The final task that was employed in the study was Zaitchik's (1990) gizmo task, which served as a measure "control[ling] for general information processing differences" (Kovács 2009: 51). In contrast with ToM tasks, the gizmo task does not entail decoding mental states. What it has in common with ToM tasks, in turn, is that all involve "predicting two different outcomes

depending on different antecedents” (Kovács 2009: 51). In this task, participants are presented with the gizmo: a “simple mechanical device” made by “glueing an empty cardboard tube onto a larger piece of cardboard which support[s] it at roughly a 30° angle from the upright” (Zaitchik 1990: 51). The tube entails an additional element: a rod which can be pulled out of the tube or pushed inside it so as to “free or block the passage through the tube” (Kovács 2009: 51), respectively. Children watch the experimenter drop a toy into the tube – the rod is once in the tube, and another time it is pulled out of it – and are supposed to determine where the toy will end up for both of these experimental conditions. Having analysed the results from all three tasks, Kovács (2009) reports that the bilinguals outperformed their monolingual peers on both ToM tasks, but not on the control task, where the performances of the two groups were comparable. She concludes that “bilingual children have an important advantage over their monolingual peers that is specific to performing ToM tasks” (Kovács 2009: 52). Similar to Bialystok and Senman (2004), she notes that enhanced bilingual performance on such measures “may be inhibition-related” (Kovács 2009: 52). In her view, bilinguals’ better developed inhibitory control could aid them “on at least two levels”: first by helping them dissociate themselves from their own beliefs, and second – by suppressing “the object-related prepotent response involved in the ToM tasks” (Kovács 2009: 52).

An interesting study into the link between bilingualism and ToM has been conducted by Nguyen and Astington (2014). The authors tested two groups of monolingual children – French and English pre-schoolers, and a matched group of English-French bilinguals. Apart from two false-belief tasks, participants were administered tests measuring their conflict inhibition ability, working memory, and verbal skills.²⁰⁰ Importantly, Nguyen and Astington (2014) took care to control the potential differences in participants’ SES: using a parental questionnaire, they were able to make sure that the tested groups “were equivalent on parental income and education” (Nguyen and Astington 2014: 396). The results demonstrated that the bilingual pre-schoolers performed significantly better than their monolingual peers on the false-belief tasks, “but only after statistically controlling for language proficiency and age” (Nguyen and Astington 2014: 396). Having obtained evidence in favour of the bilingual advantage in false belief, Nguyen and Astington (2014) sought to identify the particular component of executive function that was at the root of this enhanced

²⁰⁰ These were the change-in-location task, as developed by Wimmer and Perner (1983), and the unexpected-contents task, as employed by Perner and colleagues (1987), and Gopnik and colleagues (1988).

performance. Here, one candidate was conflict inhibition, and the other – working memory; yet another possibility entertained by the authors was that both these aspects contributed to bilinguals' improved ToM ability. To explore the extent to which these factors could have aided bilinguals' performance on ToM measures, two additional tasks: the Stroop task, and Backward Word Span (BWS), were administered to the participants, measuring inhibition, and working memory, respectively. The results indicated that working memory was likely to have attenuated the potentially negative impact that the bilinguals' lower verbal ability could have exerted on their false belief achievement.

Another interesting study into the factors related to bilingual children's better performance on ToM tasks has been conducted by Gordon (2016). In order to complement the findings of past research, the author not only employed a wide range of mental state tasks, but also conducted an assessment of participants' proficiency in both languages. Discussing her decision to include such a measurement, she points out that some studies, such as Bialystok and Senman's (2004), or Nguyen and Astington's (2014), "only showed an advantage after proficiency in the testing language (English) was controlled" (Gordon 2016: 408). Although some authors consider such findings to be indicative of a favourable effect of bilingualism on cognitive ability, Gordon (2016: 408) postulates that "it is not fully understood how children's language skills are related to performance on various cognitive tasks, and whether controlling for the testing language in this way reveals an effect of bilingualism on various cognitive processes." Aiming at clarifying these problems, she tested two groups of children: Spanish-English bilingual and English monolingual pre-schoolers on seven mental state tasks. Selecting these materials, Gordon (2016) followed Wellman and Liu (2004), who conducted "a meta-analysis of research comparing different types of mental state understanding" (Wellman and Liu 2004: 523) and proposed a ToM scale for pre-schoolers, composed of seven tasks aimed at testing different aspects of understanding other people's mental states. The scale was devised in such a way that it formed a developmental progression, beginning with basic, and finishing with complex tasks. Gordon (2016) employed all the components of the scale, which were as follows: "diverse desires, diverse beliefs, knowledge access, contents false beliefs, explicit false beliefs, beliefs and emotion, and the difference between real and apparent emotions" (Gordon 2016: 411). The first two tasks checked participants' understanding that others may have desires and beliefs, respectively, that are different from their own. The knowledge access task tested participants' ability to understand that while they might know the contents of an unmarked box,

someone who had not seen the box before would not. The contents false belief task tested participants' understanding "that they might know the contents of a marked box (i.e., Band-Aid box containing a giraffe), but a character that had never seen inside the box would have a false belief about the contents of that box" (Gordon 2016: 415). In the explicit false belief task, it was checked whether participants understood that when people look for a certain object, they do so in the place where they think the object is hidden, which does not have to correspond to its actual location. In the belief-emotion task, in turn, participants were tested on their ability to understand that someone who thought that a container had something desirable inside could feel happy, even though the contents of the box were in fact undesirable. Finally, the real-apparent emotions task checked participants' understanding that someone who feels sad may not look so and wear a happy expression on his or her face. To minimise the possibility that participants would pass the tasks by chance, Gordon (2016) devised an extra version of each task and assigned the children with both versions. The results demonstrated that the two language groups performed similarly on most tasks; the two exceptions were the diverse desires task, where the bilinguals scored significantly higher, and the explicit false belief task, where they scored significantly lower than their monolingual peers. To explore the link between ToM performance and language proficiency, Gordon (2016) analysed the scores obtained by the participants on the different mental state tasks together with those obtained on standardised tests of receptive vocabulary.²⁰¹ Here, the findings were equally interesting: "[f]or the monolingual group, English proficiency significantly predicted overall performance on the mental state tasks" (Gordon 2016: 417); for the bilinguals, in turn, "proficiency in English was only related to a higher overall mental state task score when children had a high level of proficiency in Spanish" (Gordon 2016: 419). Drawing on these differences, Gordon (2016: 421) concludes that there indeed may exist a difference in how linguistic ability is related to ToM performance in mono- and bilingual speakers.

An interesting study into these problems has somewhat earlier been conducted by Rubio-Fernández and Glucksberg (2012). The study, which employed an extended computer version of the classic Sally-Anne task coupled with eye tracking, is quite unique in that its participants were bilingual adults, and not children. Drawing on the obtained findings, the authors report that "adults in general suffer interference from their own perspective

²⁰¹ These were the PPVT-III (Dunn and Dunn 1997), and the TVIP – Test de Vocabulario en Imágenes Peabody (Dunn et al. 1986) in Spanish.

when reasoning about other people's beliefs" and that "bilinguals are reliably less susceptible to this egocentric bias than are monolinguals" (Rubio-Fernández and Glucksberg 2012: 211). The authors found, moreover, that participants' achievement on the ToM measure significantly correlated with their achievement on another task: a version of the Simon task, administered to them as an executive control measure.²⁰² Drawing on this result, the authors conclude that the bilingual advantage on false-belief tasks may stem from bilinguals' "early sociolinguistic sensitivity and enhanced executive control" (Rubio-Fernández and Glucksberg 2012: 211). Interestingly, in her more recent work, Rubio-Fernández (2017) proposes a different reason for bilinguals' enhanced ToM performance: in her view, the bilingual advantage on false-belief tasks "results from more effective attention management" (Rubio-Fernández 2017: 987), and "is simply a by-product of [bilinguals'] enhanced EF" (Rubio-Fernández 2017: 994). This claim is in line with the recent proposal of Bialystok (2015), who sees attention as "a fundamental process that initiates developmental differences in bilingual children from as early as infancy" (Bialystok 2015: 117).

3.3.2.5. Communication skills

The findings of recent studies indicate that bilinguals may be privileged on one more dimension, which is – broadly speaking – communication. Research by Comeau and colleagues (2007) has documented that bilingual children as young as two and a half years old "are capable of identifying their language choice as a cause of communication breakdowns and that they can differentiate [l]anguage from [o]ther kinds of communication breakdowns" (Comeau et al. 2007: 159f.). The young bilinguals in the study were able to repair [l]anguage breakdowns "by switching languages to match that of their experimenter and they avoided this repair strategy when attempting to repair [o]ther breakdowns" (Comeau et al. 2007: 159). It needs to be noted here that such breakdowns are but one – albeit extreme – example of situations in which bilinguals make use of their enhanced communication skills. Research into more usual communication contexts has repeatedly demonstrated bilinguals' superior conversational understanding ability.

²⁰² The version employed in the study was the one by O'Leary and Barber (1993).

One notable example here, conducted in the framework of Gricean pragmatics, is the research by Siegal and colleagues (2009). These authors report two studies designed “to investigate whether bilingualism confers an advantage on children’s conversational understanding” (Siegal et al. 2009: 115). Participants, who were three- to six-year-old mono- or bilingual children, were administered a Conversational Violations Test (CVT), whose aim was to determine the extent to which they were able to interpret responses to questions in terms of violations of Gricean conversational maxims.²⁰³ The results obtained on this measure found that bilingual children – despite being “comparatively delayed in their L2 vocabulary” (Siegal et al. 2009: 115) – demonstrated “a striking advantage in detecting violations of conversational maxims” (Siegal et al. 2009: 120). Discussing this finding, the authors propose that it may be the case that bilingual children, who have extensive practice at decoding utterance meaning, “gain a specific advantage in rapidly processing the conversational implications of speakers’ messages” (Siegal et al. 2009: 121).

A growing body of research is being accumulated demonstrating that “children growing up in a bilingual environment have a heightened sensitivity to a speaker’s communicative intent compared to monolingual children” (Yow and Markman 2011a: 563). One reason for this may be that bilinguals “have to constantly monitor the dynamic communicative context to determine what the speaker is trying to say and how to respond appropriately” (Yow and Markman 2011b: 12). Decoding their interlocutor’s intended meaning, they make extensive use of the different cues that are available. Importantly, these cues are by no means limited to the linguistic realm.

One of the more interesting explorations of this problem is the series of studies by Yow and Markman (2011b), who investigated “monolingual and bilingual pre-schoolers’ use of nonverbal referential gestures such as pointing and gaze direction to figure out a speaker’s intent to refer” (Yow and Markman 2011b: 12). In the first of their studies, the authors found that bilingual 3- and 4-year-olds were more successful than their monolingual peers at utilising the experimenter’s referential gestures, such as gaze direction, “to locate a hidden toy in the face of conflicting body-distal information” (Yow and Markman 2011b: 12) – that is, when the experimenter was sitting behind an empty box, but was looking or pointing at the other, correct, one. Interestingly, the bilinguals were more apt than the monolinguals at making use of the subtler cue – the speaker’s eye gaze direction – to de-

²⁰³ Put briefly, these are the following: “to be informative and avoid redundancy, speak the truth, and be relevant and polite” (Siegal et al. 2009: 115). Gricean maxims were discussed in more detail in Chapter 1.

code her referential intent. The findings of Study 2 demonstrated that “5-year-old monolinguals were just as able as 3- and 4-year-old bilinguals to use referential gestures such as pointing and gaze to locate hidden objects, even in the face of conflicting body-distal information” (Yow and Markman 2011b: 23). Finally, Study 3 provided evidence for the existence of a bilingual advantage as early as in two-year-old children: bilingual two-year-olds were more successful than their monolingual peers at making use of referential gestures to decode the experimenter’s intent; this was especially the case with “the subtler and less direct gesture (i.e., eye gaze in a body-biased position)” (Yow and Markman 2011b: 26). Drawing on the obtained findings, Yow and Markman (2011b: 26) conclude that “bilingualism facilitates the development of the understanding and use of referential gestures in children as young as 2 years old.” The authors postulate that this enhanced ability stems from bilinguals’ “self-generated efforts to cope with the communicative challenge” (Yow and Markman 2011b: 29): striving to prevent communicative breakdown, bilingual children “become more vigilant” and gain “more practice in monitoring and assessing a wider range of communicative cues” (Yow and Markman 2011b: 28).

In another series of studies, Yow and Markman (2011a) looked at mono- and bilingual children’s ability to use paralinguistic cues to interpret emotion in speech. The results from the first study showed that bilingual pre-schoolers were just as apt as their monolingual peers at identifying speaker emotion based on paralinguistic cues such as speaking rate and fundamental frequency when the content of the utterance was removed. Study 2 sought to determine whether bilinguals would demonstrate an advantage in using paralinguistic cues to decode speaker emotion in a different situation: “when those cues conflict with semantic content” (Yow and Markman 2011a: 564). What adults do in such contexts is base their judgments of a speaker’s emotional state on how he or she speaks – that is, on paralinguistic cues: as reported by Morton and Trehub (2001: 841), “[f]or adults, vocal affect seem[s] to function as a barometer of the speaker’s feelings.” In Yow and Markman’s (2011a) study, it was found that the mono- and bilingual children performed equally well when paralinguistic cues were consistent with utterance content; however, when paralinguistic cues conflicted with content, “monolingual children relied on content while bilingual children were more willing to use paralinguistic cues to judge emotion” (Yow and Markman 2011a: 566). Thus, the responses provided by the bilingual children were more adult-like; still, these pre-schoolers were not as able as adults to consistently rely on paralinguistic cues rather than utterance content (Yow and Markman 2011a: 566). Discussing the possible reasons for bilinguals’

enhanced sensitivity to the various communicative cues that are available, Yow and Markman (2011a: 567) point out that “growing up bilingual provides a natural environment for children to learn about the changing communicative demands in a social context.”

In a more recent study, Yow and Markman (2015) looked at mono- and bilingual children’s ability to “integrat[e] multiple cues to understand a speaker’s communicative intent” (Yow and Markman 2015: 391). The authors expected that bilingual pre-schoolers might enjoy an advantage here, as they “regularly experience communicative challenges that demand greater attention and flexibility” (Yow and Markman 2015: 391). To verify this hypothesis, the researchers tested mono- and bilingual three-year-olds on several measures, including Nurmsoo and Bloom’s (2008) procedure. In this task, a cardboard opaque box that contained “two open compartments, each with a cutout backing (window)” (Yow and Markman 2015: 393), was placed between the participant and the experimenter. Behind the windows, a movable screen was installed that covered one window; thus, “the child could see into both compartments but the experimenter could only see into one through the uncovered window” (Yow and Markman 2015: 393). Two kinds of objects were employed in the task: familiar toys, such as a teddy bear and a toy car, and novel objects, which were “uncommon objects or parts of a bigger object” (Yow and Markman 2015: 393); the latter were used with novel names. As was the case in Nurmsoo and Bloom (2008), the procedure involved two phases. In the first – familiarisation phase – the two toys were placed in the box, one in each compartment, so that the participant could see both toys, and the experimenter – only the one in the compartment that had its window uncovered. The child’s task was to say which puppet the experimenter could and could not see. Subsequently, “[t]he box was (...) rotated so that the child (...) had the experimenter’s perspective” (Yow and Markman 2015: 393), and the child was supposed to say which toy he or she now could and could not see. Once this was carried out, the experimental phase ensued, which comprised “two ‘there’ trials and two ‘where’ trials, identical except for the test question” (Yow and Markman 2015: 393). On each of these trials, the child – together with two adults: the experimenter and the assistant – engaged in exploring two novel objects, after which the experimenter turned back while the assistant put the first object in one compartment, and the second in the other one. When this was done, the experimenter turned around, “fixed her gaze on the object that she could see” and uttered the test sentence, which was “Oh! *There*’s the [novel label]! *There* it is!” on “there” trials, and “Oh! *Where*’s the [novel label]? *Where* is it?” on “where” trials (Yow and Markman 2015: 393).

She, then, directed her gaze at the child, and reached out her hand, asking: “Can I have the [novel label]?” (Yow and Markman 2015: 393). When uttered on “there” trials, this should be interpreted as a request for the object that the experimenter could see; uttered on “where” trials, in turn, it should be taken as a request for the hidden object. To fulfil the experimenter’s request, the child had to integrate the cues available from three different sources: the “speaker’s eye gaze, the context of the situation, and the semantics of the request” (Yow and Markman 2015: 396). What was found in the study was that monolinguals were just as likely as bilinguals to choose the mutually visible object on “there” trials; on “where” trials, however, “bilingual children were more likely to select the hidden object than monolingual children” (Yow and Markman 2015: 395). This finding demonstrates that the bilingual three-year-olds who participated in the study performed better than their monolingual peers at integrating multiple cues in order to infer the speaker’s referential intent. The authors link this enhanced ability to bilinguals’ “regular exposure to and experience with challenging communicative situations that demand greater attention and flexibility” (Yow and Markman 2015: 397). Aiming to meet the complex demands of their daily communicative interactions, where the issue of referential indeterminacy is even more problematic than in monolingual language acquisition, dual-language children are likely to increase their efforts at keeping track of the communicative context around them and exploit all the cues that may help them understand what their interlocutor means (Yow and Markman 2015: 397).

Another interesting study into the communicative skills of mono- and bilingual children has been conducted by Fan and colleagues (2015). Here, the authors focussed on perspective taking – an ability which plays an important part in decoding a speaker’s communicative intent. The hypothesis was that this ability would be augmented in children who are exposed to a multilingual environment. To verify this claim, the authors tested three groups of children – monolingual, exposure, and bilingual – on a social communication task which “required perspective taking to interpret a speaker’s intended meaning” (Fan et al. 2015: 1090).²⁰⁴ In this task, participants were seated “across a table from a confederate

²⁰⁴ Children were assigned to the respective groups on the basis of parental questionnaire. Accordingly, the children who “heard and spoke only English and had little experience with other languages” were classified as monolingual, those who “were primarily English speakers, but had some regular but limited exposure to another language” were included in the exposure group, and those who “were exposed to English and another language on a regular basis and were able to speak and understand both languages” were classified as bilingual (Fan et al. 2015: 1091).

(the ‘director’), who asked them to move objects around a 4×4 grid” (Fan et al. 2015: 1092). The back sides of four grid boxes were covered, so that only the participant could see what was inside. The director was wearing “black matte sunglasses throughout the task”; in addition, she had to “maintain her eye gaze toward the cent[re] of the grid when giving instructions” – all of this was done in order to prevent the participants from being cued towards the target object with the director’s eye gaze (Fan et al. 2015: 1092). Before the proper experimental session, the participants familiarised themselves with the task by performing one practice trial from the director’s perspective – i.e. from her side of the table. In the trial session, the children, assisted by the experimenter, gave the director instructions to switch the locations of various objects on the grid. In two cases, the director “intentionally committed egocentric errors” (Fan et al. 2015: 1092): she moved objects that were hidden from the child’s sight. After each of these errors, the experimenter consulted the child whether the director moved the right object and prompted the child to say the instruction again. Once the instruction was repeated, the director corrected the error and moved the right object. Then, the trial session was over. The participant and the director changed their seats and the experimenter made sure “that the participant understood who could see which objects” (Fan et al. 2015: 1092). In the proper experimental session which ensued, the participant “received a total of 12 instructions, 3 for each of four different grid setups” (Fan et al. 2015: 1092). For each of the setups, there was always one instruction which was ambiguous: it could be understood as referring to either an object that both the child and the experimenter could see, or to a distractor item that was hidden from the director’s sight. To perform the task correctly, the participant had to take the perspective of the director and disregard the distractor. The results from the task demonstrated that the “children in the exposure and bilingual groups regularly took the director’s perspective (...), whereas monolingual children were at chance in selecting between the target and the distractor” (Fan et al. 2015: 1093). Moreover, it was found that while the participants in the bilingual and exposure groups were significantly more likely than their monolingual peers to manipulate the target item, “the performance of the bilingual and exposure groups did not differ” (Fan et al. 2015: 1093). To further explore participants’ performance, Fan and colleagues (2015) analysed participants’ gaze patterns which preceded object selection.²⁰⁵ It was found here

²⁰⁵ Here, the authors – following Tannenhaus and colleagues (1995) – proceed from the assumption that “looking toward an object typically precedes moving it” (Fan et al. 2015: 1093). Although looking at a given item does not mean that a person is finally going to pick it, research employing a social communication task similar to Fan and colleagues’ (2015) has found that both adults and children experience an initial tendency

that “the bilingual and exposure groups were less egocentric from the outset” (Fan et al. 2015: 1094) – they made fewer initial eye movements towards the distractor object than their monolingual peers did. The authors conclude that the participants belonging to these two groups “were spontaneously more attuned to the perspective of the speaker compared with children in the monolingual group” (Fan et al. 2015: 1094). The finding that early multilingual exposure may lead to better developed communication skills has important implications for contemporary societies: “miscommunication might be reduced through active exposure of young children to varied linguistic environments” (Fan et al. 2015: 1095).

A related study into the link between exposure to multiple languages and communication ability has somewhat more recently been conducted by Liberman and colleagues (2017). These authors were interested in checking whether the benefits associated with multilingual exposure would be obtained in infants. Participants were 14- to 17-month-old infants who either were from monolingual English-speaking households, or who received regular exposure to English and to at least one other language (from a parent, a nanny, or day-care).²⁰⁶ The task that was employed here resembled the interactive social communication task used by Fan and colleagues (2015), as it also “required taking a speaker’s visual perspective to understand her intended meaning” (Liberman et al. 2017: 2f.). The experimental session was conducted by two researchers: the experimenter and the director. The former acted as session facilitator, while the latter engaged in interaction with the infant. After an introductory phase, whose aim was to help the infants understand the aim of the game, the proper experimental session began: an opaque barrier and two toys were placed on the table. The barrier “prevented the director from seeing the object behind it”; the participant, however, “could see both objects: one in front of the barrier, and one on the other side of the table” (Liberman et al. 2017: 4). On each trial, the director asked the infant to pass her the toy which she could see. Importantly, the trials were of two kinds: Different Toy trials and Identical Toy trials, the former featuring two different objects (for instance,

towards egocentrism: in the study by Epley and colleagues (2004), adult participants were just as likely as children to make initial egocentric eye movements towards a distractor item. The major difference between adults and children seems to be that “adults are better able to subsequently correct an initial egocentric interpretation” (Epley et al. 2004: 760).

²⁰⁶ Importantly, the multilingual exposure group in this study included “any infant whose parent reported that he or she regularly heard even a minimal amount of a language other than English” (Liberman et al. 2017: 3). This decision was motivated by the findings of Fan and colleagues (2015), which indicate that “any regular exposure to a second language may be sufficient to increase communicative perspective-taking” (Liberman et al. 2017: 3).

an apple and a banana), and the latter – two identical objects. While Different Toy trials served as “a baseline measure for understanding reference” – after all, here “participants could select the correct toy based on the label alone”, Identical Toy trials required that the infants should take the director’s perspective (Lieberman et al. 2017: 5). The results from the critical Identical Toy trials demonstrated that while “infants with monolingual exposure showed no ability to take the director’s perspective (...) and as a group (...) performed at chance”, “infants with multilingual exposure were better than chance in correctly identifying the director’s intended meaning” (Lieberman et al. 2017: 5). When the two groups were compared, it was found that the performance of the monolingual exposure infants was marginally worse than that of their multilingual exposure peers. To further investigate this problem, Lieberman and colleagues (2017) conducted an additional analysis, which demonstrated that while “most infants in the multilingual exposure group were active perspective-takers, infants in the monolingual group did not systematically use the director’s perspective to decide how to respond” (Lieberman et al. 2017: 6). In addition to this, the authors also checked whether the two groups would differ with regard to the number of participants who managed to reach out for the correct toy on all Identical Toy trials – that is, in the trials that tapped perspective-taking; here, the results were no less interesting. Although “high level of performance was rare in both groups” (Lieberman et al. 2017: 7), this did happen significantly more often in the multilingual exposure group than in the monolingual group: while 6 out of 32 participants in the former group reached ceiling performance on Identical Toy trials, none of the participants in the latter group managed to achieve this. The authors conclude that “even when considering only infants whose performance meets the highest bar of success, infants from multilingual exposure backgrounds outperformed infants from monolingual backgrounds” (Lieberman et al. 2017: 7). Discussing the findings obtained by Lieberman and colleagues (2017) in the broader context of the various cognitive consequences of bilingualism, one needs to remember that these authors did not test participants who were bi- or multilingual in the strict sense of these terms, but ones who had regular multilingual exposure. This was related to these participants’ very young age: they were not far into the second year of their lives, which is “before most infants speak more than a few words” (Lieberman et al. 2017: 8). In addition, some of these participants had only minimal exposure to other languages, and nevertheless it did suffice to enhance their communication skills. The results of a correlation analysis that was performed by Lieberman and colleagues (2017) “between how balanced an infant’s language exposure was (...) and performance on

Identical Toy trials” demonstrated that “linguistic exposure was not correlated with perspective-taking performance” (Lieberman et al. 2017: 7). While these kinds of analyses cannot be considered fully conclusive, the finding reported by Lieberman and colleagues (2017) does indicate that balance in the amount of exposure to the different languages that an infant gets “may not be the driving factor” (Lieberman et al. 2017: 7) in enhancing his or her ability to take the perspective of another person. The authors believe that rather than this, it could be the social environment linked “with even minimal but regular exposure to multiple languages [that] lays the ground for more effective perspective-taking in communication” (Lieberman et al. 2017: 7). Importantly, this advantage has been observed as early as in 14-month-old infants. A question that may arise at this point is whether such beneficial consequences of bilingualism, or of exposure to multiple languages, persist into adulthood, and whether they have also been observed and documented in aging populations.

3.3.2.6. Cognitive reserve

A fast-growing body of research is currently being accumulated which indicates that “the lifelong use of two or more languages exerts neuroprotective effects” (Green and Abutalebi 2016: 340). One of the early studies examining “the effect of lifelong bilingualism on maintaining cognitive functioning” has been conducted by Bialystok and colleagues (2007: 459). These authors report that bilingual dementia patients “showed symptoms of dementia 4 years later than monolinguals, all other measures being equivalent” (Bialystok et al. 2007: 459). Although the subsequent rate of cognitive decline progression was found to be the same for both groups, Bialystok and colleagues (2007: 462) calculate that an onset “delay of 4 years at the age of [their] patients translates into a reduction of prevalence of 47%.” This is all the more impressive given that – as the authors point out themselves – “[t]here are currently no pharmacological interventions that have shown comparable effects (Bialystok et al. 2007: 462). Having said this, Bialystok and colleagues (2007: 462) caution that their report “should be treated as suggestive rather than definitive”, since their “finding is correlational and not the result of an experimental design with random assignment to groups.” Still, they conclude that the obtained data are strongly in support of their assumption that lifelong bilingualism may postpone dementia symptoms.

Similar findings have been reported by Craik and colleagues (2010), who looked at “patients diagnosed with probable Alzheimer disease (AD)” (Craik et al. 2010: 1726). Analysis of data obtained from these participants demonstrated that “the bilingual patients had been diagnosed 4.3 years later and had reported the onset of symptoms 5.1 years later than the monolingual patients” (Craik et al. 2010: 1726) despite the fact that they had less formal education.²⁰⁷ The two groups showed equivalent performance on cognitive measures and had equal occupational status. Although the authors note that their findings should be treated with caution, they also point out that “[t]he finding of a 4- to 5-year delay in the onset of symptoms of AD is dramatic” (Craik et al. 2010: 1728): as yet, no pharmacologic interventions have demonstrated comparable effects.

Similar findings have been obtained by Alladi and colleagues (2013). These authors looked at case records of as many as 648 dementia patients in order to “determine the association between bilingualism and age at onset of dementia and its subtypes” (Alladi et al. 2013: 1938). In addition, the authors examined the effects of several potentially interacting variables, such as the number of languages spoken by the patients, their education, and occupation. The results showed that bilingual patients demonstrated first symptoms of dementia 4.5 years later than the monolinguals. Importantly, the authors obtained a significant difference “not only comparing all dementia patients, but also within the 3 main dementia subtypes” (Alladi et al. 2013: 1939f.): Alzheimer disease (AD) dementia, frontotemporal dementia (FTD), and vascular dementia (VaD), as well as in illiterate patients. The effect of bilingualism on delaying the onset of dementia symptoms was demonstrated “independently of other potential confounding factors, such as education, sex, occupation, cardiovascular risk factors, and urban vs rural dwelling, of subjects” (Alladi et al. 2013: 1941). A finding that was somewhat surprising to the authors was that they observed no additional advantage in patients who spoke more than 2 languages.²⁰⁸ Nonetheless, the results obtained by Alladi and colleagues (2013) demonstrate that bilingualism may act as a protective shield against the onset of dementia symptoms.

²⁰⁷ The monolinguals could have been at an advantage here: education has been found to provide “a cognitive advantage such that persons with more years of education have higher levels of cognitive function throughout adult life and therefore require more pathology to reach any given level of cognitive impairment” (Bennett et al. 2003: 1912f.). Bennett and colleagues (2003), who report this finding, have observed that “formal education, or something related to education, provides some type of cognitive or neural reserve that reduces the deleterious effect of senile plaques on cognitive abilities” (Bennett et al. 2003: 1913).

²⁰⁸ Drawing on the findings of Chertkow and colleagues (2010), who reported that it was multilingualism, and not always bilingualism, that delayed the onset of Alzheimer disease in their elderly population, Alladi and colleagues (2013) expected to observe an additional benefit in their multilingual patients.

A related study has been conducted by Gollan and colleagues (2011), who explored the link “between bilingual language proficiency and onset of probable Alzheimer’s disease (AD) in (...) Spanish-English bilinguals” (Gollan et al. 2011: 3826). These authors report that “[h]igher degrees of bilingualism were associated with increasingly later age-of-diagnosis (and age of onset of symptoms)” (Gollan et al. 2011: 3826); however, the bilingualism-related advantage “was robust only in bilinguals with low education level” (Gollan et al. 2011: 3829). According to the authors, this indicates that quantitatively speaking, this advantage is not absolute, but seems to have an upper limit. Low-education bilinguals may enjoy an enhancement linked with greater bilingual language proficiency; highly educated bilinguals, however, may already be at the peak level of their cognitive reserve capacity to delay AD symptoms, which would explain why no further advantage has been observed. Gollan and colleagues (2011) point out that such an interpretation of their findings “increases confidence” in the conclusions drawn by Bialystok et al. (2007) and Craik et al. (2010) as to bilingualism-related cognitive benefits and the link between the cognitive consequences of bilingualism and cognitive reserve (Gollan et al. 2011: 3829).

Behavioural results linking bilingualism to delayed onset of dementia have recently been supplemented by findings of research conducted with brain imaging techniques. Schweizer and colleagues (2012) used computed tomography (CT) scans to measure the degree of brain atrophy in monolingual and bilingual patients diagnosed with probable AD. The two patient groups were “matched on level of cognitive functioning and also on degree of clinical severity” (Schweizer et al. 2012: 992), but the monolinguals had more years of education and higher occupational status²⁰⁹ than the bilinguals did, which should favour²¹⁰ the former group. Nevertheless, the results demonstrated that the bilinguals had “substantially greater amounts of brain atrophy” than the monolinguals in brain areas “traditionally used to distinguish AD patients from healthy controls, specifically, the radial width of the temporal horn and the temporal horn ratio” (Schweizer et al. 2012: 991). These findings indicate that bilingualism may lead to enhanced cognitive reserve, “delaying the onset of AD and requiring the presence of greater amounts of neuropathology before the disease is manifest” (Schweizer et al. 2012: 991).

²⁰⁹ Of these two, only the difference in occupational status was statistically significant.

²¹⁰ Stern and colleagues (1994) and Evans and colleagues (1997) have found that low occupational status is linked with an increased risk of developing AD.

However, it is not only bilingual dementia patient populations that have been found to experience a bilingualism-related increase in cognitive reserve. Luk and colleagues (2011) used diffusion tensor imaging to test maintenance of white matter (WM) in normally aging elderly mono- and bilingual adults and “found higher WM integrity in older people who were lifelong bilinguals than in monolinguals” (Luk et al. 2011: 16808).²¹¹ The maintained integrity was observed “in the corpus callosum extending to the superior and inferior longitudinal fasciculi” (Luk et al. 2011: 16808). In addition to this, the authors checked whether “stronger WM connections would be associated with more widely distributed patterns of functional connectivity in bilinguals” (Luk et al. 2011: 16808) and found that these participants did indeed demonstrate “stronger anterior to posterior functional connectivity compared to monolinguals” (Luk et al. 2011: 16808). The findings obtained by Luk and colleagues (2011) are “the first evidence that a naturally occurring life experience is related to WM plasticity in humans” (Luk et al. 2011: 16812). In the study, lifelong bilingualism, which is a kind of such experience, has been found to contribute to an increase in WM connectivity, which in turn may be one mechanism that could, at least partially, constitute the neural correlate of cognitive reserve (Luk et al. 2011: 16812).

A related study, also employing neuroimaging technology, has been conducted by Gold and colleagues (2013). To check whether bilingualism is a cognitive reserve variable, these authors compared white matter (WM) integrity and gray matter (GM) volumetric patterns of normally aging older lifelong bilingual and monolingual adults.²¹² Gold et al. (2013) worked from the assumption that if bilingualism did indeed contribute to cognitive reserve, then the bilingual participants in their study should be “capable of normal cognitive performance despite neuroimaging profiles typically associated with impaired cognition”, that is “reduced gray matter (GM) volume and white matter (WM) integrity” (Gold et al. 2013: 2842). The study found that “seniors who were lifelong bilinguals showed significantly lower cerebral white matter (WM) integrity compared to their monolingual peers” (Gold et al. 2013: 2843). No differences were observed between the two participant groups in GM volume. Overall, the obtained pattern of results “is suggestive of moderate neurodegeneration in the bilingual group” (Gold et al. 2013: 2845). Importantly, both groups had comparable levels of cognitive functioning. Taken together, the findings obtained by Gold

²¹¹ The participants “reported no known psychiatric or health issues that may affect neurological health” and “no experience of concussion” (Luk et al. 2011: 16809).

²¹² The authors use the term “cognitively normal” (Gold et al. 2013: 2842).

and colleagues (2013) indicate that “lifelong bilingualism contributes to CR against WM integrity declines in aging” (Gold et al. 2013: 2841).

Research has documented what might be considered another manifestation of bilingualism-related enhancement in cognitive reserve. It has been found that bilinguals “show significantly better cognitive recovery following stroke than monolinguals” (Bialystok et al. 2016: 57). One of the studies into these problems has been conducted by Kaul and colleagues (2015). The authors looked at medical records of bilingual and monolingual ischemic stroke patients who underwent evaluation in a memory clinic 3-24 months after stroke. It was found that a significantly “larger proportion of bilinguals than monolinguals had normal cognition” (Kaul et al. 2015: 770). Moreover, a larger proportion of monolinguals than bilinguals had vascular mild cognitive impairment (VaMCI) and vascular dementia (VaD). The authors conclude that “bilingualism predicts a better cognitive outcome after stroke” (Kaul et al. 2015: 770) and propose that enhanced cognitive reserve may be the mechanism at play.

Similar findings have been reported by Alladi and colleagues (2016), who “studied the role of bilingualism in predicting poststroke cognitive impairment in the absence of dementia” (Alladi et al. 2016: 258). The authors evaluated records of mono- and bilingual patients who had been diagnosed with acute ischaemic stroke and who underwent clinical evaluation between 3 and 24 months after stroke.²¹³ The results demonstrated that “a [significantly] larger proportion of bilinguals had normal cognition compared with monolinguals” (Alladi et al. 2016: 258). In addition, although the authors observed no difference in the incidence of post-stroke aphasia between the two patient groups, they found that significantly more monolingual than bilingual participants had “cognitive impairment, including vascular dementia and vascular mild cognitive impairment” (Alladi et al. 2016: 258). Drawing on the obtained results, Alladi and colleagues (2016: 258) conclude that “bilingualism leads to a better cognitive outcome after stroke, possibly by enhancing cognitive reserve.”

Discussing the cognitive advantages associated with bilingualism, such as delayed onset of first symptoms of dementia or better post-stroke cognitive recovery, we should be aware of one caveat: it might be the case that “monolinguals and bilinguals (...) [simply] have different baseline cognitive ability” (Bak et al. 2014: 959). This possibility has been

²¹³ As reported by the authors, the study did not include “[p]atients with disabling stroke (...), severe comorbidities, inadequate data, and preexisting dementia” (Alladi et al. 2016: 258).

empirically explored by Bak and colleagues (2014), who conducted “the first study examining the effect of bilingualism on later-life cognition controlling for childhood intelligence” (Bak et al. 2014: 959). The research was large-scale, with as many as 853 participants, who were first tested in 1947, at 11 years of age, and retested over six decades later. The authors not only “detected no negative effects of bilingualism” (Bak et al. 2014: 962), but also found that the bilinguals “performed significantly better than predicted from their baseline cognitive abilities” (Bak et al. 2014: 959). The obtained cognitive effects of bilingualism “showed a consistent pattern, affecting reading, verbal fluency, and general intelligence to a higher degree than memory, reasoning, and speed of processing” (Bak et al. 2014: 962). Bak and colleagues (2014: 962) conclude that their results “suggest a protective effect of bilingualism against age-related cognitive decline independently of CI” (childhood intelligence), and that this finding cannot be explained by other factors, such as immigration, SES, or gender. Moreover, the cognitive reserve benefit associated with bilingualism is not restricted to early bilinguals, but extends to “those who acquired their second language in adulthood” (Bak et al. 2014: 959).

3.3.3. A word of caution

Although far from being exhaustive,²¹⁴ the above review of findings on the cognitive consequences of bilingualism might leave one wondering why monolingualism persists. Researchers studying the various effects of bilingualism claim that it exerts great, if sometimes underappreciated, impact on contemporary societies, starting from their youngest members. To illustrate, Fan and colleagues (2015: 1095) postulate that “miscommunication might be reduced through active exposure of young children to varied linguistic environments”. Bialystok and colleagues (2016), in turn, demonstrate how – on the other side of the age continuum – societies could “profit from the protective effects that bilingualism

²¹⁴ An array of other relevant and interesting problems have been explored empirically. For instance, ample research has been conducted into the link between multilingualism and the expression of personality (Chen and Bond 2010), and it has been found that “a majority of multilinguals report feeling different when they switch from one language to another” (Dewaele and Nakano 2013: 107). Such differences may be manifest not only in trivial matters, such as perceived emotionality of advertisements (Puntoni et al. 2009), but also in more fundamental and consequential areas, such as making inferences (Hayakawa et al. 2016) and choices (Keysar et al. 2012) – including those involving risk (Hayakawa et al. 2016), and even morality (Costa et al. 2014; Hayakawa et al. 2016).

provides” by implementing “social programs and interventions to support the maintenance of the second language among senior citizens” (Bialystok et al. 2016: 58), a move which would help to substantially reduce health care expenditures linked with treating dementia. Proposals such as those above, formulated on the basis of sound empirical evidence, merit attention and further examination: “[w]ith such a potential relevance for public health, any findings in this area need to be carefully scrutinised” (Bak 2016a: 700). One needs to be aware, however, that not all researchers subscribe to the view that bilingualism has positive cognitive consequences: there is an ongoing scientific debate not only as to the extent, but also – more fundamentally – as to the very existence of the bilingual advantage (Morrison and Taler 2020). Leivada et al. (2021: 200) recently pointed out that the term *bilingual advantage* is “entirely inaccurate even if it were to refer to a bona fide and generalizable bilingual effect on neurocognition.” They postulate that the relevant findings are inconsistent and that “bilingual effects, especially at the behavioural level, can have a phantom-like quality”, by which they mean that it is impossible to predict “*a priori* when effects might or might not obtain” (Leivada et al. 2021: 197). Therefore, these authors prefer to use the term *bilingual effect* rather than *bilingual advantage* when they refer to the influence of bilingualism on cognition (Leivada et al. 2021: 200).

Among the most prominent participants in the debate on the effects that bilingualism has on cognition are Kroll and Bialystok (2013), who – in order to get a comprehensive and accurate picture of the cognitive consequences of bilingualism – analysed a number of studies that have been conducted into the problem. The conclusion that these authors drew is quite unequivocal: “the bilingual is indeed a mental juggler at all levels of language processing and (...) there are a host of consequences that result, many of which can be characterised as benefits” (Kroll and Bialystok 2013: 511). This conclusion, as well as several other claims made by the authors, have been challenged by Paap (2014), who postulates that “the appearance of a steady stream of published reports [demonstrating a bilingual advantage] has been exaggerated” (Paap 2014: 242).

In Paap’s (2014) line of reasoning, one can trace echoes of an important debate that has been going on in the scientific world, and which has been particularly heated within the field of psychology (Pashler and Wagenmakers 2012; Schooler 2014). The crux of this debate is the “replication crisis” which has engulfed experimental sciences.²¹⁵ The term refers

²¹⁵ The phenomenon is also referred to as the “replicability crisis”.

to “the current outpouring of concern over replicability” (Pashler and Harris 2012: 531) as researchers have become increasingly aware that the findings of many experimental studies, including high-profile ones, are difficult, if not impossible, to replicate – a problem experienced not only by independent researchers, but also by the authors of the original research. While there is disagreement as to the gravity, and even the very existence of the crisis, one problem seems to be acknowledged by all sides of the debate: not all research results are equally likely to get published.²¹⁶ It happens that the publication of scientific findings depends on their nature, direction, or strength – a practice that distorts our knowledge base.

Bilingualism research may not be free from this problem. As postulated by de Bruin and colleagues (2015b), “the idea of a bilingual advantage may result from a publication bias favouring studies with positive results over studies with null or negative effects” (de Bruin et al. 2015b: 1).²¹⁷ To explore this possibility, these authors analysed abstracts of studies on the topic of bilingualism and executive control that were presented on 169 conferences organised between 1999 and 2012, and subsequently checked which of these studies were later published. The research that was most likely to be published was that whose “results fully support[ed] the bilingual-advantage theory” (de Bruin et al. 2015b: 1). Research with mixed results was less likely to be published, and research challenging the bilingual advantage turned out to be the least likely to be published. De Bruin and colleagues (2015b: 1) report that the obtained discrepancy was not attributable “to differences in sample size, tests used, or statistical power”, and that an additional test that was performed “provided further evidence for the existence of a publication bias.” Interestingly, the authors of this analysis admit that they themselves “are guilty” of the problem, as they “contributed to the creation of the accepted wisdom of a cognitive advantage in bilinguals by publishing a study reporting an effect of bilingualism in a spatial negative-priming task” (de Bruin et al. 2015b: 1). The article in question, authored by Treccani and colleagues (2009), presented results from only one out of four tasks that “were administered at the same time and to the same participants” (de Bruin et al. 2015b: 1). The results that were submitted for publication were only those which found an effect of bilingualism (de Bruin et al. 2015b: 1). The results from the three remaining tasks did not yield any differences

²¹⁶ For instance, Stroebe and Strack (2014: 59) postulate that “the claim of a replicability crisis is greatly exaggerated.”

²¹⁷ We speak of null results “when researchers fail to see an effect that should be detectable” (Mervis 2014: 992).

between the monolingual and bilingual groups, and were therefore not submitted for publication. De Bruin and colleagues (2015b: 2) report one more such situation: their research group conducted a related study which employed “the same spatial negative-priming paradigm that was successful in Treccani et al. (2009)”; this time, however, no effect of bilingualism was obtained. As was the case with the other results that did not demonstrate differences between mono- and bilinguals, these, too, were not submitted for publication. The reason that de Bruin and colleagues (2015b: 2) give for such situations is “the file drawer problem”, a phenomenon named and extensively discussed by Robert Rosenthal (1979) already in the late 1970s. Broadly defined, the term refers to the fact that “one cannot tell how many studies have been conducted but never reported” (Rosenthal 1979: 638). The extreme view is that “journals are filled with 5% of the studies that show Type I errors, while the file drawers are filled with the 95% of the studies that show nonsignificant results” (Rosenthal 1979: 638).²¹⁸ While the reality cannot be as grim as that, the file drawer bias remains a major issue for contemporary science.²¹⁹

It needs to be remembered that the tendency of investigators to submit for publication only those studies that yield significant results is but one side of the problem. The other side is the tendency on the part of publishers to accept positive rather than null results. These two tendencies make up the publication bias, a phenomenon that “has an escalating and damaging effect on the integrity of knowledge” (Joober et al. 2012: 150).²²⁰ As has been pointed out by Mervis (2014: 992), “null results rarely see the light of day”, which not only results in “wasteful duplication”, but also skews scientific literature.

This epitomises what – according to scholars such as Paap (2014) and de Bruin and colleagues (2015b) – has been happening in the literature on the cognitive consequences of bilingualism. De Bruin and colleagues (2015b: 7) postulate that the difference that they observed and reported “in publication percentage based on the outcomes of the study could be the result of a bias during several steps of the publication process: [a]uthors, reviewers,

²¹⁸ Somewhat more recently, a similar and no less controversial claim has been made by Ioannidis (2005: e124), who claims that “most published research findings are false.”

²¹⁹ This problem has been discussed by Spellman (2012), who – in the introduction to the special section of *Perspectives on Psychological Science* – admits that “most of [her] data are not published in good journals, or even in bad journals[, but] (...) are sitting in [her] file drawer” (Spellman 2012: 58). The major claim made in the paper is that “it’s (...) time to revisit our thoughts about what we choose not to publish” (Spellman 2012: 58).

²²⁰ As defined by Dickersin (1990: 1385), publication bias is “the tendency on the parts of investigators, reviewers, and editors to submit or accept manuscripts for publication based on the direction or strength of the study findings.”

and editors can decide to submit or accept only studies that showed positive results” (de Bruin et al. 2015b: 6). At the same time, de Bruin and colleagues (2015b) note that their results “might only be the tip of the iceberg”: their methodology does not make it possible to explore the extent of “the file-drawer problem occurring at the conference-submission level” (de Bruin et al. 2015b: 7). Thus, our view of the actual cognitive consequences of bilingualism may be even more distorted (de Bruin et al. 2015b: 7) than previously thought.

It needs to be made clear at this point that being aware of the existence of a bias in the literature on bilingualism does not preclude considering bilingualism to be advantageous; very often it is to the contrary. De Bruin and colleagues (2015b: 7) entertain the possibility that “the cognitive bilingual advantage is genuine, albeit smaller and less stable than often presented in the literature.” Paap and colleagues (2015: 2015) go further than that, asserting their belief “that the advantages of bilingualism across a host of personal, economic, social, and cultural dimensions overwhelmingly preponderate any disadvantages” (Paap et al. 2015: 266). Thus, what these authors challenge is not the idea that bilingualism has positive cognitive consequences, but “[t]he hypothesis that managing two languages enhances general executive functioning” (Paap et al. 2015: 265).

Paap and his collaborators have explored the link between bilingualism and executive function in a number of studies (Paap and Greenberg 2013; Paap and Sawi 2014; Paap et al. 2016), and discussed it in several commentaries and reviews (Paap 2014; Paap et al. 2014, 2015), in which they looked at empirical results obtained by other researchers. Having analysed earlier findings, these authors report that “[m]ore than 80% of the tests for bilingual advantages [in executive function] conducted after 2011 yield null results and those resulting in significant bilingual advantages tend to have small sample sizes” (Paap et al. 2015: 265). Further, the authors enumerate several practices which they consider to be problematic for studies with positive findings; these practices, which include “[in]appropriate tests of the critical interaction”, “failures to match on demographic factors”, and “a questionable use of the analysis-of-covariance to ‘control’ for these factors” (Paap et al. 2015: 265), may have skewed the obtained results. Subsequently, Paap and colleagues (2015: 265) note that “direct replications are under-utili[s]ed”, and that when they are utilised, “the results of seminal studies cannot be reproduced.” The next reservation voiced by the authors is that “most studies testing for bilingual advantages use measures and tasks that do not have demonstrated convergent validity” (Paap et al. 2015: 265), which means that rather than reflecting executive function skills, the obtained performance differ-

ences may simply be products of task requirements. Finally, the authors look at bilingualism research conducted with neuroimaging technology and postulate that it “ha[s] made only a modest contribution to evaluating the bilingual-advantage hypothesis” (Paap et al. 2015: 265). The reason that they give for this is twofold: firstly, “the neural differences do not align with the behavioral differences”, and secondly, “the neural measures are often ambiguous with respect to whether greater magnitudes should cause increases or decreases in performance” (Paap et al. 2015: 265). Paap and colleagues (2015: 2015) conclude that “confirmation biases and common research practices” have a “cumulative effect”, which “has either created a belief in a phenomenon that does not exist or has inflated the frequency and effect size of a genuine phenomenon that is likely to emerge only infrequently and in restricted and undetermined circumstances” (Paap et al. 2015: 265).²²¹

Another area of bilingualism research that may suffer from similar problems is studies into the link between bilingualism and cognitive reserve. Calvo and colleagues (2016), who have recently analysed earlier research that has been conducted into these problems, postulate that the available empirical “evidence is inconsistent and largely based on retrospective approaches featuring several methodological weaknesses” (Calvo et al. 2016: 1). Among the possible confounding factors which may have skewed the results of prior studies, Calvo and colleagues (2016: 1) discuss “the criteria to establish bilingualism, differences in sample design, the instruments used to examine cognitive skills, and the role of variables known to modulate life-long cognition.” Subsequently, the authors propose several experimental approaches which could help circumvent these limitations. They postulate that the research problem merits “refining the control of relevant subject variables and (...) incorporating experimental tasks” (Calvo et al. 2016: 10). Finally, they posit that “the [research] field should expand its horizons beyond AD and assess CR in bilinguals exhibiting other disorders” (Calvo et al. 2016: 12). This, according to the authors, would “pave the way for more refined insights into the possible impact of bilingualism on domain-specific CR” (Calvo et al. 2016: 13).

An important contribution to the debate on the relationship between bilingualism and age-related cognitive decline has recently been made by Heredia et al. (2020). These authors have conducted a critical and thorough review of the existing literature and note

²²¹ In earlier work, Paap (2014) discussed other such practices and biases: “the frequent use of risky small *n*’s, a confirmation bias to report positive findings and a reluctance to conduct and report exact replications” (Paap 2014: 242).

that the available findings point to bilingualism acting as a predictor and moderator of cognitive reserve. In their discussion, Heredia et al. (2020: 1) highlight the importance of “[i]dentifying extraneous variables that moderate or mediate a causal relationship” – they see this as the way to push research on bilingualism forward. They also propose analytical approaches that would enable model and hypothesis testing. Finally, the authors make a call for researchers’ creating and working with big collaborative datasets in order to foster the understanding of the link between bilingualism and the aging brain.

While the data that have so far been accumulated on the neurocognitive consequences of bilingualism “[reveal] a hazy and inconsistent picture” (Calvo et al. 2016: 3), a dramatically different view is presented in the media. As noted by Sekerina and Spradlin (2016: 506), “[j]ournalists were quick to pick up on the explosion of research on the cognitive benefits of bilingualism, and its coverage in the news media also grew tremendously.” Here, as it has often been the case, “journalists got carried away in their interpretations of the more nuanced scientific reports; blogs, advice columns, and TV news programs exaggerated the claims made by researchers and extended them beyond those in the original studies” (Sekerina and Spradlin 2016: 506). Consequently, a lot of what is currently said or written in the media about the cognitive consequences of bilingualism is verging on the incompetent. To illustrate, bilinguals are claimed to be smarter (Bhattacharjee 2012), to have healthier brains (Fox 2011) which “delay aging effects” (Dell’Amore 2011), to have better health, earn more money as well as lead “a more fulfilling personal life” (Kostiuk 2016), and even to be better lovers (Riotta 2015) (sic!). Interestingly, the authors of many of the above articles make frequent reference to research findings, citing relevant empirical work in order to substantiate the exaggerated claims. The problem here seems to be that “[e]ven when journalists [report] on important findings related to the cognitive benefits of bilingualism, (...) they d[o] not always get the story right” (Sekerina and Spradlin 2016: 506). The above examples are good illustrations of this. One needs to be aware, however, that “exaggerations going well beyond what is supported by evidence” (Bak 2016a: 702) are but part of the problem.

Another important factor at play here is that if negative and mixed findings are less likely to be published in academic sources, they are all the less likely to get through to the media. The reason for this is prosaic: such findings do not make the headlines. Consequently, the media devote little, if any, coverage to contradictory research findings and the ongo-

ing scientific debate on the effects of bilingualism.²²² While “[i]t would be tempting (...) to put all the blame on the media” (Bak 2016a: 702), it would also be inaccurate. As pointed out by Bak (2016a: 702), “the tendency to exaggerate the potential relevance of research findings can be traced back to academic press releases (...), if not to the statements by scientists themselves.” Such statements, he posits, have their roots in the current competitive scientific atmosphere, whereby researchers “feel under pressure to produce constantly novel and socially relevant results” – an environment which does not foster “balanced and self-critical attitude[s]” (Bak 2016a: 702).²²³

While it is unlikely that the media should suddenly change into reliable transmission channels of research findings, the scientific community is becoming increasingly aware of the “problems in how research is run, analyzed, reported, evaluated, reviewed, and selected for publication” (Spellman 2012: 58). Numerous efforts have been made to remedy the situation.²²⁴ “There are now more journals, typically online, that make the review process quicker and more open” (Spellman 2012: 58). In addition, websites have been launched which enable researchers to “post nonrefereed research or ‘register’ experiments before they are run”, or to “post information about (...) attempted replications of published studies, regardless of whether they succeeded or failed” (Spellman 2012: 58). Apart from these, researchers have called for “[b]etter powered evidence, e.g., large studies or low-bias meta-analyses” (Ioannidis 2005: 0700), “publication of high-quality negative studies” (Joober et al. 2012: 151), as well as “enhanced research standards and curtailing of prejudices” (Ioannidis 2005: 0701). One, somewhat controversial, proposal is that “funding agencies could impose costs on investigators who do not write up the results of funded studies” (Franco et al. 2014: 1504). Numerous authors stress the need to conduct replications, which are the “gold standard for ensuring the reliability of published scientific literature” (Frank and

²²² Among the few notable exceptions is Vince (2016a), who – in an article titled “Why being bilingual helps keep your brain fit” – writes about the recent “backlash against the studies showing benefits from bilingualism”: she mentions researchers “tr[ying] and fail[ing] to replicate some of the results”, as well as “others question[ing] the benefits of improved executive function in everyday life.” Still, the crux of her article is that “researchers are finding a swathe of (...) benefits from speaking more than one language.” Interestingly, an edited version of the article was republished by The Guardian, where it appeared under a different – far more commercial, and far less accurate – title: “Why being bilingual works wonders for your brain” (Vince 2016b).

²²³ A similar diagnosis is offered by Joober and colleagues (2012: 149), who note that “the highly competitive environment for funding and career promotion (...) incites researchers to submit predominantly positive results for publication, knowing that they are more likely to be considered for publication by editors, more favourably reviewed by peers and, once published, more likely to be cited.”

²²⁴ One of the more interesting early proposals has been by Sackett (1979), who drafted a whole “catalog of biases which may distort the design, execution, analysis and interpretation of research” (Sackett 1979: 51). The “positive results bias” is but one of the 57 indexed in the catalog.

Saxe 2012: 600). Of particular importance are exact replications (Pashler and Harris 2012; Paap 2014), as – in contrast to conceptual replications – only they can “call into question the essence of the phenomena as inferred from the original report” (Paap 2014: 253). However, as pointed out by Pashler and Harris (2012: 533), “the sort of direct replications needed for identifying erroneous findings are disturbingly rare”, and “even when such data are collected, the results are hard to publish.”²²⁵ An interesting solution to this problem has been put forward by Frank and Saxe (2012), who propose that replication “should be performed by students as part of their coursework in experimental methods” (Frank and Saxe 2012: 600). Apart from these, other related incentives have been proposed in the academic society with the view to making the published empirical evidence more representative of reality; “many (...) have been around for decades, but have yet to be universally implemented, while others are just beginning to be discussed” (Makel 2014: 6). Some initiatives, such as Internet archives of replication attempts, are already bringing good results.²²⁶ However, as noted by Jooper and colleagues (2012: 151f.), “[i]t is only through a concerted effort at different levels that (...) publication bias can be remedied.”

Regardless of how effective the academic society turns out to be at dealing with this issue, one phenomenon, sometimes considered to be a problem of contemporary science, is unlikely to be eradicated; this phenomenon is contradictory findings. It seems highly improbable that new empirical results should begin to yield more convergent patterns. It is to the contrary: as the problem of publication bias begins to wane, the academia will be faced with even more variability in the published work. Also, the voices in the scholarly debate are likely to become more diverse. One important point that needs to be addressed here is how conflicting evidence should be perceived: as “a threat to the trustworthiness of scientific research”, or as “a sign of the health of a discipline” (Bak 2016a: 699).

This problem has been discussed by Bak (2016a), who takes a closer look at the current intense debate on the effects bilingualism. The major claim made by this author is that – contrary to what is sometimes postulated – “the conflicting evidence in the area of bilingualism and cognition and the ensuing debate are neither surprising, nor worrying, nor exceptional compared with other areas of science” (Bak 2016a: 702). He points out that that the problem of publication bias is by no means new, that it “has been discussed for over 50

²²⁵ A similar observation has been made by Paap (2014: 253), who writes that “[s]uccessful conceptual replications are more publishable than exact replications.”

²²⁶ One such archive is “PsychFileDrawer: Archive of Replication Attempts in Experimental Psychology”, which was created by Pashler and colleagues, and was available at www.psychfiledrawer.org.

years” (Bak 2016a: 707),²²⁷ and that contradictory findings and academic debates “have accompanied science since its very infancy”: they are so deeply entrenched in all academic endeavour that “it would be hardly possible to imagine science without them” (Bak 2016a: 707). Debate is indeed “at the very heart of scientific progress”, as it “can stimulate new findings, lead to refinement [or refutation] of existing theories, and to the creation of new ones” (Bak and Robertson 2017: iii). Knowledge progress would not be possible without constructive criticism and attempted refutations, and if the ability to self-correct really is “a hallmark of science” (Ioannidis 2012: 645), then conflicting evidence should be viewed as a valuable and welcome contribution to scholarly debate.²²⁸

Another popular idea that Bak (2016a) takes issue with is “the assumption that different studies performed in different parts of the world should yield the same results” (Bak 2016a: 699).²²⁹ According to the author, this conjecture is faulty, as it relies on several fundamental preconceptions: “[i]t assumes the use of the same paradigms, same experimental material and its administration, same type of participants as well as the same analysis and interpretation of the results” (Bak 2016a: 708). Achieving such a degree of convergence at all levels of empirical work seems to be unattainable. Bak (2016a) further points out that introducing even subtle differences in the experimental tasks employed may lead to obtaining dramatically different results; here, he draws on the findings of Costa and colleagues (2009), whose classical research “demonstrated how even small changes in the difficulty of an experimental paradigm make differences between mono- and bilingual subjects appear and disappear” (Bak 2016a: 708). Similarly, stimuli choice, the mode of their presentation, and the time of testing are all likely to have impact on study results. The same case is with the selection of study subjects or – to put it in a different way – the very definition of bilingualism that a given researcher subscribes to: “where we put the ‘bilingualism threshold’

²²⁷ Here, Bak (2016a: 707) refers to Sterling (1959) and his “seminal observation that out of 298 papers published in leading psychological journals, 286 confirmed the original hypothesis.”

²²⁸ The significance of fruitful critical discussion has been expounded by philosophers of science, and notably by Popper (1962). Popper (1962) postulates that the progress of science takes place by “conjectures” – that is, “by unjustified (and unjustifiable) anticipations, by guesses, by tentative solutions to our problems” (Popper 1962: vii), and he considers our criticism of [these] conjectures to be “of decisive importance” for the development of knowledge: “by bringing out our mistakes it makes us understand the difficulties of the problem which we are trying to solve” (Popper 1962: vii). Popper (1962: vii) notes that “the very refutation of a theory (...) is always a step forward that takes us nearer to the truth.”

²²⁹ Elsewhere, Bak (2015) notes that this assumption is at the heart of such claims as the one voiced by Paap and colleagues (2015: 265), who posit that “[b]ilingual advantages in executive functioning either do not exist or are restricted to very specific and undetermined circumstances”, or – as paraphrased by Bak (2015: 332) – that “cognitive differences between bilinguals and monolinguals do not exist [and] papers proposing anything else are methodologically flawed or biased.”

might well decide whether we find significant results or not” (Bak 2016a: 708). Next, the numerous participant variables come into play, each of which may also influence the results. The same applies to data analysis: “different ways of analysing the same data can lead to different conclusions” (Bak 2016a: 709). Finally, the environment in which a given experiment is conducted also matters: different – albeit not always easily perceptible – factors may come into play here and bear upon the obtained findings.²³⁰

Given all of the above, the discrepancies in empirical findings regarding the cognitive consequences of bilingualism seem to be anything but unexpected. Moreover, even the results of direct replications may differ from those of the original research. As pointed out by Bak (2016a: 709), “the fact that the same experiment does not replicate in every place does not have to be due to errors, incompetence, bad will, bias, let alone dishonesty of the researchers involved”; it may simply be a reflection of environmental differences. Therefore, to get closer to the truth, researchers should compare results of studies conducted “across different environments” (Bak 2016a: 710).

Viewed from this perspective, contradictory findings do not seem to be “a curse[,] but a blessing for the advancement of science” (Bak 2016a: 710). They “[draw] our attention to potential methodological problems” (Bak 2016b: 221), which may have a host of positive consequences: it can provide a strong incentive for the search of new relevant variables which may otherwise have slipped the attention of researchers, and it plays a substantial part in the process of refining or abandoning old, and producing “new theories, with a much stronger claim to universality than those based on a small sample of world’s countries and cultures” (Bak 2016a: 710). To put it shortly – contradictory findings “can help us to develop better research” (Bak 2016b: 221). If this is so, then conflicting evidence should by no means be considered one of the major problems of contemporary research into the cognitive consequences of bilingualism.

In his analysis, Bak (2016a) provides one more argument in support of the above statement. He points out that while “it is easy to get carried away by the colourful rhetoric

²³⁰ Bak (2016a) illustrates this with a convincing example of scientists who wish to establish the temperature at which water begins to boil, conducting relevant experiments in their respective labs. While the majority of scientists obtain the value of 100C, one “colleague from La Paz in Bolivia reports that repeated measurements have shown a significantly lower boiling temperature, well below 90C” (Bak 2016a: 709). The situation is inexplicable until measurements from other locations, such as Quito, Bogota, Addis Ababa or Lhasa, are made available. It is only then, when all the data are compared, that an explanation – a major environmental difference – can be arrived at: “[t]he boiling temperature of water depends on the altitude, a fact which will not become apparent if we confine our experiments to cities lying at the sea level” (Bak 2016a: 709).

of the current ‘bilingualism debate’”, the claims as to the multitude of contradictions in the obtained findings are highly exaggerated: “[a]dmittedly, some studies show significant differences between mono- and bilingual groups and others don’t, but if there is a difference, it has a remarkably similar pattern across various studies” (Bak 2016a: 701). Bak (2016a) illustrates this with a few examples. He notes that if studies comparing the performances of mono- and bilinguals yield a single difference between the participant groups, then this difference “is much more likely to be in the executive domain than in any other cognitive function, such as memory or visuospatial skills” (Bak 2016a: 701).²³¹ Next, he observes that it is tasks tapping inhibition, monitoring and switching rather than reasoning tasks that tend to yield group differences.²³² Further, he postulates that “[t]he same consistency of profile applies to the negative effects of bilingualism” (Bak 2016a: 701), and illustrates this with findings of monolingual superiority on such linguistic measures as lexical access.²³³ The “contrast between executive functions and language” can also be found in studies exploring the impact of bilingualism on patients suffering from various brain diseases, where bilingualism has been linked with “a better outcome in terms of post-stroke dementia and post-stroke mild cognitive impairment but not in terms of post-stroke aphasia” (Bak 2016a: 701).²³⁴ One of the most interesting claims made by Bak (2016a) is that even those findings which are “cited usually as examples of null-results, reporting no differences between mono- and bilinguals”, show a similar and consistent pattern of results (Bak 2016a: 701). The example he gives here is the research by Zahodne and colleagues (2014), who conducted a large-scale longitudinal study of aging and dementia in a population of Hispanic residents of Northern Manhattan. Although the obtained results “[did] not support a protective effect of bilingualism on age-related cognitive decline or the development of dementia”, the bilingual participants in the study did obtain higher initial scores on all the tested cognitive domains: executive function, memory, language, and speed (Zahodne et al. 2014: 238). Importantly, as pointed out by Bak (2016a: 701), the performance difference “was biggest for the executive function score, followed by speed, language and memory”, a pattern that is, once again, unlikely to have been coincidental.

Discussing these inconsistencies, Bak (2016a: 701) uses the metaphor of “a mountain chain submerged under water, hidden and exposed in turn by rising and falling tides

²³¹ The author draws on the findings of Bak and colleagues (2014) here.

²³² Here, Bak (2016a) refers to the findings obtained by de Bruin and colleagues (2015a).

²³³ Here, Bak (2016a) draws on Gollan and colleagues (2005), and Ivanova and Costa (2008).

²³⁴ These are the findings of Alladi and colleagues (2016).

but nevertheless maintaining its shape.” On this account, patterns can easily be identified in the empirical findings available: “we can predict which parts are likely to appear first when the water levels begin to fall”; what remains to be done, however, is to find out “what determines the changes in water level” (Bak 2016a: 701). This, in turn, can only be achieved if we acknowledge the existence of what is “one of the most important genuine problems” that the study of bilingualism is fraught with – “the high number of potential confounding variables” (Bak 2016b: 205). While this “forest of confounding variables” (Bak 2016b: 205) does call for a greater methodological awareness, it at the same time demonstrates “that by studying bilingualism we also study the complex relationship between language, the human mind, the brain and society: one of the most fascinating topics in all of science” (Bak 2016b: 221).

3.4. Conclusion

The analysis undertaken in Chapter 3 aimed at introducing the field of bilingualism. Here, emphasis was laid on the prevalence and heterogeneity of the phenomenon. The author reviewed the major definitional controversies and laid out several major factors that are relevant for describing bilingual individuals and populations. These factors include the degree of bilingualism, the age and context of bilingual language acquisition, the domain of language use, as well as social orientation.

The subsequent part of the analysis was devoted to the advantages and disadvantages of bilingualism. Here, the author reviewed empirical findings concerning several areas of importance: metalinguistic awareness, verbal abilities, cognitive flexibility, executive function, Theory of Mind, communication skills, as well as cognitive reserve. Discussing these research results, the author presented the concept of bilingual advantage.

The final part of the discussion was devoted to scientific controversy and discrepant findings of research into the bilingual advantage. These issues were examined in the context of the current scientific debate concerning problems such as the replication crisis and the positive publication bias. Reviewing the claims of ardent opponents of the idea of the bilingual advantage, the author detailed out the possible reasons for the problems with replicating research findings. Finally, the author pointed to the need for a greater methodologi-

cal awareness, as the study of bilingualism is fraught with a number of potential confounding factors.

Once the major issues relevant to the study of bilingual advantage have been outlined, the time has come to examine whether bilinguals enjoy an advantage over their monolingual counterparts in one more area – that of figurative language comprehension. The relevant literature will be discussed in the following chapter.

Chapter 4: Towards irony comprehension in bilinguals

4.1. Introduction

The goal of Chapter 4 is to review the current state of knowledge concerning irony comprehension in bilingual populations. As, heretofore, little research has been conducted into the comprehension of ironic utterances by bilingual individuals, let alone bilingual children, the chapter begins with a brief overview of studies into bilingual figurative language comprehension. Here, idioms, metaphors, proverbs, and similes are looked at.

Subsequently, the scope of the discussion is narrowed to irony. Critical differences between the processing of irony and that of other types of figurative language are analysed. Further, relevant insights from various fields of study are presented: language acquisition, neuroimaging research, as well as research conducted with clinical populations. The implications of these studies for bilingual research into irony are provided.

The focus of the final part of Chapter 4 is on studies that have so far been carried out to explore irony in the bilingual context. Findings of research conducted with adult participants are discussed first, followed by an analysis of the relevant findings obtained with bilingual children. Given that few such studies have been carried out, the author closes the chapter with a brief overview of the issues that yet need to be empirically addressed. The current study aims to shed light on many of these.

4.2. Figurative language comprehension in bilinguals

Exploring bilingual figurative language processing, one delves into “two of the most complex topics of the research on language processing” (Cacciari 2015: xiii). The difficulties that studying bilingualism is entwined with have been detailed out in Chapter 3; despite these problems, “questions centred around bilingual language processing and its cognitive underpinnings and neural substrates have drawn the attention of researchers working in different fields of expertise” (Tomczak and Jaworska-Pasterska 2017: 6). Similarly, the questions of figurative language comprehension and production – no less complex than those of bilingual processing – have been attracting increased attention from scholars. Recent years have witnessed a surge of academic interest in problems which lie at the intersection of these two research areas.

4.2.1. Introducing bilingual figurative language processing

If one was to summarise what has so far been discovered concerning bilingual figurative language comprehension, the best answer would probably be that “figurative competence in the second language (even in proficient language users) falls behind the first language competence” (Bromberek-Dyzman et al. 2010: 209). One reason why this answer is so good is that it does not go into unnecessary detail. It seems that those seeking for universal rules governing the processing patterns of all the different types of figurative language may arrive at a dead end – especially given how diverse the phenomenon of figurative language is, and given the fact that the very “issue of what should be labelled literal and figurative has been hotly debated by language scholars” (Cieślicka 2004: 12). Thus, what is common to all figurative utterances is that they pose true challenge to hearers; this challenge seems to be greater for individuals who receive the figurative message in their L2. Littlemore and Low (2006a: 25), who looked into this problem in their work on figurative thinking and foreign language learning, postulate that because “language learners do not have native speaker competence in the target language, they are not always able to process figurative language in the same way as native speakers do” (Littlemore and Low 2006a: 3). Further in their discussion, these authors give three potential reasons for the difficulties that foreign language learners experience when decoding figurative utterances. Firstly, learners may be

unacquainted with conventions that mandate the use of figurative language; secondly, they may be unacquainted with cultural connotations that are necessary for its comprehension; thirdly, they “may not have access to a repertoire of prefabricated, and readily understood, figurative multiword items”, which may cause them to “try and understand each word separately” (Littlemore and Low 2006a: 6). While the label “foreign language learners” encompasses a number of highly diverse and, oftentimes, highly idiosyncratic groups of bilinguals, the problems outlined by Littlemore and Low (2006a: 6) may – at least to some degree – be of more general relevance. For one thing, “using and comprehending figurative language effortlessly constitute a test of how fluent and native-like an L2 speaker is or thinks he or she is” (Cacciari 2015: xiii); for another, “[u]nderstanding and (...) producing idiomatic expressions in L2 is a challenge even for proficient L2 speakers” (Cacciari 2015: xiii). It needs to be added here that even monolinguals – often taken as models of an ideal speaker-hearer – may be unfamiliar with some of the idioms which exist in their mother tongue.

4.2.2. Idioms

Of all figurative language types, it is idioms that seem to have enjoyed most attention from scholars working with bilingual populations. Also, as pointed out by García and colleagues (2015: 151), “it appears that most of what we know about how bilingual speakers process figurative language derives from experiments utili[s]ing idiomatic expressions as experimental stimuli.” Idioms have typically been defined as “multiword units whose figurative meanings are distinct from their component words” (Titone et al. 2015: 172).²³⁵ The study of idiomatic expressions has been central to figurative language researchers for a number of reasons; one of these is that idioms have been “the prototypical fixed expression for many,

²³⁵ This definition, albeit very general, is sufficient for the purpose of the current analysis; hence, no attempt will be made for a more precise and exhaustive formulation of the phenomenon. Providing a detailed definition of idioms would be a daunting, if not futile, task – mostly because of their, as Cieślicka (2004: 19) put it, “widely heterogeneous nature”. Idioms are a large and diverse group of multiword expressions; Alexander (1991), who proposed a typology of idioms in English, lists as many as 9 idiom types: gambits (*there you go*), clichés (*It'll all come out in the wash*), proverbial idioms (*When the cat's away*), tournure idioms (*to fall on deaf ears*), irreversible binominal idioms (*part and parcel*), phrasal compounds (*a dog's breakfast*), phrasal verb idioms (*to pass off*), metaphorical/allusive idioms (*to send somebody to Coventry*), and idiomatic similes (*as deaf as a post*) (Alexander 1991: 3). It would be extremely difficult to capture all these expression types in one succinct and unambiguous definition.

if not all, linguists” (Alexander 1991: 2). Another – and, perhaps, a far more important one – is the dual nature of idioms, which function as “conventionalized sequences, subject to rapid direct retrieval from the mental lexicon, and as decomposable sequences, subject to normal syntactic and semantic analysis” (Titone et al. 2015: 172). It is owing to this dual status that idioms have great “relevance for resolving the literal versus nonliteral dichotomy debate” (Cieślicka 2004: 15).²³⁶ This is not to say that the dual nature of idioms is their only intriguing characteristic; another, and no less fascinating one, is that they are “highly heterogeneous and vary along a number of dimensions” (Cieślicka 2015: 212). To illustrate, some idioms are literally plausible, as in *kick the bucket*, while others aren’t, as in *go bananas*. Further, depending on the “extent to which the original metaphorical motivation of an idiomatic phrase can be deduced from its literal analysis” (Cieślicka 2015: 213), idioms may be transparent, as in *saw logs*, or opaque, as in *send somebody to Coventry*. Another dimension along which idioms vary is their decomposability, or analysability – that is “the degree to which individual meanings of an idiom contribute to its overall figurative interpretation” (Cieślicka 2015: 213); thus, some idioms are semantically decomposable, as in *spill the beans*, while others are non-decomposable, as in *kick the bucket*.²³⁷ Idioms also vary with regard to their predictability: while some are highly predictable – that is easily and quickly recognised as nonliteral, so that the hearer can complete the idiomatic phrase even before the whole sentence has been uttered, as in *Let the cat out of the... (bag)*, others are low predictable, whereby the hearer has to receive the whole idiomatic expression to recognise it as figurative (Cieślicka 2015: 212), as in *under the... (weather)*. In addition to this, idioms differ along the dimension of familiarity; those which are popular in a given language are highly familiar, and their idiomatic meanings are salient²³⁸ (or prominent) for hearers and speakers, as in *spill the beans*. The figurative meanings of low familiar idioms,

²³⁶ The debate as to whether (and, if so, how) a clear boundary can be drawn between literal and figurative language is far from being over. In her discussion of this debate, Cieślicka (2004: 14) draws on Honeck (1980: 25), who seems to have captured the essence of the controversy: “the boundaries of figurative language are no less fuzzy, squishy, and ill-defined than language in general.”

²³⁷ Discussing idiom transparency and decomposability, Cieślicka (2015: 213) makes an important point that although people have a tendency to perceive transparent idioms as more decomposable, and although certain authors – such as, for instance, Abel (2003) – have used these two terms interchangeably, idiom transparency and decomposability should by no means be viewed as synonymous. She illustrates this claim with two examples: the idiom *jump the gun*, which is transparent and nondecomposable, and *pop the question*, which is opaque and decomposable (Cieślicka 2015: 213).

²³⁸ Throughout the current discussion, “salience” is to be understood in terms of the priority of a given meaning, as postulated by Giora’s (1997, 1999, 2002, 2003) Graded Salience Hypothesis (henceforth GSH). For a more detailed discussion of the GSH, see section (1.6.8).

on the other hand, are less salient; to illustrate, upon encountering an expression such as *get one's goat*, a hearer may first consider its literal interpretation. The above list of factors that come into play during the processing of idioms does not just show how much there is to be gained from the study idioms; it also testifies to the challenge that this kind of research is fraught with.

As has been the case with all psycholinguistic studies, early explorations of idiom processing employed a monolingual perspective (Kroll et al. 2012). Here, one of the critical issues has been whether it is the figurative or literal meaning of an idiomatic expression that enjoys a processing advantage (Glucksberg 2001; Papagno and Romero-Lauro 2010). Since bilingual research has been informed by and built upon monolingual research, the question of meaning activation in the course of idiom processing has also been central to many a bilingual study; these often compared the results obtained by non-native speakers with those of natives (Matlock and Heredia 2002; Cieślicka 2004, 2006a; Siyanova-Chanturia et al. 2011; Paulmann et al. 2015; Beck and Weber 2016). Scholars have long sought to investigate what parallels can be drawn between monolingual and bilingual idiom processing. An early study by Irujo (1986: 287) explored “whether second language learners use knowledge of their first language to comprehend and produce idioms in the second language.” However, more recent research has also looked into related problems – for instance, Titone and colleagues (2015: 171) investigated whether “the linguistic factors that control monolingual comprehension (...) similarly control bilingual comprehension.” Monolingual research has established that the nature of idiom processing is multidetermined (Libben and Titone 2008); however, for bilingual speakers, numerous other variables enter the scene that come together with the presence of a second language, and further complicate the picture. Thus, in addition to considering factors such as idiom familiarity, literal plausibility, and decomposability, which have been found to play an important part in how monolingual speakers comprehend idiomatic expressions (Libben and Titone 2008), researchers of bilingualism have to take into account the dimensions which are unique for L2 users. It is through dynamic interaction of all these factors that bilingual idiom comprehension is shaped. In spite of the complexity of this problem, and despite the fact that bilingual language processing is a relatively new research area²³⁹, scholars have managed to explore

²³⁹ As has been noted by Kroll and colleagues (2012: 229), it has been since the 1990s that the “dramatic increase of research on bilingual speakers” has taken place – together with the recognition “that bilingualism is not an unusual or problematic circumstance but one that characterizes more language speakers in the world than monolingualism.”

the role of numerous variables affecting bilingual idiom processing.²⁴⁰ One of these is idiom cross-language similarity (or overlap), which has been investigated from many perspectives, including pedagogically-oriented work, such as the research by Laufer (2000), Liontas (2002), Cieślicka (2006b), Liontas (2015), or Türker (2019), and processing-oriented work, such as Cieślicka and Heredia's (2013) study.²⁴¹ No less interesting are studies that have been conducted into other factors modulating bilingual idiom processing, such as salience and context (Cieślicka and Heredia 2011)²⁴², language dominance, salience, and context (Cieślicka et al. 2014)²⁴³, or language proficiency and idiom congruence²⁴⁴ (Carrol et al. 2016).²⁴⁵ Of late, researchers have also explored such problems as idiom representation and storage (Pritchett et al. 2016), task effects in the processing of idioms by bilingual speakers varying in language dominance (Cieślicka et al. 2017), or the effects of language brokering²⁴⁶ experience on idiom comprehension (López and Vaid 2018).²⁴⁷ Compared with studies conducted with adult bilingual participants, surprisingly little research is available on how bilingual children understand idiomatic expressions. Moreover, the bulk of work that has been conducted into this problem has had a language intervention focus: such was the case with early publications (Yandell and Zintz 1961), but this is also true for more recent studies (Fusté-Herrmann 2008; Wang and Plotka 2018).

²⁴⁰ Providing a detailed overview of the work that has so far been conducted into these problems is far beyond the scope of the present discussion; instead, the current author will touch upon several areas which have more or less recently caught the attention of scholars, and which she considers interesting. For a representative account of the current state of knowledge about idiom acquisition and processing in the nonnative context, including an overview of L2 idiom processing models and theories, see Cieślicka (2015).

²⁴¹ Here, using the eye tracking paradigm, the authors demonstrate how cross-language similarity affects idiom processing as it unfolds in real time. The results indicate that bilinguals experience interference while processing similar idioms: the presence of an L1 translation equivalent "calls for the extra processing time needed for its suppression" (Cieślicka 2015: 230). Such a problem does not exist for different idioms, where no direct translations are available.

²⁴² This study is particularly interesting as it explored the contribution of the left and right hemispheres to how bilinguals understand idiomatic expressions. It also examined the coupled effects that salience and context have on how the two cerebral hemispheres are involved in this task. To tap the relevant cognitive processes, the authors made use of the divided visual field and the lexical decision priming paradigms.

²⁴³ Here, the authors used eye tracking to study the impact of salience, context, and language dominance on the processing of idioms by Spanish–English bilinguals. As was hypothesised, the effects of salience and context on participants' eye movement patterns were found to be modulated by language dominance.

²⁴⁴ Here, idiom congruence is meant in the sense of idiom similarity. Thus, congruent idioms are those which "have the same form and meaning in both languages" (Carrol et al. 2016: 409).

²⁴⁵ The goal of this eye tracking study was threefold: to check whether native and nonnative speakers process formulaic language "in a fundamentally different way, whether exposure can lead to more nativelike processing for nonnatives, and how L1 knowledge is used to aid comprehension" (Carrol et al. 2016: 403).

²⁴⁶ Language brokering is "a language contact phenomenon in which children or adolescents are enlisted to serve as informal translators for their family or community members" (López and Vaid 2018: 340).

²⁴⁷ The findings of this research indicate that "language brokering experience facilitates idiom meaning comprehension even across language boundaries" (López and Vaid 2018: 340).

4.2.3. Metaphors

Another type of figurative language that has been quite extensively explored in the bilingual context is metaphor. A metaphor can be defined as “a figure of speech that establishes an analogical relationship between two things or concepts” (Yang et al. 2013: 313). This relationship is attained by means of mapping similar features from the source domain onto the target domain. For instance, in the sentence *Alice is an angel*, the quality of being good-natured, which is associated with angels (source or vehicle), is projected to Alice (target or tenor). The intended meaning is not that Alice is literally an angel, but that she has certain features which make her somehow similar to one. Indeed, the intended meanings of metaphors “do not correspond to their literal interpretation”, a phenomenon “which has raised the question of how speakers are able to arrive at nonliteral meanings” (Jankowiak et al. 2017: 2). Scholars have approached this problem from a number of varying angles – however, just as was the case with idiom research, early work on metaphor was conducted from a solely monolingual perspective.

Monolingual research into metaphor comprehension and processing has been proceeding in many directions.²⁴⁸ One of these was focussed on exploring the tenets of metaphor processing theories; here, among central problems was the question of whether it is figurative or literal meanings that enjoy processing priority (Giora 1997, 1999; Giora and Fein 1999b; Giora 2002). Also, researchers have been investigating the different factors that shape the processing of metaphoric expressions, such as metaphor familiarity and aptness (Blasko and Connine 1993).²⁴⁹ Here, ample work pointed to the role of metaphor conventionality (e.g. Blasko and Connine 1993²⁵⁰; Gentner and Bowdle 2001²⁵¹; Giora 2002²⁵²;

²⁴⁸ In the following discussion, no attempt will be made to provide a detailed overview of trends in research into metaphor processing. Rather than that, the author will briefly signal some of the work which has been carried out in this field, and which she considers interesting.

²⁴⁹ An apt metaphor is, simply speaking, a good metaphor. Numerous factors have been found to affect the aptness of a metaphor; typically, a highly apt metaphor is such in which “the domains of the topic and vehicle are relatively distant but the within-domain features are relatively close in semantic space” (Blasko and Connine 1993: 296).

²⁵⁰ To be precise, Blasko and Connine (1993) explored the effects that subjective familiarity – “one aspect of conventionality” – has on metaphor processing (Blasko and Connine 1993: 295).

²⁵¹ These authors are more precise in how they define conventionality and familiarity: “[c]onventionalization involves repeated figurative uses of a given base term”, while “[f]amiliarization (...) involves repeated exposures to specific target-base pairings” (Gentner and Bowdle 2001: 229).

²⁵² To Giora (1997, 1999, 2002), the conventionality of a meaning – together with its frequency, familiarity, and prototypicality – contributes to meaning salience. As can be seen, researchers of metaphor differ in how they define and conceptualise critical concepts, including that of conventionality.

Glucksberg 2003; Bowdle and Gentner 2005). More recent studies explored the neural correlates of metaphor processing (Rapp et al. 2004); some of these investigations looked into factors modulating this process (Schmidt and Seger 2009).²⁵³ An important avenue of neurolinguistically-oriented research has been centred around the issue of differential hemispheric involvement in the processing of metaphoric language²⁵⁴ – here, various neuroimaging techniques were employed, including ERPs (Coulson and Van Petten 2007) and fMRI (Rapp et al. 2007; Yang et al. 2009; Yang 2014).²⁵⁵

Research into bilingual figurative processing has largely drawn from the methods and findings of monolingual studies. However, early explorations of metaphor comprehension that were conducted in the bilingual context tended to be classroom-oriented. Here, one of the pioneering studies is the research by Trosborg (1985), who explored “[m]etaphoric productions and preferences in second language learners” (Trosborg 1985: 525) and reported “a general trend of increasing metaphoric capacity in L2 learners relative to increasing proficiency in TL [the target language]” (Trosborg 1985: 548). In a later study, Johnson and Rosano (1993) “examined relationships among measures of language proficiency, cognitive style, and metaphor comprehension” (Johnson and Rosano 1993: 159) with native speakers and language learners. Somewhat later, interesting findings were obtained by Johnson (1996), who found that “the complexity level of metaphor interpretation in English is related much more strongly to age and developmental mental capacity than it is to proficiency in English” (Johnson 1996: 219). The problem of learners’ metaphoric competence has also been taken up by Littlemore and Low (2006b)²⁵⁶, Littlemore (2010)²⁵⁷, and MacArthur (2010). However, it is not only from a pedagogical perspective

²⁵³ The goal of this study was “to separate the effects of figurativeness, familiarity, and difficulty on the recruitment of neural systems involved in language, in particular right hemisphere mechanisms” (Schmidt and Seger 2009: 375).

²⁵⁴ These experiments have been conducted mostly with a view to verifying the “Right hemisphere metaphor theory”, according to which the right cerebral hemisphere plays a special role in the processing of figurative language (Coulson and Van Petten 2007). The theory is based on data from several lines of research, including, most notably, studies conducted with right-hemisphere damaged (henceforth RHD) patients, who have been reported to have difficulty understanding figurative expressions (Brownell et al. 1990).

²⁵⁵ The work of Yang (2014) is a recent meta-analysis of 17 fMRI studies that have been conducted into the role that the right hemisphere plays in metaphor comprehension.

²⁵⁶ In this theoretical paper, the authors point to the importance of metaphor in second language learning and teaching, postulating that “metaphoric competence has (...) an important role to play in *all* [emphasis in the original, DJP] areas of communicative competence” (Littlemore and Low 2006b: 268).

²⁵⁷ The goal of this study was “to explore metaphor comprehension and production skills in the L1 and the L2 in order to determine whether there is a relationship between them, and whether participants are generally better at dealing with metaphor in their L1 or their L2” (Littlemore 2010: 296).

that metaphor has been explored in the bilingual context. Numerous studies have been conducted from a more processing-oriented angle.

Interesting findings were obtained by Nelson (1992), who looked at memory for metaphors in non-fluent Spanish-English and French-English bilinguals. Participants' task was to translate Spanish and French metaphoric and literal expressions into English, as well as to perform a cued-recall and – somewhat later – a delayed recall test. The results demonstrated that participants who translated the figurative meaning of a metaphor into English performed better on the memory task than did both those who translated the literal meaning of a metaphor, and those who translated a literal sentence. On the other hand, participants who were specifically instructed to translate the figurative meaning of a metaphor did not demonstrate better recall than did those who received a general instruction to simply translate a metaphoric sentence into English. These results indicate that “when confronted with a metaphor, the processing of the figurative meaning is *automatic* [emphasis in the original, DJP]” (Nelson 1992: 119), which means that “[u]nder normal conditions it is not obligatory to process the literal meaning first” (Nelson 1992: 119). As observed by Heredia and Muñoz (2015: 96), these findings lend support to the Direct Access Model of Bilingual Processing.²⁵⁸ Thus, although Nelson (1992) employed offline tasks, she was able to draw interesting conclusions concerning the processing of literal and metaphoric meanings by bilinguals. More recent explorations of these problems, however, have tended to employ online measures.

Among such studies is the research by Heredia and Muñoz (2015), who investigated “the processing of metaphoric reference (...) during the online comprehension of spoken sentences” (Heredia and Muñoz 2015: 89). The authors conducted two experiments in which they employed the Cross-Modal Naming (henceforth CMN) task, which makes it possible to study meaning activation online.²⁵⁹ Participants listened to short passages where two individuals discussed a person or thing they both knew. In either the penultimate or the final sentence, the critical metaphoric referential description appeared which related to the person or thing in question. For instance, in a stimulus where two interactants were talking

²⁵⁸ Direct access models assume that “intended, contextually compatible meanings would be tapped directly” (Giora 2002: 489), regardless of whether they are figurative or literal.

²⁵⁹ The CMN task utilises the priming effect, whereby participants respond faster to a target word (e.g. *dog*) when it follows a related (*cat*) than an unrelated prime (e.g. *cup*). This effect is considered to be “a measurement of lexical activation, or the extent to which a particular meaning is activated relative to its unrelated control” (Heredia and Muñoz 2015: 95).

about a cowardly boxer, the metaphoric reinstatement was “creampuff”. For each such reinstatement, two related targets were devised: a literal, context-independent one (e.g. “pastry”), and a figurative one (e.g. “boxer”). In addition, filler passages were created and matched with unrelated targets. The targets were presented visually in two locations: immediately (0 ms), and either 1000 ms (Experiment 1) or 300 ms (Experiment 2) after the offset of the metaphoric reference. Participants listened to sentences, and were then supposed to name a string of letters that was presented to them on a computer screen. Results from Experiment 1 showed that the figurative interpretation of a metaphoric description might be available to bilinguals directly and early on in the course of figurative language processing, just as has been found for monolingual speakers.²⁶⁰ However, in contrast to what is the case with monolinguals, the literal meaning is still active in bilinguals “even 1000 ms after they have accurately resolved the linguistic ambiguity” (Heredia and Muñoz 2015: 103). As these findings were obtained with bilinguals from widely heterogeneous backgrounds, who were not only highly fluent in English, but also used it as their main language on a daily basis, the authors decided to conduct a second experiment, in which they focussed a less heterogeneous sample – participants were active bilinguals from a community that typically mixed Spanish and English in communication. Here, no response time differences were obtained between the literal and figurative interpretations of the metaphoric referential expression at either of the two post-offset positions (0 ms and 300 ms), which indicates that both meanings were equally accessible.²⁶¹ On the other hand, participants responded faster to both literal and figurative interpretations at 300 ms than at 0 ms after the onset of the metaphoric reference, which indicates that processing metaphoric referential descriptions is cognitively taxing. Taken together, the findings obtained by Heredia and Muñoz (2015) demonstrate that for bilingual speakers – especially those with high L2 fluency – the figurative interpretation of metaphoric referential descriptions is directly available, just as is the case for monolingual speakers. Further, the results indicate that in the course of bilingual figurative language comprehension, both the literal and the figurative meanings are available even well after the metaphoric referential description has been understood. The authors conclude that, “at least in bilingual anaphoric metaphor processing, literal meaning activation is not only necessary but also obligatory due to its high saliency” (Heredia and Muñoz 2015: 111).

²⁶⁰ Earlier, Stewart and Heredia (2002) obtained similar findings with monolingual participants.

²⁶¹ In Experiment 2 the second probe position was 300 ms, and not 1000 ms, after metaphoric reference offset.

Somewhat more recently, a related study has been conducted by Heredia and Cieśllicka (2016), who used eye tracking to examine the processing of metaphoric reference in English dominant, Spanish dominant, and balanced bilinguals. The results obtained in this study qualify the findings of Heredia and Muñoz (2015), demonstrating “that multiple meaning activation occurs, but only for English dominant and balanced bilinguals who are active in English, and only during the early stages of lexical processing” (Heredia and Cieśllicka 2016: 8). In addition to this, the results also demonstrate “that the literal anaphoric reference to the antecedent (i.e., ‘creampuff’ referring to a pastry) is read faster than metaphoric anaphoric reference (i.e., ‘creampuff’ referring to a coward boxer), but only at late processing stages” (Heredia and Cieśllicka 2016: 8). The authors conclude that language dominance has a major impact on whether it is the literal or figurative meaning of a metaphor that is more salient to a speaker. They also point out that – as has been postulated by Cieśllicka (2006a, 2015) – “there is a propensity for the literal meaning of metaphoric expressions to be more readily accessible and more salient for bilingual speakers” (Heredia and Cieśllicka 2016: 8).

Heredia and Cieśllicka (2016) have been the first to employ eye tracking in the study of how language dominance affects bilinguals’ comprehension of metaphoric referential expressions. While further eye tracking research into bilingual metaphor processing is – to the best of the current author’s knowledge – still lacking, other interesting studies into this problem have been conducted with the use of ERPs (Chen et al. 2013; Park and Chang 2013; Jankowiak et al. 2017).

Surprisingly little research has been conducted into bilingual children’s comprehension and production of metaphoric utterances. It even seems that these problems attracted more scholarly attention in the 1980s and 90s than they do nowadays. A lot of early work has been conducted by Johnson (1987, 1989, 1996), whose primary focus was metaphor interpretation ability, its developmental growth, and relation to cognitive style and cross-language transfer. An interesting study has also been conducted by Bountrogianni (1988); this author, however, looked not only at metaphors, but also at proverbs. Since it is the proverb interpretation task that yielded the most interesting results, these will be discussed in the next section, whose focus is on proverbs.

4.2.4. Proverbs

If the questions associated with bilingual idiom and metaphor comprehension have recently begun to attract the attention of more scholars, bilingual proverb comprehension remains a hardly explored research area. One of the first studies that have been conducted into proverb comprehension in the bilingual context is the work of Bountrogianni (1988), whose goal was to contribute to “[a] better understanding of the general processes involved in bilingual children’s metaphorical reasoning” (Bountrogianni 1988: 53). The author looked at Canadian-Greek bilingual and Canadian monolingual children’s understanding of metaphors and proverbs. The results of the study found that bilingual children showed more preference for abstract (and, at the same time, more general) correct proverb interpretations, while monolingual children “showed more preference for the correct literals as their first choice” (Bountrogianni 1988: 58). The author concluded from this that the bilingual “children’s control over two language systems enabled them to decipher much more language input than the unilingual children” (Bountrogianni 1988: 59). At the same time, she did not rule out the possibility that the obtained preference difference was due to cultural differences.

Apart from the pioneering work of Bountrogianni (1988), little research has been conducted into proverb comprehension by bilinguals, let alone bilingual children.²⁶² One of the important studies here is the work of Vaid and Martínez (2001), who explored memory for proverbs with Spanish-English bilinguals. Participants were asked to paraphrase or translate proverbs that varied in familiarity. Half of the proverbs were in Spanish, and the other half – in English. Afterwards, participants were administered a surprise recognition test, in which they were supposed to determine whether a given proverb on a proverb list was “old” (i.e. it was presented to them before) or “new”. The test contained the originally presented proverbs, but half of them were unchanged, while the other half were in the other language. Thus, the recognition task made it possible to tap participants’ memory of the language in which the proverbs were first presented. The results demonstrated that participants were better at recognising the language of the proverbs when the proverbs were “old” rather than “new”, translated rather than paraphrased, more rather than less familiar, and

²⁶² The current author has found only one study that had proverbs as its sole focus, and that was conducted with young bilinguals; it is the exploratory work of de los Santos (2000), who examined proverb comprehension among bilingual preadolescents and adolescents.

when they were presented in participants' weaker language. The findings obtained by Vaid and Martínez (2001) are in line with the notion that proverbs do not always have to be stored as unitary wholes. The findings also demonstrate that salience is an important variable which bears upon whether cross-linguistic activation will take place in the course of proverb processing (Vaid and Martínez 2001: 7).

Proverb comprehension and interpretation has been further explored by Cieślícka (2002). The study was a replication of Gibbs Jr et al.'s (1997) monolingual proverb interpretation experiment, and its major goal was to examine bilinguals' performance on a mental imagery task.²⁶³ The author also sought to explore how her findings would relate to the model of bilinguals' metaphorical competence. Compared with the monolingual participants in the Gibbs Jr et al. (1997) study, the bilinguals in Cieślícka's (2002) experiment were found to have less homogeneous "knowledge about the stopability, intentionality, causation and manner" (Cieślícka 2002: 188) of the activities referenced in the proverbs. Also, their images for L2 proverbs were found to be less consistent. Concluding her discussion of the obtained results, the author points out that her data need to be interpreted with caution and that further research using more sophisticated techniques is needed to clarify the role of conceptual metaphors in bilingual proverb comprehension (Cieślícka 2002: 190).

The problem of bilingual proverb comprehension has also been explored by Moein et al. (2014), who – in addition to proverbs – also looked at idioms. Rather than shedding light on the mechanisms underlying the processing of these two types of nonliteral language, however, the study was aimed at examining the relationship between cross-linguistic experience and idiom and proverb comprehension. The obtained findings indicate "that bilinguality may have a positive role if bilinguals' mother tongue attains a certain level of

²⁶³ The task employed by Gibbs Jr et al. (1997) was modelled on the mental imagery technique, originally used by Gibbs Jr and O'Brien (1990). The task makes it possible to explore the elements of participants' mental images for a given type of nonliteral language and – in this way – "discover the knowledge and information that potentially motivate figurative meanings" (Cieślícka 2002: 180). In the experiments by Gibbs Jr et al. (1997) and Cieślícka (2002), participants were presented with a list of proverbs and asked to "write down in detail their mental imagery for each proverb" (Cieślícka 2002: 186), after which they had to answer four questions concerning what Gibbs Jr et al. (1997: 90) consider to be "central characteristics of one's knowledge of objects and events in the real world" – that is, causation, intentionality, manner, and stopability of the actions depicted in each stimulus. Analysis of participants' descriptions and answers made it possible to check not only whether their mental images were consistent, but also how detailed they were.

proficiency” (Moein et al. 2014: 1023), which in turn provides “implications for encouraging bilingual education in schools” (Moein et al. 2014: 1017).²⁶⁴

4.2.5. Similes

Another type of figurative language that has, if only scantily, been examined in the bilingual context is similes. Here, the only work that the current author has managed to find is the research by Harris et al. (1999), who investigated monolingual and bilingual memory for English and Spanish similes and metaphors – two figures of speech which, on the surface level, “differ only in the presence of the word ‘like’ in the simile” (Harris et al. 1999: 2) (e.g. *My cat is a tornado of destruction and terror* vs. *My cat is like a tornado of destruction and terror*). The study consisted of four experiments – an all-English one (Experiment 1), an all-Spanish one (Experiment 2), and two bilingual ones, with mixed-language (Spanish and English) stimuli lists (Experiments 3 and 4). In all four experiments, participants listened to a list of figurative sentences, half of which contained metaphors, and half – similes. Also, half of the stimuli were concrete, and the other half were abstract. In the bilingual experiments, a language variable was added such that “half of the sentences (...) were in Spanish and half were in English” (Harris et al. 1999: 8). The results of the study demonstrated that, “[o]verall, concrete metaphors and similes were remembered much better than abstract ones” (Harris et al. 1999: 1). Compelling findings were also obtained from the first two experiments: while the metaphors and similes in the all-English experiment tended to be recalled as metaphors, those in the all-Spanish experiments were typically recalled as similes (Harris et al. 1999: 1). Interestingly, “the trend of recalling both English figurative types as metaphors essentially went away” (Harris et al. 1999: 1) in the bilingual experiments; however, some degree of tendency “to recall Spanish metaphors as similes” (Harris et al. 1999: 1f.) was still observed. Discussing these results, the authors note that the obtained “large memory differences of metaphors and similes in Spanish and English are awkward for most models of figurative language because none make language-specific predictions” (Harris et al. 1999: 14). They point out that more research is needed that would

²⁶⁴ As pointed out by the authors, this claim is in line with the Threshold Hypothesis, as put forward by Cummins (1976). On this account, “there may be a threshold level of bilingual competence which an individual must attain before his [or her] access to two languages can begin to positively influence his [or her] cognitive functioning” (Cummins 1976: 27).

help clarify their findings and emphasise that “figurative language is so prevalent that it must be accounted for” (Harris et al. 1999: 15). Finally, they postulate that future studies should employ a greater variety of measures, look at more languages, and examine other types of figurative utterances (Harris et al. 1999: 14f.) – a conclusion that can hardly be argued with. Indeed, although the area of bilingual figurative language processing has begun to attract more scholarly attention, we are only beginning to learn what actually happens in the bilingual mind and brain as it is faced with a nonliteral utterance.

4.3. Irony is different

Previous sections offered a brief overview of the research that has heretofore been conducted into the processing of different types of figurative language – idioms, metaphors, proverbs, and similes – by bilingual speakers. Irony has been purposely excluded from this review; the relevant empirical work will be discussed in detail in the following sections. Before this is done, however, one more issue needs to be addressed – namely, that of how unique irony is, and of the consequences that this has for researchers interested in exploring irony processing in the bilingual context.

4.3.1. On forms, functions, and principles

As has been pointed out earlier, “most of what we know about how bilingual speakers process figurative language derives from experiments utilizing idiomatic expressions as experimental stimuli” (García et al. 2015: 151); some studies – including ERP research (Janowski et al. 2017) – have also been conducted into bilingual metaphor comprehension. While idioms and metaphors are clearly two different phenomena, certain accounts have attempted at drawing parallels between the two.²⁶⁵ In a similar vein, correspondences have

²⁶⁵ A good example here is the traditional approach to idioms, which conceives of them as frozen noncompositional semantic units similar to dead metaphors. The idea has been captured by Searle (1979: 86), who writes about “processes whereby an expression becomes a dead metaphor and then finally becomes an idiom or acquires a new meaning different from the original meaning.” One of the most ardent critics of the traditional view has been Gibbs Jr (1993), who postulates that “the dead metaphor view of idiomaticity is dead wrong” and contends that “[i]dioms suffer terrible indignities within linguistics” (Gibbs Jr 1993: 57).

been postulated to exist between metaphors and similes²⁶⁶ and – consequently – between their processing patterns.²⁶⁷ In contrast, little ink has been spilled on the similarities between irony and other types of figurative expressions; quite to the contrary, authors discussing such problems have tended to elaborate on differences rather than similarities.

Indeed, it seems that even a cursory glance at the characteristics of irony demonstrates that it differs from other types of figurative language along a number of dimensions. One of the fundamental differences has been postulated by Sperber and Wilson (1986), who contend that metaphor and irony exemplify distinct kinds of language use: while “for example, metaphor falls together with descriptive uses of language, (...) irony, interrogatives and exclamatives fall together as varieties of interpretive use” (Sperber and Wilson 1986: 259). To apprehend the core of the difference between descriptive and interpretive uses of language, one first needs to appreciate Sperber and Wilson’s (1986) view of verbal communication, which these authors see “as involving a speaker producing an utterance as a public interpretation of one of her thoughts, and the hearer constructing a mental interpretation of this utterance, and hence of the original thought” (Sperber and Wilson 1986: 230). On this account, “every utterance is a more or less faithful interpretation of a thought the speaker wants to communicate” (Sperber and Wilson 1986: 259). “[W]hen the thought interpreted is itself entertained as a true description of a state of affairs”, then the utterance is employed descriptively; “when the thought interpreted is entertained as an interpretation of some further thought” (Sperber and Wilson 1986: 259), however, then the utterance is employed interpretively. The latter is the case with irony.

The fact that irony involves a different type of language use than, for instance, metaphor has important consequences. As pointed out by Sperber and Wilson (1986: 238), whenever “we talk of utterances used to interpret someone else’s thought” – and such invariably are ironic utterances – “we are always talking of second-degree interpretations.” Understanding second-order interpretations, in turn, is likely to require different processing mechanisms than understanding descriptions of facts or states of affairs. This indeed has

²⁶⁶ After all, at least on the surface, these two differ only with regard to the presence or lack of the comparison word “like” (Harris et al. 1999: 2).

²⁶⁷ Here, a good example is the long-standing question of whether metaphors are understood as implicit comparisons (Fogelin 1988) or class-inclusion statements (Glucksberg and Keysar 1990). Traditional comparison theories of metaphor comprehension have come in for considerable criticism (Glucksberg and Haught 2006), and a new approach, known as the Career of Metaphor hypothesis (Gentner et al. 2001; Bowdle and Gentner 2005), has been proposed which “postulates a shift in mode of mapping from comparison to categorization as metaphors are conventionalized” (Bowdle and Gentner 2005: 193).

been found to be the case: ample experimental evidence has demonstrated that to comprehend an ironic utterance, the hearer needs to have second-order Theory of Mind ability (Winner and Leekam 1991; Happé 1993, 1995; Sullivan et al. 1995; Hancock et al. 2000; Pexman and Glenwright 2007; Monetta et al. 2009; Nilsen et al. 2011; Caillies et al. 2012; Massaro et al. 2013; Caillies et al. 2014).

Sperber and Wilson (1986) are by no means the only authors who pointed to the differences between irony and other types of figurative language. These problems have also been taken up by Kotthoff (2009), who has made the pithy observation that “[m]etaphor and irony differ in [both] function and structure” (Kotthoff 2009: 55). She further clarifies that “[t]he functional difference is that metaphor serves to clarify, illuminate or explain”, while “[i]rony is employed to comment and evaluate, usually critically” (Kotthoff 2009: 55).²⁶⁸ Similar observations have earlier been made by Winner and colleagues (1988: 62), who note that “it is the particular genius of metaphor to inform vividly about unexpected and unappreciated attributes, and that of irony to inform subtly and memorably about attitudes.”²⁶⁹

The structural difference between metaphor and irony has been succinctly discussed by Winner and colleagues (1988: 53), who point out that distinct principles lie at the heart of the two phenomena: “[i]n metaphor, the relation between what is said and what is meant is a relation of similarity in dissimilarity”, while “[i]n irony, the relation between what is said and meant is a relation of opposition between a positive and a negative tone.” What is linked with the above, the very forms of prototypical metaphors and ironies differ. Researchers working in the fields of psychology, linguistics, and philosophy have tended to focus on metaphors taking the form of *A is B* (Gibbs Jr 1999: 31), and on irony in the form of assertives (Kumon-Nakamura et al. 2007: 62) – especially counterfactual statements conveying criticism.²⁷⁰ This is not to say that the two types of figurative language cannot be

²⁶⁸ This is very much in line with Winner and colleagues (1988), who nevertheless note that it is possible for “metaphor and irony (...) [to] fulfill each other’s primary function as a peripheral, nonnecessary function”; to illustrate, “along with its descriptive function, a metaphor can (but need not) also comment critically on a situation” (Winner 1988: 53).

²⁶⁹ Discussing these problems, Winner and colleagues (1988) go even further, proposing that “[m]etaphor and irony may be manifestations of a more fundamental non-linguistic distinction” (Winner et al. 1988: 62). On this account, “[m]etaphor may reflect a focus on the external world, the attributes of things, what they are like”, whereas “irony may reflect a focus on the subjective world, one’s attitude toward the attributes of things in the world” (Winner et al. 1988: 62).

²⁷⁰ Providing what he calls classic examples of metaphoric language, Gibbs Jr (1999: 31) also writes about sentences which take the form of *A is like B* statements. This form, as has been discussed in section (4.2.5), is

expressed in other ways; both are characterised by great formal heterogeneity. As noted by Gibbs Jr (1999: 30), “metaphor is extremely diverse”;²⁷¹ irony, which has even been likened to a chameleon²⁷² (Bromberek-Dyzman 2015: 273), is no different in this respect.

4.3.2. A glimpse at processing differences

In their discussion of “the two chief forms of nonliteral language” (Winner et al. 1988: 51), Winner and colleagues (1988: 62) postulate that although metaphor and irony “are alike in being nonliteral, they seem to differ enough in function and in structure that their comprehension requires different kinds of abilities.” The authors hypothesise that understanding metaphors is “primarily a logical-analytic task in which the hearer must recogni[s]e a match between two divergent aspects of experience”, whereas understanding irony is “essentially a social-analytic task, in which the hearer must recogni[s]e the speaker’s attitudes” (Winner et al. 1988: 54).

A systematic investigation into the “pragmatic complexities in how listeners understand what speakers implicate with irony and metaphor” (Colston and Gibbs Jr 2002: 74) has been conducted by Colston and Gibbs Jr (2002). The authors carried out a series of four experiments, in which they explored “the cognitive processing and the resulting meaning products associated with understanding statements that conveyed ironic, metaphoric, or metaphoric irony in slightly different discourse situations” (Colston and Gibbs Jr 2002: 74). The findings most relevant to the present discussion are those of the first two experiments²⁷³. In Experiment 1, the authors demonstrated that healthy adult listeners took signif-

characteristic of similes. Thus, Gibbs Jr (1999: 30) uses the term “metaphoric” in the broader sense of “figurative” here – a convention that the current author is reluctant to follow.

²⁷¹ Discussing these problems, Gibbs Jr (1999: 36) goes so far as to propose that there are so many ways in which metaphor exists in language that “no single theory of metaphor presently available will account for all of [its] (...) the different kinds (...), nor perhaps will any one theory be able to do so in the future.”

²⁷² Bromberek-Dyzman (2015: 273) points out that there is a whole “repertoire of irony vehicles”: irony may “[blend] with a variety of other language forms to achieve varied communicative ends” (Bromberek-Dyzman 2015: 273). Sarcasm, overstatement, understatement, satire, and rhetorical questions, emotional reactions to which have been empirically explored by Leggitt and Gibbs Jr (2000), are but a few of the possible irony vehicles.

²⁷³ In the two final experiments, the authors slightly shifted their focus, comparing simple ironies with metaphoric ironies – utterances in which the speaker makes a metaphoric remark with ironic intention. Metaphoric irony is a fascinating research topic which has recently been attracting increased scholarly attention. For a discussion of the mechanisms involved in the interpretation of such utterances, see, for example, Popa (2010). A more recent discussion of this, as well as other “forms of irony which rest on other figures of speech” (Dynel 2016: 259), see Dynel (2016).

icantly more time to read ironic than metaphoric utterances, which is in line with the idea that irony comprehension entails more complex inferencing than does metaphor comprehension (Colston and Gibbs Jr 2002: 63). Experiment 2 looked into the types of inferences that individuals make as they are faced with metaphoric and ironic utterances. Here, the results found that “people are clearly conscious of how irony differs in critical ways from metaphors, especially in regard to how irony involves pretense and uses complex metarepresentational reasoning to mock individual’s prior beliefs” (Colston and Gibbs Jr 2002: 67). Taken together, these findings demonstrate that major differences exist between metaphors and irony and that language users are highly aware of them.

4.3.3. Insights from language acquisition research

Important insights into the differences in how hearers process metaphoric and sarcastic utterances have been gained from language acquisition research. Here, of particular importance are the findings obtained by Happé (1993). While the major aim of her research was to test the tenets of Sperber and Wilson’s (1986) Relevance Theory in autistic children, one of the series of experiments conducted by Happé (1993) – Experiment 2.2 – investigated metaphor and irony comprehension in a population of young normally developing children with or without second-order ToM.²⁷⁴ The results found that all the children who passed the second-order ToM task performed very well on irony, scoring either 4 or 5 out of 5, while those who failed the task also performed poorly on irony, scoring 3 out of 5 at maximum. Importantly, both participant groups “were at ceiling on metaphor comprehension”, which indicates that “first-order theory of mind alone is necessary for understanding metaphor” (Happé 1993: 113). These findings, supplemented with those of the experiments conducted with the autistic children, demonstrate that comprehension of irony poses a different, and greater, kind of challenge than does comprehension of metaphor.

That “understanding metaphor and irony rests on very different kinds of knowledge and skills” has also been recognised by Winner and Gardner (1993: 430). These authors note that substantial knowledge as to the “kinds of competencies required for comprehension” of these two types of figurative language can be gained from analysis of errors made

²⁷⁴ The children’s age ranged between 4.9 and 5.8 years.

by children trying to make sense of such utterances (Winner and Gardner 1993: 435). Thus, “[w]hen children misinterpret metaphors, they (...) typically derive a nonliteral meaning, that is, a meaning different from the sentence meaning” (Winner and Gardner 1993: 435), which indicates that they are aware that the speaker wanted to convey something different from what was actually uttered. However, they have difficulty “locat[ing] the intended similarity on which the metaphor is based” (Winner and Gardner 1993: 435). The errors that children make when misinterpreting irony seem to operate at a more basic level: children experience problems with the very recognition that the speaker meant something different from what was said, and may therefore misunderstand the utterance as a lie. These ideas are very much in line with those put forward somewhat earlier by Winner and colleagues (1988), who point out that “for children, detecting that there is a divergence between what is said and what is meant is more difficult for irony than for metaphor” (Winner et al. 1988: 60). These authors postulate that when encountering metaphors and irony, children are faced with different types of challenge. In the case of metaphor, “the critical problem is to come up with a correct interpretation of an utterance recogni[s]ed to be nonliteral” (Winner et al. 1988: 62), which can only be attained if the hearer “find[s] the right connection” (Winner et al. 1988: 62). In the case of irony, in contrast, the key problem is to recognise the nonliteral character of the utterance, which, in turn, can only be attained if the hearer “discover[s] the speaker’s private attitudes and the intention behind the utterance” (Winner et al. 1988: 62). Recognition of other people’s beliefs requires ToM skills, and since children’s domain knowledge develops earlier than their mentalising skills do, they also learn to understand metaphoric meanings earlier than they do ironic meanings (Winner and Gardner 1993: 427; Maki et al. 2013: 72), a claim valid even for unusual metaphors (Kotthoff 2009: 55).

4.3.4. Insights from neuroimaging research

That different mechanisms are involved in the processing of metaphors and irony has gained ample empirical support from research using neuroimaging technology. Eviatar and Just (2006), who conducted an fMRI investigation into irony and conventional metaphor comprehension, report that in addition to activation of “the classical perisylvian language regions” (Eviatar and Just 2006: 2356) observed for all experimental stimuli, they also obtained “a selective response of the brain to the two types of nonliteral utterances” (Eviatar

and Just 2006: 2348). For metaphors, significantly higher activation was registered “in the left inferior frontal gyrus and in bilateral inferior temporal cortex” than for literal and ironic stimuli, whereas for irony, significantly higher activation was registered “in the right superior and middle temporal gyri” than for literal stimuli, “with metaphoric statements resulting in intermediate levels in these regions” (Eviatar and Just 2006: 2348).

Findings of distinct activation loci for metaphoric and sarcastic stimuli were obtained by Uchiyama and colleagues (2012). The authors report that they found “[m]etaphor-specific activation (...) in the head of the caudate”, an area which they consider likely to “be involved in associating statements with potential meanings, and restricting sentence meanings within a set of possible candidates for what the speaker intended” (Uchiyama et al. 2012: 563). In addition to this, Uchiyama et al. (2012: 563) found “[s]arcasm-specific activation (...) in the left amygdala”, known to be “an important component of the neural substrates of social behavior” (Uchiyama et al. 2012: 563), and implicated in “the representation of the emotional status of others” (Uchiyama et al. 2012: 574). Finally, the authors report an area that was activated by both types of nonliteral stimuli – “the anterior rostral medial frontal cortex (arMFC), (...) a key node of mentalizing” (Uchiyama et al. 2012: 653). The conclusion drawn by Uchiyama et al. (2012: 574) is that “pragmatic comprehension requires multiple neural substrates outside the classical language areas, particularly those that are part of the ‘social brain’.”

In a recent quantitative meta-analysis of neuroimaging studies that have been conducted into metaphor, idiom, and irony processing, Bohrn and colleagues (2012) demonstrate that “more analytic, semantic processes are involved in metaphor comprehension, whereas irony/sarcasm comprehension involves theory of mind processes” (Bohrn et al. 2012: 2669). The authors enumerate several brain areas that were activated for the processing of figurative stimuli across studies: “[t]he left and right IFG [inferior frontal gyrus], large parts of the left temporal lobe, the bilateral medial frontal gyri (medFG) and an area around the left amygdala” (Bohrn et al. 2012: 2669). To identify selective regions for the particular figurative language types, the authors conducted subgroup comparisons between experiments conducted with metaphoric, idiomatic, as well as ironic or sarcastic stimuli. These analyses yielded “shared activations in left frontotemporal regions for idiom and metaphor processing” (Bohrn et al. 2012: 2669), and selective “activations in midline structures such as the medFG, ACC [anterior cingulate cortex] and cuneus/precuneus” (Bohrn et al. 2012: 2669) for irony processing. Further, yet more subtle, differences have been found

in the activity of the left IFG – a region “reported in nearly all papers on figurative language processing” and found to be “the structure with the largest effect distinguishing between figurative and literal language processing” (Bohrn et al. 2012: 2681): the authors report that “its contribution was significantly larger on metaphor and idiom processing than on irony/sarcasm processing” (Bohrn et al. 2012: 2681). Discussing the obtained findings, Bohrn and colleagues (2012: 2681) make the observation that figurative language – being “more distinct, complex and unpredictable than literal language” – calls for specific cognitive processes, including “focused attention, semantic integration and semantic selection”; this is mirrored in activation, which switches towards the left hemisphere (Bohrn et al. 2012: 2681). One notable exception is irony and sarcasm, the comprehension of which involves making inferences as to other individuals’ attitudes and intentions, thus activating the mentalising neural circuitry (Bohrn et al. 2012: 2681).

4.3.5. Insights from research conducted with clinical populations

Our knowledge of the differences in the processing of metaphor and irony has been further expanded by insights gleaned from studies conducted with clinical populations. Here, of great importance are the findings obtained by Giora and colleagues (2000), who investigated the differential effects of left- and right-hemisphere damage on metaphor and sarcasm comprehension. To explore these problems, the authors administered Hebrew versions of two sub-tasks of Gardner and Brownell’s (1986) Right Hemisphere Communication Battery – Metaphor Comprehension and Sarcasm Comprehension – to three groups of participants: left-brain-damaged (LBD) patients, right-brain-damaged (RBD) patients, and age-matched healthy controls. Giora et al. (2000: 63f.) report that “RBD patients tended to score somewhat lower than LBD patients on Sarcasm Comprehension and higher than LBD patients on Metaphor Comprehension.” Also, both patient groups were found to perform significantly worse on Sarcasm Comprehension than the controls did. The authors discuss the obtained results in terms of Giora’s (1997, 1999) Graded Salience Hypothesis (GSH), according to which “it is the degree of meaning salience rather than either context or literality (or nonliterality) that affects processing primarily” (Giora et al. 2000: 64). The neurological realisation of the GSH predicts involvement of “primarily the left hemisphere (LH)”

(Giora et al. 2000: 65) in understanding of conventional figurative language²⁷⁵, and “a selective RH involvement in comprehension of nonsalient sarcasm²⁷⁶” (Giora et al. 2000: 65). The findings of Giora et al.’s (2000) research are very much in line with these assumptions: “the processing of (nonsalient) sarcasm (or irony) [wa]s speciali[s]ed in the RH [right hemisphere]”, while “the processing of (salient) metaphors [wa]s speciali[s]ed in the LH [left hemisphere]” (Giora et al. 2000: 78). Importantly, the differential hemispheric involvement in the processing of metaphors and sarcasm as obtained by Giora and colleagues (2000) is attributable to differences in stimuli salience rather than their belonging to distinct types of figurative language.

Metaphor and sarcasm comprehension have also been explored in young children with high functioning pervasive developmental disorders (HFPDD) and attention deficit/hyperactivity disorders (AD/HD).²⁷⁷ While the goal of Adachi and colleagues (2004), who conducted the study, was to develop and test a new diagnostic tool – the Metaphor and Sarcasm Scenario Test (MSST)²⁷⁸ – for discriminating between the two conditions²⁷⁹, the findings nevertheless add to our knowledge of metaphor and sarcasm processing. The results demonstrated that while “the inability to understand a sarcastic situation was specific to children with HFPDD, both children with AD/HD and HFPDD could not equally understand metaphor” (Adachi et al. 2004: 301).²⁸⁰ In addition to this, the study found that “while the comprehension of metaphoric scenarios was dependent on IQ and age in both patient groups and the control group, the comprehension of sarcastic scenarios in the patient groups was independent of IQ and age” (Adachi et al. 2004: 304). What has been found to be linked to patients’ understanding of sarcastic stimuli is Theory of Mind ability:

²⁷⁵ The rationale behind this is the idea that for conventional figurative utterances, the meaning that is salient, or “coded in and directly retrievable from the mental lexicon” (Giora et al. 2000: 65), is the nonliteral meaning. If “the left hemisphere (...) [is] where most of our linguistic knowledge is assumed to be stored” (Giora et al. 2000: 65), it is this hemisphere, then, that should be mostly involved in the comprehension of conventional figurative utterances (Giora et al. 2000: 65).

²⁷⁶ This is founded on the assumption that the RH is specialised in linguistic reinterpretation (Giora et al. 2000: 65). For a detailed overview of the right hemisphere’s contributions to language processing, see Lindell (2006).

²⁷⁷ These include Asperger’s Syndrome and high functioning autism (Adachi et al. 2004: 301).

²⁷⁸ The MSST is comprised of 10 scenarios, in each of which one character comments on a given situation. Five scenarios are metaphoric, and the other five – ironic. Participants are presented with five possible interpretations of each target utterance, and are supposed to select the most appropriate answer. Among the four incorrect answers, there is always one literal interpretation, and a ‘don’t know’ option.

²⁷⁹ The two groups of conditions – in spite of having “a completely different diagnostic axis” (Adachi et al. 2004: 301) – may be difficult to discriminate as patients frequently exhibit similar behaviours, such as “hyperactivity, impulsive behavior and single focused attention” (Adachi et al. 2004: 301).

²⁸⁰ The authors note that the obtained “distinction could well prove crucial to correct diagnosis” (Adachi et al. 2004: 304) of the two disorders.

the authors report a high correlation between sarcasm comprehension and performance on a Theory of Mind task. Thus, it seems that the two “might be similar in that they both require empathic ability” (Adachi et al. 2004: 304). The authors conclude their discussion by emphasising that “it is the misunderstanding of sarcasm, not metaphor, that relates to the lack of empathic ability, which is a fundamental deficit of autism” (Adachi et al. 2004: 305).

More recently, the comprehension of different types of figurative language has also been explored in participants with Williams syndrome (WS) (Godbee and Porter 2013), a “rare neurodevelopmental disorder” caused by a “deletion of approximately 26 genes on the long arm of chromosome 7” (Martens et al. 2008: 576). The syndrome has been “associated with medical complications, a specific set of facial features, a mild to moderate intellectual impairment, and outgoing social behaviour” (Godbee and Porter 2013: 652). The linguistic skills of individuals with WS have been the subject of much academic dispute, with early studies pointing to language as “an area of remarkably preserved ability” (Martens et al. 2008: 580), and more recent explorations contesting this belief (Paterson et al. 1999; Laing et al. 2002; Nazzi et al. 2003, 2005).²⁸¹ Currently, the prevailing view is that linguistic abilities which have previously been believed to be intact in WS “follow a delayed and even atypical course of development” (Martens et al. 2008: 580). Aiming to shed light on pragmatic abilities of people with WS, Godbee and Porter (2013) explored whether such individuals experience difficulty understanding selected types of figurative language: similes, metaphors, and sarcasm. Participants – a WS group as well as two control groups: typically developing chronological age-matched controls (TDCA) and typically developing mental age-matched controls (TDMA) – listened to scenarios in which characters made non-literal utterances. The task was to say “what each character meant by their comment” (Godbee and Porter 2013: 651). In addition to the figurative language comprehension task, participants were tested on a range of tasks measuring various aspects of their cognitive functioning. The results demonstrated that individuals with WS understand similes “below the levels expected for their chronological age, but (...) on par with their mental age level”

²⁸¹ One reason for the popularity of this research problem is the potential significance of Williams syndrome for our understanding of the mechanisms that guide cognition and language, an idea which has been put forward by Bellugi and collaborators (1988). In their seminal work, the authors reported “selectively preserved [linguistic function] in the face of severe cognitive deficits” (Bellugi et al. 1988: 177) in individuals with WS – a finding that challenges the traditional Piagetian view that “language develops at the end of the sensorimotor period and directly reflects emerging symbolic activities” (Bellugi et al. 1988: 177). Since then, numerous authors have referred to WS “as evidence that language is independent of cognition or ‘modular’” (Brock 2007: 99). For a more detailed discussion of these problems, including the role of WS in the modularity debate, see Brock (2007).

(Godbee and Porter 2013: 651). Comprehension of sarcasm and metaphors, in contrast, seemed to be “above the cognitive capabilities and mental age level of most individuals with WS” (Godbee and Porter 2013: 651). Interesting insights have been gained from Godbee and Porter’s (2013) analyses comparing participants’ figurative language comprehension and their general cognitive abilities: while “each of the cognitive measures assessed (...) (including expressive vocabulary, verbal working memory, perceptual integration, inferential reasoning and overall cognitive ability) was significantly and positively correlated with each of the measures of non-literal language comprehension” (Godbee and Porter 2013: 657) in the control groups, this was not always the case with WS participants. Thus, in the WS group, “[s]imile comprehension was significantly correlated with verbal working memory (...) and inferential reasoning ability” (Godbee and Porter 2013: 658), “[m]etaphor comprehension (...) was significantly correlated with verbal working memory (...), perceptual integration (...), inferential reasoning ability (...), and overall cognitive ability” (Godbee and Porter 2013: 657), while “sarcasm comprehension was not significantly correlated with any assessed cognitive ability” (Godbee and Porter 2013: 658f.), which Godbee and Porter (2013: 659) consider to be “[p]articularly striking”. Here, one of the explanations proposed by the authors is that “sarcasm is more demanding on higher order executive abilities, such as suppression (...), cognitive flexibility and integration of context (...), than either metaphor or simile comprehension” (Godbee and Porter 2013: 659). Taken together, the findings of Godbee and Porter’s (2013) research – apart from shedding light on the language problems of individuals with WS – indicate that similes, metaphors and irony differ considerably in terms of the cognitive demands that they pose to listeners.

Metaphor and sarcasm comprehension have also been explored in the context of Alzheimer’s Disease (AD) (Maki et al. 2013). Maki and colleagues (2013) conducted a study with four participant groups: patients with mild AD, patients with amnesic mild cognitive impairment (aMCI), young normal controls (YNC), and aged normal controls (ANC). All participants were administered Adachi and colleagues’ (2004) Metaphor and Sarcasm Scenario Test (MSST).²⁸² The results found that generally, “sarcasm was more difficult to comprehend than metaphor” (Maki et al. 2013: 70). Moreover, the comprehension of sarcastic utterances started to deteriorate already in the ANC group, while the comprehension of metaphors started to deteriorate in aMCI; both deteriorated with the progress

²⁸² The MSST, including its composition, has been discussed in more detail earlier in this section, in footnote (278).

of the disease (Maki et al. 2013: 69). Also, the performances of ANC, aMCI, and mild AD patients on the sarcastic stimuli were significantly lower than their performances on the metaphoric stimuli. Such a pattern of results is highly in support of the claim that irony is more complex and “involves more cognitive processes than metaphor” (Maki et al. 2013: 69).

4.3.6. Implications for bilingual research into irony

Insights from different strains of monolingual research – findings of developmental, neuroimaging, and clinical population studies discussed above – have provided ample evidence in support of the claim that irony constitutes a particularly complex type of figurative language: it takes multiple forms and serves highly varied functions, its acquisition has a long developmental trajectory, and its processing is, at least to a certain extent, selectively localised. These findings are of critical importance for any attempt at exploring the problems of irony acquisition, comprehension and production in the bilingual context – an enterprise even more complex than is the case with monolingual research, as “the existence of a second language (L2) in the mental lexicon adds another conundrum to the issue of storage and language processing” (García et al. 2015: 118). Thus, while irony – belonging to the realm of the nonliteral – needs to be discussed against the broader background of bilingual figurative language processing, it also needs to be investigated as its own kind – that is, with acknowledgment of all its idiosyncrasy. Here, drawing on insights from monolingual research into irony is indispensable.

4.4. Exploring irony in the bilingual context

If the question of bilingual figurative processing has recently started to attract more attention from scholars,²⁸³ the problems of irony comprehension and processing by bilinguals

²⁸³ It was not until 2015 that the first textbook devoted solely to this topic – the work of Heredia and Cieślicka (2015) – was published. Until then, “the complex links between bilingualism and figurative language processing were totally ignored by important books and textbooks on figurative language comprehension and production, and also by (...) important handbooks on language and cognition in bilinguals” (Cacciari 2015: xv).

remain a hardly explored research area. The processes underlying the understanding of ironic utterances have “typically [been] studied in monolingual populations and with very little reference to the mentalizing/mind-reading underlying the inferential processes connected with attitude attribution in communicative interactions” (Bromberek-Dyzman et al. 2010: 202f.). Thus, only a few studies of irony have so far been conducted in the bilingual context. As will be demonstrated in section (4.4.2), some of these explorations – especially those carried out with young participants – have had a rather exploratory character. The following sections will offer a discussion of the relevant empirical work. Studies conducted with adult participants will be discussed first; subsequently, the focus will be shifted to research carried out with bilingual children of different ages.

4.4.1. Irony comprehension in bilingual adults

Little evidence is available on how bilingual individuals understand irony. The general picture is that – once the notion of irony has been mastered by a bilingual speaker – “irony comprehension in the foreign language resembles rather than differs from the irony comprehension in the native language” (Bromberek-Dyzman et al. 2022). The following literature review is aimed at highlighting the key findings and pointing to their relevance for the study described in the current work.

To the best of the current author’s knowledge, the first study that has been conducted into irony comprehension in second language users is the work of Bromberek-Dyzman and colleagues (2010). The authors themselves note that they find it “somewhat surprising that no research has been carried out to test empirically the ease or difficulty of irony comprehension and processing in other than unilingual communicative setting” (Bromberek-Dyzman et al. 2010: 203). They postulate that such research could shed light on four important areas, such as the “nature of cognitive processes involved in irony processing”, the similarities and differences between irony processing and the processing of other types of figurative language, the relative importance of lexical and mind-reading competence for irony comprehension, as well as the potential differences and similarities in how irony is understood in the first and second language (Bromberek-Dyzman et al. 2010: 203). The main goal of the study by Bromberek-Dyzman et al. (2010) was twofold: to experimentally explore the link between ToM ability and irony comprehension, and to check for potential

language-specific effects in an online self-paced irony processing task (Bromberek-Dyzman et al. 2010: 203). Participants were 30 adult native speakers of Polish who were proficient users of English. The experimental task comprised 30 ironic, 30 literal, and 60 filler trials. In each of these, participants were presented with a 2-3 sentence scenario which “featured social situation contexts calling for either criticism or praise” (Bromberek-Dyzman et al. 2010: 204) – i.e., the contexts were either positive or negative. What followed was a target sentence that expressed either a positive or a negative opinion. Importantly, this sentence was always positive on the surface. Thus, there were two experimental conditions: the congruent condition, in which the target sentence was preceded by a positive context and the utterance was meant as a literal compliment, and the incongruent condition, where the target sentence was preceded by a negative context and the utterance was meant as an ironic criticism. The experiment had two parts – one with Polish and the other with English trials. Participants were presented with the scenarios on a computer screen, and their task was to decide whether the target sentence “expressed a favo[u]rable or unfavo[u]rable comment” (Bromberek-Dyzman et al. 2010: 206). The decision had to be quick and accurate, and participants made it using “one of two labelled keys” (Bromberek-Dyzman et al. 2010: 206). The results demonstrated that, overall, participants made “significantly more errors in response to ironic (...) than literal (...) sentences” (Bromberek-Dyzman et al. 2010: 207). Also – in line with what was predicted – “literal trials (valence-consistent) produced significantly shorter response latencies as compared to ironic (valence-inconsistent) trials in both languages” (Bromberek-Dyzman et al. 2010: 209). Above all, however, the study found that participants “did not require more time and did not make more errors when processing ironic sentences in L2 than in L1” (Bromberek-Dyzman et al. 2010: 208), which indicates that the irony processing patterns in participants’ first and second language were convergent. These results are consistent with ToM suppositions and, according to the authors, demonstrate that “having mastered ironicalness, one is able to communicate and interpret irony in other languages one has mastered” (Bromberek-Dyzman et al. 2010: 210).

More recently, Bromberek-Dyzman and Rataj (2016) conducted an interesting study which builds on and complements the results obtained by Bromberek-Dyzman and colleagues (2010). Discussing these findings – especially the lack of between-language differences in participants’ accuracy and response latency on the irony comprehension task – Bromberek-Dyzman and Rataj (2016: 341) point out that one reason for this “might be the

type of task used, that is, a self-paced reading procedure”, which may not have been sensitive enough to yield differences. Therefore, in their new study, the authors sought to “explore the efficiency of irony online processing in a limited response-time paradigm” (Bromberek-Dyzman and Rataj 2016: 336). The goal of this research was to find out whether participants would process literal and ironic meanings “as accurately, and as fast in the nonnative as in the native language” (Bromberek-Dyzman and Rataj 2016: 341). Participants were 56 native speakers of Polish, who were proficient users of English. As was the case with the previous study, experimental stimuli were short scenarios depicting interactions between two acquaintances. Each story finished with one character uttering a comment on the story topic. The comment “always expressed literal praise”; however, “depending on the preceding context it either conveyed a literal praise (congruity condition) or an ironic criticism (incongruity condition)” (Bromberek-Dyzman and Rataj 2016: 343). The Polish and English stimuli were presented in two separate blocks. Participants’ task was to read the scenarios and decide whether the target comment expressed praise or criticism. The authors report that while no statistically significant difference was found between accuracy rates for literal stimuli in Polish and English, a “significantly lower accuracy was observed in responses to ironic utterances in English” (Bromberek-Dyzman and Rataj 2016: 346). In addition to this, Bromberek-Dyzman and Rataj (2016: 346) also observed “a significant accuracy rate difference (...) for ironic (...) and literal trials (...) in English.” A similar finding was obtained for Polish; however, “the number of errors increased for English” (Bromberek-Dyzman and Rataj 2016: 348). The authors conclude that participants – despite their high proficiency in English – had difficulty assessing the ironic comments in that language. This “demonstrate[s] that in limited response time, on-line irony computation in participants’ nonnative language poses more processing demands than literal language interpretation” (Bromberek-Dyzman and Rataj 2016: 346). Another interesting finding emerged from response latency data: the authors report that they registered “longer response latency patterns (...) for irony computation” for both languages (Bromberek-Dyzman and Rataj 2016: 348). Here, in spite of a tendency to respond to stimuli in the native language faster than to those in the non-native language, the response latency data did not yield a language effect. According to the authors, this finding may be indicative “of an increased processing demand for irony, irrespective of the language at hand” (Bromberek-Dyzman and Rataj 2016: 348). On the other hand, this could also mean that one may process irony in the non-native language just as quickly as in the mother tongue – as long as

one's command of the second language is sufficiently high. Taken together, the findings of the research by Bromberek-Dyzman and Rataj (2016: 349) demonstrate that individuals "who have mastered ironic mode of thinking, are successful in detecting irony in their respective languages, albeit at higher cognitive cost/effort in the nonnative, or nondominant language."

Interesting research into irony processing in the second language has been conducted by Spyra (2011). The author looked at the rather unexplored issue of gender differences in irony on-line comprehension. The goal of the experiment was twofold: to see "how men and women differ in their responses to ironic utterances as well as literal positive and negative utterances" and to check "how their behavioural indexes relate to the research on gender differences in the processing of emotional stimuli" (Spyra 2011: 48). 42 native speakers of Polish, highly proficient in English, their second language, participated in the study. Stimuli were 64 short stories comprising a 3-sentence context scenario with one or two characters, and a comment uttered by one of the protagonists. The last word of this comment was the target word: "an adjective with a pre-experimentally tested valence level" (Spyra 2011: 56). Importantly, both the contexts and the target words varied with regard to valence: they were positive, negative, or neutral. Depending on the relation between the context and the target word, each stimulus belonged to one of four different types. There were three congruent conditions, where the meaning was literal and the valence of both the context and the target word was positive, negative, or neutral, and one incongruent condition, where the meaning was ironic, the context was negative, and the target word – positive. Participants' task was to read the scenarios on a computer screen and – after the presentation of the target word – "to decide whether a person in a story expressed a negative opinion" (Spyra 2011: 57). The response was to be made as quickly as the participants could, by pressing an appropriate key on the keyboard. Once the task was over, participants filled out a short recognition test. The results demonstrated that – in line with what the author hypothesised – "[w]omen achieved better response time (...) in comparison to men (...) and had better accuracy rating (...) than men" (Spyra 2011: 60). Interestingly, however, ironic stimuli turned out to be "the only kind of stimuli that female participants were superior to in terms of speed and accuracy of comprehension in comparison to male participants" (Spyra 2011: 61). Also, it was found in the study that "women obtained better results in irony comprehension than in comprehension of literal positively and negatively valenced stories" – a finding which indicates that women may actually "perform better at

comprehending indirect emotional stimuli than literal ones” (Spyra 2011: 62). While Spyra (2011) discusses the obtained findings against the background of research into gender differences in the processing of emotional stimuli – a topic which is the major focus of her work – her results offer interesting insights into the more general problem of irony processing in L2. Of special interest here are response accuracy and latency data which enable comparison between the processing of irony and that of other types of stimuli. To illustrate, the finding that women were faster at responding to irony than to literal stimuli, discussed above, may have important implications for our understanding of how this type of figurative language is processed, informing both empirical and theoretical approaches to irony.

Irony processing in the native and non-native language has also recently been investigated by Peters and colleagues (2016). The authors were interested in finding out to what extent “native-English speakers and Arabic-speaking English learners rel[ied] on contextual and prosodic cues to identify sarcasm in spoken English” (Peters et al. 2016: 1). Two groups of participants took part in the study: 25 native English speakers, and 27 native Arabic and non-native English speakers: learners whose proficiency level ranged from high beginner to low advanced” (Peters et al. 2016: 8).²⁸⁴ The two participant groups were administered an irony comprehension task. Each test item was a three-sentence scenario. The first sentence presented two characters and an action. The second sentence presented either a positive context, in which the action led to a desirable effect, or a negative context, in which the action led to an undesirable effect. Finally, the third sentence featured an assessment of the character’s action which was uttered with either a sincere or sarcastic tone of voice (Peters et al. 2016: 5). Participants were to assess how sincere the sentences sounded; the ratings were performed on a 5-point scale ranging from 1 (“very sincere”) to 5 (“very insincere”). In addition to this, participants answered a comprehension question that followed each of the experimental stimuli, such that “the answer to these questions revealed whether the participant interpreted the discourse as sarcastic or as sincere” (Peters et al. 2016: 8). The results demonstrated that – in cases where prosody matched context – native English speakers performed much better in decoding sarcastic irony and speech sincerity than did the Arabic learners of English. The native speakers “relied on both context and prosody to interpret sarcasm but paid more attention to context than prosody when the two

²⁸⁴ Importantly, the authors did not refer to these learners as bilingual, and little information is given as to their actual proficiency in the English language. The description of this group’s proficiency is based on the level of the English course that they attended as part of the English Programs for Internationals of the University of South Carolina (Peters et al. 2016: 8).

cues conflicted” (Peters et al. 2016: 12f.). This was not the case with the non-native speakers, who “appeared to have relied exclusively on context in all cases” (Peters et al. 2016: 13). Discussing these results, the authors make the interesting observation that their finding of native speakers’ tendency to employ contextual rather than prosodic cues “appears to be a reversal of how English speakers have been reported to initially acquire the ability to identify sarcasm” (Peters et al. 2016: 13).²⁸⁵ Unfortunately, the authors do not elaborate on the possible implications of this finding. Rather than that, they discuss the obtained results against the background of the literature on cross-linguistic influence, resource availability, and language proficiency. Peters and colleagues (2016: 1) postulate that overall, their findings “support theories that suggest that prosody and emotion could transfer separately in second language learning such that one could transfer while the other does not.” The finding that seems to be of greatest relevance for the current discussion, however, is that these authors report a native advantage for the processing of sarcasm. On the other hand, it needs to be remembered that this advantage has been obtained over learners performing the task in their second, and much weaker, language.

More recently, Bromberek-Dyzman et al. (2021) looked at an altogether different problem, namely that of modality effects in adult bilingual irony comprehension. The authors were interested in testing participants’ understanding of irony in their L1 (Polish) and L2 (English) in three modalities: the auditory, the textual, and the audio-visual one. The results demonstrated that, regardless of the language of the task, it was irony rather than non-irony that was processed with a greater speed and ease. Also, participants’ performance on the irony comprehension task was more accurate (albeit slower) when multiple – auditory and audio-visual – cues signalled irony compared with the textual modality alone. The textual modality also turned out to be the one in which participants were slowest to recognise irony. These findings have significant implications for empirical designs of studies conducted into irony comprehension – including those with young participants. Researchers should be aware of the effects that stimuli presentation modality has on comprehension measures.

Similarly to Bromberek-Dyzman et al. (2021), Antoniou and Milaki (2021) also looked at irony as presented via different modalities: the auditory, and the visual one. Their participants, however, were “a specific type of multilinguals, that is, bidialectal speakers of

²⁸⁵ Here, the authors refer to the work of Capelli et al. (1990), Bryant and Fox Tree (2002), as well as Nakassis and Snedeker (2002).

two dialects of the same language (Cypriot Greek and Standard Modern Greek)” (Antoniou and Milaki 2021: 697). While their manner of acquisition of Cypriot Greek was similar to that of a first language – via social interactions, these participants’ acquisition of Standard Modern Greek was similar to that of a foreign language – via school education. The participants’ task was to rate how sincere or ironic a speaker’s intonation was (for auditory-only stimuli), or how sincere or ironic their facial expression was (for video-only stimuli), on a seven-point scale where 1 stood for very sincere, and 7 stood for very ironic. The authors report that those individuals who employed the dialect acquired via formal schooling more often turned out to process irony faster. Thus, the obtained findings indicate that “increased bidialectalism has a positive effect on the speed of processing irony” (Antoniou and Milaki 2021: 713). The authors note that “the crucial factor responsible for this effect is the overall use of an L2” (Antoniou and Milaki 2021: 713). Another interesting finding of the study is that, for some experimental conditions, ironic meanings were processed as fast as literal ones.

One of the most recent explorations into bilingual adult comprehension has been conducted by Bromberek-Dyzman and colleagues (2022). The goal of the study was to check whether task type modulates participants’ comprehension of ironic utterances. The authors employed two task types: a true/false task, where participants were supposed to determine whether a statement about a speaker was true or false, and an emotive decision task, where they were supposed to determine whether the speaker’s comment was praising or critical. Importantly, both ironic criticism and ironic praise were used as experimental stimuli. The major finding of the study was that the strategy adopted by participants in order to complete a given task did indeed modulate comprehension. It took participants longer to process ironic than non-ironic comments in the true/false task. Also, participants were less accurate here on the ironic items than they were on the non-ironic ones, a finding that was true for both types of irony. Different results were obtained in the emotive decision task, however, where “critical irony was processed faster and more accurately than praising irony, indicating that ironic praise was more effortful” (Bromberek-Dyzman et al. 2022: 14). Drawing on the obtained findings, the authors postulate that “the efficiency (i.e., speed and accuracy) of irony computation is not entirely irony per se specific, and as such inherent in the concept of ironicity, but also depends on the comprehension strategy a comprehender adopts” (Bromberek-Dyzman et al. 2022: 16).

4.4.2. Irony comprehension in bilingual children

While bi- and multilingualism “have been prevalent across the world communities” (Tomczak and Jaworska-Pasterska 2017: 6), it seems that their recognition and acknowledgment in public discourse is a latter-day phenomenon. Alongside this process, the scientific community has been showing increased interest in the intricacies of bilingual language processing. While the questions centred around bilingual figurative language processing have recently received due consideration and attention (Heredia and Cieślicka 2015), the problem of irony comprehension in bilingual children remains a vastly underexplored area in psycholinguistics.

Grosjean (2008: 10), in his seminal work on bilingualism, points out that “language sciences have developed primarily through the study of monolinguals who have been the models of the ‘normal’ speaker-hearer.” The same has been true for language acquisition research, where the norm has long been – and, as it seems, still remains – “[m]onolingual, typically developing” (Banasik and Podsiadło 2016: 316).²⁸⁶ Thus, little work has so far been conducted into how bilingual children acquire the ability to understand and use figurative language, and irony in particular.²⁸⁷ This research topic has only recently begun to attract the attention of empiricists.

To the best of the current author’s knowledge, the first empirical exploration of irony comprehension in bilingual children has been conducted by Yopez (2013). The study was a small-scale exploratory project with 21 typically developing English monolingual and Spanish-English bilingual participants aged between 4 and 9. The author reports that participants were divided into two age groups: younger children, aged between 4 and 6, and older children, aged between 7 and 9. In the case of the bilinguals, Spanish was “the only or predominant language spoken in the home”, and they were first exposed to English by one or both parents, or at kindergarten, when they were 3 or 4 years of age. The stimuli were 8 video clips in which one character expressed criticism or praise of another character’s accomplishment or failure. The author tested children’s comprehension of both literal and

²⁸⁶ This is somewhat surprising – especially given the fact that over half of the world’s population is bilingual (Grosjean 2010), which means that it is bilinguals that constitute the majority. This number is constantly increasing, and indeed, “bilingualism is much more commonplace now than ever before” (Altarriba and Heredia 2008: 6).

²⁸⁷ As noted by Banasik and Podsiadło (2016: 317), there is “a gap in [our] knowledge about [bilingual children’s] acquisition of figurative language.”

ironic criticism and praise. To assess participants' perception of the attitude of the character who uttered the target comment, Yepez (2013) used the five-point Likert-type Mean/Nice scale as developed by Harris and Pexman (2003).²⁸⁸ The scale employs five images of faces which have different facial expressions and range from nice to mean. In the study by Yepez (2013), the faces were labelled as "very nice", "nice", "not nice but not mean", "mean", and "very mean". The author assumed that participants correctly understood ironic criticism if they described the speaker as "mean" and "very mean", and ironic compliment if they described the speaker as "nice" and "very nice". The results demonstrated that "all children correctly identified irony", and – as the author put it – "revealed no significant difference between the children's language and age in identifying verbal irony" (Yepez 2013: iii). Thus, no difference was found between the mono- and bilingual children belonging to either of the two age groups in their ability to identify irony in the video clips. One interesting finding emerges, however, which concerns children's recognition of the different irony types: although participants' mean irony ratings "were all within the desired response for (...) [a given] category" (Yepez 2013: 14), the mean rating for ironic compliments was close to the "not nice but not mean" response. Yepez (2013: 14) considers this to be indicative of "some level of [the children's] uncertainty when identifying irony in those clips"; such an interpretation, however, does not have to be the only possibility. It might as well be the case that the attitude conveyed by ironic praise is more complex than that conveyed by ironic criticism, and hence the participants' choice of a response which involves some degree of ambiguity.²⁸⁹ On top of that, children may be less familiar with the complimentary form of irony given the fact that it is the less common type of irony (Dews et al. 1995b; Gibbs Jr 2000) and that it can be employed "[o]nly in special circumstances" (Wilson 2017: 209).²⁹⁰ Yepez (2013) does not point to these possibilities in her discussion of

²⁸⁸ To be precise, Harris and Pexman's (2003) Mean/Nice scale is a modified version of one of the scales proposed by Dews and colleagues (1996). The difference is that Harris and Pexman's (2003: 152) scale "include[s] extended ranges."

²⁸⁹ Significant insight into the potential differences between recognising ironic praise and criticism has recently been gained from the research of Bruntsch and Ruch (2017), who developed and validated a tool for the measurement of irony detection aptitude (Test of Verbal Irony Detection Aptitude; henceforth TOVIDA). These authors have obtained results which indicate that "the detection of ironic criticism and the detection of ironic praise can be found as two intercorrelated but still discriminant facets of irony detection aptitude" (Bruntsch and Ruch 2017: 12). This means that the ability to recognise ironic compliments can be viewed as distinct from the ability to recognise ironic criticism (Bruntsch and Ruch 2017: 1). Moreover, the authors found that the detection of ironic praise "showed unique associations with intelligence and certain traits" such as bad mood, cheerfulness, and corrective humour (Bruntsch and Ruch 2017: 13).

²⁹⁰ Wilson (2017: 209) discusses this issue with reference to "the normative bias" whereby "the most common use of irony is to criticise or complain when a situation, event or performance does not live up to some norm-

this result, however. Rather than that, she focuses on the unexpected finding of no accuracy difference between the younger and the older age group. One reason for this might have been the small sample size, which Yepez (2013: 24) herself admits. The author lists several other weaknesses of the study, including the potential procedural problems and the small number of stimuli. Thus, although pioneering, the research by Yepez (2013) has several limitations which undermine the validity of the obtained results and render the conclusions questionable.

Somewhat more recently, the problem of irony comprehension in bilingual children has been explored by Banasik and Podsiadło (2016). The authors tested a group of 31 bilingual children “recruited in one of the Polish Saturday schools in the area of Boston” (Banasik and Podsiadło 2016: 321).²⁹¹ The authors do not provide exact information as to participants’ language dominance; however, they report that their English and Polish proficiency level was described by their parent and teacher as at minimum communicative. The task that was used to test participants’ understanding of ironic utterances was the Irony Comprehension Task (henceforth ICT), as developed by Banasik and Bokus (2012). The ICT “is a story comprehension task consisting of 12 stories” (Banasik and Podsiadło 2016: 322), in each of which a character – a child or an adult speaker – utters a comment on the depicted situation. In half of these stories, the comment is ironic, and in the other half it is literal. The authors employed two types of irony, which they labelled “blame” (sarcastic) and “non-blame” (non-sarcastic) irony, which made it possible for them to look for potential differences in participants’ ability to understand these two kinds of ironic utterances.²⁹² The participants were tested individually, and the stimuli were presented to them audio-visually – in the form of “pre-recorded audio material where ironic utterances were read with a marked prosody”, supplemented with “pictures (...) presented on a large screen connected

based expectation.” This phenomenon has been discussed in more detail in section (1.5.2), where it is referred to as the “the asymmetry issue”.

²⁹¹ The authors report that data from 28 participants were included in the final analysis (Banasik and Podsiadło 2016: 321).

²⁹² The author of the current analysis does not subscribe to the “blame/non-blame” distinction proposed by Banasik and Podsiadło (2016). The approach taken in the current work follows that of Lee and Katz (1998), who define sarcasm as a type of irony that is directed at a particular target: a person or a group of people, etc. Thus, the target is the object of whatever attitude or sentiment is intended to be conveyed by the sarcastic remark. While blame might well be among such sentiments (see, for instance, Muecke (1970), who repeatedly writes about “praising in order to blame” and “blaming in order to praise”), it does not have to. A good illustration here may be the first sarcastic stimulus employed by Banasik and Podsiadło (2016: 330), in which one boy – Tom – comments on the other – Steve’s – wet and muddy pants saying “How clean you are.” While Steve is indeed the target of his friend’s comment, it seems unlikely that Tom would actually blame Steve for getting dirty.

to a computer” (Banasik and Podsiadło 2016: 322). After each scenario, the children were asked a series of four questions. Let us take Story 1 (Banasik and Podsiadło 2016: 330) as an example:

- (19) *Steve and Tom are playing in the backyard. There are puddles and there is mud on the ground. Steve falls down. He stands up and his trousers are wet and muddy. “How clean you are!”, says Tom.*

The questions that followed the presentation of this stimulus were:

- (20) Question 1. *Why do you think Tom said this?*
- (21) Question 2. *When Tom said “How clean you are!”, did he mean:*
– *Tom did not get dirty and is clean*
– *Tom got dirty and isn’t clean*
- (22) Question 3. *When Tom said “How clean you are!”, was it:*
– *very funny*
– *kind of funny*
– *not funny at all*
- (23) Question 4. *When Tom said “How clean you are!”, was he being:*
– *very nice*
– *kind of nice*
– *not nice at all*

The question that was used as an accuracy measure was (21). The two available responses were presented to the children both auditorily and visually – by means of audio recordings and pictures shown on the computer screen. The children responded by touching the selected picture on the screen.

Apart from the ICT, the participants were administered the Reflection on Thinking Test (henceforth TRM).²⁹³ The TRM is a set of 9 picture stories which depict the adven-

²⁹³ Describing the TRM, Banasik and Podsiadło (2016) refer to the work of Białecka-Pikul (2012). Looking for more information on the particular tasks which make up this test, the present author has found no mention of the TRM in the work of Białecka-Pikul (2012). However, the Reflection on Thinking Test by Białecka-Pikul has been proposed in Haman et al. (2012) as one of the tasks belonging to “[a] new set of tools for assessing language and cognitive development in Polish children”, where its description is in line with that

tures of two characters (Haman et al. 2012). The test has been designed to tap children's pragmatics, as well as the different aspects of their ToM (Haman et al. 2012), such as "visual perspective understanding, emotion and intention understanding, pretense and imagination, understanding states of knowledge and degrees of knowledge certainty, remembering and forgetting, recognition of appearance versus reality, understanding of verbal ambiguity, and understanding of deception" (Banasik 2013: 313; Banasik and Podsiadło 2016: 323). Another advantage of the TRM is that it enables not only quantitative, but also qualitative analysis (Haman et al. 2012; Banasik 2013; Banasik and Podsiadło 2016).²⁹⁴

In addition to the ICT and TRM, Banasik and Podsiadło (2016) used one more task – the Cross-Linguistic Vocabulary Task (Haman et al. 2015) – in order to assess participants' knowledge of Polish vocabulary.²⁹⁵ The authors report that while they did not incorporate these data into the analysis, they did employ them "to make decisions about excluding a result from the study due to a low vocabulary score" (Banasik and Podsiadło 2016: 321).

The results obtained by Banasik and Podsiadło (2016: 323) demonstrate that the children performed well on the ICT: they correctly understood the ironic comment in 73% of the ironic stimuli. This seems to be a high score – especially if one takes into account the fact that participants' accuracy on the literal scenarios was not much greater, being 82%. The authors do not provide information as to whether this difference is statistically significant; they note, however, that these results are "high above chance" (Banasik and Podsiadło 2016: 323). The finding that six-year-olds can comprehend ironic comments is in line with the results of monolingual studies (Sullivan et al. 1995; Dews et al. 1996). Furthermore, Banasik (2013: 316) has demonstrated that "children as young as four years old seem to comprehend the real meaning in ironic utterances", while Loukusa and Leinonen (2008: 55)

provided by Banasik and Podsiadło (2016), and by Banasik (2013). Therefore, all three sources will be used in the current discussion of the TRM.

²⁹⁴ This is attained by means of employing open-ended questions, such as "Why will X say that?", in addition to close-ended ones (Haman et al. 2012).

²⁹⁵ To be precise, Haman and colleagues (2015) use the term "Cross-Linguistic Lexical Tasks" (CLTs) rather than "the Cross-Linguistic Vocabulary Task". The CLTs were developed within Action IS0804 of the European Cooperation in Science and Technology (COST), "Language impairment in a multilingual society: Linguistic patterns and the road to assessment" (Haman et al. 2015), whose aim was to "profile bilingual Specific Language Impairment (SLI)" (e-COST 2011). The CLTs constitute a language assessment tool that enables identification of Specific Language Impairment (SLI) in bi- and multilingual children by "provid[ing] a fully comparable assessment of vocabulary and lexical processing in 34 different languages" (Haman et al. 2015: 197). In their 2015 work, Haman et al. (2015: 197) "present the innovative method of the CLTs' construction: a multilingual parallel task-construction procedure, which enables an objective test of vocabulary and processing skills in any pair of languages."

report that children even younger than that – i.e., some of the three-year-olds that they tested – “showed an emerging ability to comprehend irony.” Given all of the above, it would be interesting to find out whether bilingual children are more apt at understanding irony than are their monolingual peers. Banasik and Podsiadło (2016: 325) “hypothesized that bilingual children should be better in figurative language comprehension due to the fact of generally higher ToM scores²⁹⁶ and having to process linguistic ambiguity on everyday basis²⁹⁷, as well as because of generally higher metalinguistic abilities”²⁹⁸ – however, the study under discussion does not provide an answer to this question, as the authors did not include a monolingual sample, and tested only one group.

An important result of the research by Banasik and Podsiadło (2016) is the finding of a “significant correlation (...) between accuracy in the ICT and results in the ToM Task” (Banasik and Podsiadło 2016: 323). This was expected by the authors and is in line with the conclusions of monolingual research, which has found a link between second-order ToM and the ability to understand ironic utterances (Winner and Leekam 1991; Happé 1993, 1995; Sullivan et al. 1995; Winner et al. 1998). Discussing their finding, Banasik and Podsiadło (2016: 325) conclude that “[c]omprehending irony is impossible without being able to predict the speaker’s intentions.”

The final result reported by Banasik and Podsiadło (2016: 325) is that there was no accuracy difference in participants’ performances on the sarcastic and non-sarcastic ironic stimuli. The authors consider this result surprising: they expected that sarcastic irony would pose a greater challenge than non-sarcastic irony. While prior research has not shed much light on the potential differences in how children understand the various types and forms of irony, an early study by Winner and colleagues (1987) found that sarcasm was actually the easiest of the three irony types that were studied.²⁹⁹ The authors postulate that this was so because the violation of truth is particularly conspicuous in the case of sarcastic utterances. An important point that needs to be made here is that Winner et al. (1987) used a rather broad and controversial definition of sarcasm – namely, that “[i]n sarcasm, the speaker-sentence meaning relationship is one in which the sentence states the opposite of what the speaker means” (Winner et al. 1987: 16). This is far more general than both the definition

²⁹⁶ For a more detailed discussion of ToM abilities in bilinguals, see section (3.3.2.4).

²⁹⁷ For a discussion of the different implications of this, see sections (3.3.2.3) and (3.3.2.5).

²⁹⁸ The problem of metalinguistic awareness, including its different measures and aspects, was discussed in detail in section (3.3.2.1).

²⁹⁹ The remaining two were hyperbole and understatement.

employed by Banasik and Podsiadło (2016) and that proposed by Lee and Katz (1998), which is endorsed by the current author. What follows from the above is that stimuli created on the basis of such disparate criteria can be considered anything but comparable; the same problem emerges if one wants to draw consistent conclusions from these studies.³⁰⁰

Leaving the definitional issues aside, Banasik and Podsiadło's (2016) finding of no accuracy difference in children's understanding of "blame" and "non-blame" irony is indeed somewhat surprising, especially if one takes into account the results of Hancock and colleagues (2000), who report that "children more readily detect ironic criticisms" (Hancock et al. 2000: 227); such utterances are, after all, always critical and directed at a specific target, which makes them highly similar to, if not synonymous with, "blame irony."³⁰¹ Discussing their finding, Banasik and Podsiadło (2016: 325) point out that one important factor that might have contributed to the unexpected pattern of results is "the culture effect": drawing on Ting-Toomey (1999), they note that "Americans prefer a direct, straightforward style of addressing their interlocutors" (Banasik and Podsiadło 2016: 325). According to the authors, this tendency "may be reflected in the way parents use or do not use non-literal language (i.e., irony) in their child-directed speech", which, in turn, may bear upon children's ability to understand such types of language (Banasik and Podsiadło 2016: 325).³⁰² While it is difficult to disagree with the claim that parental input affects children's linguistic ability, one would expect that children who generally receive limited exposure to figurative language would have considerable difficulty understanding all ironic speech – and this was not the case with Banasik and Podsiadło's (2016) participants, who generally scored high on the ICT. What could shed more light on the unexpected results of Banasik and Podsiadło's (2016) study is insights from research into how parents use various forms of irony in their child-directed speech during daily family conversations. One such exploration has been conducted by Recchia and colleagues (2010), who analysed children's use and comprehension of four types of irony – sarcasm, hyperbole, understatement, and rhe-

³⁰⁰ A related, if far more global, definitional problem has recently been extensively reviewed by Wilson (2017). The main point of her discussion is that the notion of irony as employed in current experimental research is so broad and generalised that "the operational definitions (...) are too gross to pick up important differences in the underlying mechanisms involved" (Wilson 2017: 217). Wilson (2017: 216) postulates that including non-prototypical cases of irony as stimuli in developmental research "is more likely to confound than enhance the results."

³⁰¹ Hancock and colleagues (2000) looked at children's understanding of two irony types: ironic criticism and ironic praise.

³⁰² Here, the authors draw on Huttenlocher and colleagues (1991) and Hoff (2003), who explored the relation between parent speech and children's early vocabulary development.

torical questions – as recorded during six observations of family interactions, each lasting an hour and a half, conducted in 39 families. Here, one of the important findings has been that “[f]or all family members, sarcasm was the least-used form of irony, suggesting that it may not be a common linguistic tool in family conversations” (Recchia et al. 2010: 271). While this is an important finding, it cannot be employed to help explain Banasik and Podsiadło’s (2016) findings; the reason for this is, once again, definitional differences. Recchia et al. (2010: 256) describe sarcasm as a phenomenon in which “the intended meaning is to some degree the opposite of the literal meaning, a difference in valence (e.g. saying ‘Thanks a lot’ to someone who let a door slam in your face).” This definition resembles the one employed by Winner et al. (1987), and – just as the latter – it does not incorporate the notion of blame, which is a mandatory element of sarcasm as understood by Banasik and Podsiadło (2016). Thus, the finding of Recchia et al. (2010) cannot shed much light on the potential differences in children’s understanding of “blame” and “non-blame” irony.

Discussing Banasik and Podsiadło’s (2016) result of no difference in children’s understanding of sarcastic and non-sarcastic irony and given the fact that previous research does not offer viable explanations for this finding, it is worthwhile to consider two more possibilities. First, it could be the case that the presence or lack of an element of criticism or blame in an utterance does not contribute to increased processing demands, rendering the processing difficulty of the two types of irony similar. On this account, the result obtained by Banasik and Podsiadło (2016) – however surprising – would simply reflect the actual state of affairs. It is also possible, however, that “blame” and “non-blame” irony differ with regard to processing effort, but that this difference is too subtle to surface in an offline task. Clearly, more research is needed which would address the problem of children’s comprehension of the various forms of irony using different theoretical and methodological frameworks.

4.5. What we do not know, and what the current study aims to shed light on

Having discussed the findings of developmental research into bilingual irony comprehension, let us move on to demonstrate a few unexplored areas that merit further investigation. The research described in Chapter 5 is aimed at shedding light on some of these.

4.5.1. The expected questions

A number of critical issues concerning children's developing ability to understand irony have been quite thoroughly investigated in the monolingual context. Most of these, however, are yet to be addressed in the bilingual context. Among the most interesting of these is the question of whether bilingual children are more apt at recognizing ironic speaker's belief than are their monolingual counterparts. This is a particularly interesting question, as studies conducted with monolingual populations have found speaker belief recognition to be prerequisite to understanding irony (Happé 1993; Banasik 2013). Another interesting issue is that of whether bilingual children actually do recognize irony more readily than their monolingual peers. Given bilinguals' advantage in metalinguistic awareness (Altman 2018), perspective taking (Fan et al. 2015; Liberman et al. 2017), and Theory of Mind ability (Schroeder 2018), one would expect that this could indeed be the case. If a bilingual advantage does exist for irony comprehension, it would be interesting to explore at what age it manifests itself. As irony comprehension is a complicated process requiring complex mentalising ability – including second-order Theory of Mind skills (Curcó 2000; Massaro 2013; Nilsen 2011) – it is expected that such an advantage, if at all, could be observed in children well over the age of seven, that is above the age at which second-order ToM emerges in typically developing children (Westby and Robinson 2014). On the other hand, Westby and Robinson (2014: 365) postulate that it is “higher order cognitive and affective ToM [that] involves tasks that require recognising lies, sarcasm, [and] figurative language” and that “[t]hese skills typically develop between 8 and 12 years of age.” On these authors' account, the ability to understand ironic utterances has a more protracted developmental pattern. It would be interesting to look into these issues comparing the performance of monolingual children with that of their bilingual peers, as such research is very scant.³⁰³ The research described in the current work is aimed at filling this gap.

Another unexplored area is whether irony comprehension is modulated by utterance type. Although ample literature is available that has been devoted to the different vehicles, forms, and markers of irony (Muecke 1969, 1970; Booth 1974; Muecke 1978; Kapogianni 2014), not much is known about children's comprehension and recognition of these. The majority of studies have utilised just one prototypical form of irony: the counterfactual

³⁰³ To illustrate, the study by Banasik and Podsiadło (2016) only studied bilingual children.

statement (Demorest et al. 1984; Hancock et al. 2000; Pexman and Glenwright 2007; Glenwright and Pexman 2010; Banasik 2013; Banasik and Podsiadło 2016).³⁰⁴ Several authors have highlighted the need to pay more attention to the materials that have been used in empirical research. Notably, Kumon-Nakamura et al. ([1995] 2007) have called for employing more varied ironic stimuli, while Wilson (2017) has called for more rigour and precision in ironic stimuli creation. Hence, the approach to stimuli creation that has been taken in the current research has aimed at integrating these two postulates. Studies into children's comprehension of various types of irony are lacking, let alone those conducted in the bilingual context, and the research described in Chapter 5 aims to fill this void.

4.5.2. The less expected questions

One more issue that merits further investigation is that of perceived attitude of the ironic speaker. Prior developmental research conducted in the monolingual context employed recognition of ironic attitude as a comprehension measure (Andrews et al. 1986), assuming that ironic attitude is invariably negative. Newer studies, however, have shown that irony may convey a number of different attitudes (Dynel 2013; Bromberek-Dyzman 2014, 2015). It would be interesting to investigate what kinds of attitudes bilingual children of different ages ascribe to the ironic speaker; are these attitudes positive or negative, simple or complex? Are they similar to what we know from literature conducted with monolingual participants?

Two seemingly unrelated strands of research may well add an extra interesting dimension here. The first of these is studies into affective processing in the bilingual context. A common opinion voiced by many bilingual speakers is that their L1 is their “language of the heart”, one in which they both perceive and express emotions more strongly (Pavlenko 2006; Dewaele 2010). Researchers have been studying the so-called “foreign-language effect” (Keysar et al. 2012; Costa et al. 2014), according to which the “foreign language provides a distancing mechanism that moves people from the immediate intuitive system to a more deliberate mode of thinking” (Keysar et al. 2012: 661). The potential mechanism here is that the second language “is less grounded in the emotion system than a native tongue is”

³⁰⁴ One notable exception is the study by Creusere (2000), whose stimuli comprised five different kinds of utterances: counterfactual assertions, true assertions, questions, offerings, and thankings.

(Keysar et al. 2012: 661). When encountering emotional content, be it taboo words or expressions of affection, people have been found to “react to [it] less emotionally in a foreign language” (Keysar et al. 2012: 661). In a similar vein, Jończyk et al. (2016: 537) have found evidence that “bilingual individuals may process negative content more shallowly in L2 than L1.” These authors postulate that “semantic access to negative words presented in the second language of bilinguals may be incomplete and suppressed at an early stage of processing” (Jończyk et al. 2016: 535). Along the same lines, clinical research conducted with patients suffering from post-traumatic stress disorder has demonstrated that patients’ memories recounted in the first and second language differ substantially: the accounts given in participants’ first language “seemed to be told from the heart”, whereas those given in the second language “were often recounted in a detached manner, as though participants were recalling a news story about someone else” (Schwanberg 2010: 51). Thus, the L2 may constitute “a kind of asylum for patients discussing highly emotional and/or traumatic experiences” (Jończyk et al. 2016: 527). If this is the case, it might be possible, then, that bilinguals’ perceptions of the attitudes conveyed by ironic criticism could differ as a function of language.

Another interesting strand of research that could point in this direction is studies into the existence of bilinguals’ personality shift as a function of language used. Ramírez-Esparza et al. (2006) investigated the Cultural Frame Switching (henceforth CFS) effect, whereby “bicultural individuals shift values and attributions in the presence of culture-relevant stimuli” (Ramírez-Esparza et al. 2006). Examining Spanish-English bilinguals, the authors obtained cultural differences in personality, thus supporting the CFS. Ramírez-Esparza et al. (2006: 118) concluded that “CFS can be primed with something as subtle as the language, and can affect not only (...) attributions or values, but also (...) personality.” If certain personality traits can change as a function of language, it may well be the case that one’s perceptions of other people’s attitudes may also change as a function of language. Given the above, it would be very interesting to explore bilingual children’s perceptions of an ironic speaker’s attitudes when irony is expressed in two different languages. It would also be worthwhile to look into these issues with participants belonging to different age groups. These questions, too, will be addressed in the research described in Chapter 5.

4.6. Conclusion

The current chapter sought to detail out what is currently known about irony comprehension in bilingual children. Since few studies have so far been conducted into this research avenue, the discussion was opened with an analysis of findings concerning figurative language comprehension in bilingual individuals. Here, empirical results concerning the understanding of four major types of figurative utterances were reported: idioms, metaphors, proverbs, and similes.

The goal of the consecutive part of the chapter was to shed light on the differences in the comprehension of irony and that of other types of figurative language. To achieve this goal, the author reviewed relevant findings from various research avenues. Insights from language acquisition research were presented, followed by those obtained from studies conducted with the use of neuroimaging. Subsequently, the author reviewed studies into figurative language comprehension that were conducted with clinical populations. Finally, the author discussed the implications that all these findings have for bilingual research into irony.

The goal of the third part of Chapter 4 was to lay the groundwork for the research described in Chapter 5. The focus here was on exploring irony in the bilingual context. First, the author presented empirical findings concerning the comprehension of irony in bilingual adults. Next, the author discussed research results pertaining to the comprehension of irony in bilingual children. Finally, the focus of the analysis was shifted to those aspects of irony comprehension in bilingual children that have so far enjoyed little scholarly attention. Emphasis was laid on interesting problems that have either been overlooked by prior research, or have not been properly addressed. A number of these will be tackled in the research reported in Chapter 5.

Chapter 5: The study

5.1. Introduction

The goal of Chapter 5 is to describe the developmental study that has been conducted into selected aspects of irony comprehension in Polish monolingual and Polish-English bilingual children. First, the major goals of the research will be presented. Next, the rationale behind the stimuli, as well as the process of their creation and validation will be reviewed in detail. Then, the analysis will focus on three important areas that the discussion of irony research conducted heretofore has found to merit further investigation. The first of these is recognition of speaker belief, the second is recognition of speaker intention, and the third one – perception of speaker attitude. These three important aspects of irony comprehension are examined in the current project. Each of the three has been investigated in young participants belonging to three age groups.

The findings obtained in the present study will be discussed against the backdrop of the current state of knowledge on irony processing and comprehension. Subsequently, limitations of the current study will be addressed and directions for further research identified.

5.2. Research goals

The goal of the study was to shed light on three key aspects of irony comprehension that are well known from research conducted with monolingual participants and that have, as yet, received little, if any, academic attention in the bilingual context from a developmental perspective. The first of these key aspects is recognition of ironic speaker belief, the second

one is recognition of ironic intention, and the third – appreciation of ironic speaker attitude. The study looks into these three critical aspects in mono- and bilingual individuals belonging to three age groups: children between 6 and 8 years old, children between 10 and 12 years old, and teenagers between 14 and 16 years old.

In terms of recognition of speaker belief and intention, the research aim was to compare the performances of mono- and bilingual participants belonging to the same age groups and to check whether a bilingual advantage would be obtained in either of these two critical areas. An additional objective here was to check whether irony comprehension depends on the type of speech act that has been used to express ironic meaning.

An additional goal of the study was to take a closer look at ironic attitude – a phenomenon well-known from studies conducted with monolingual children, but one that has frequently been misconstrued in developmental research. As has been pointed out in section (2.3.7), pioneering studies into child irony comprehension used the notion of speaker attitude as a comprehension measure – such that children were credited with irony comprehension only if they interpreted the ironic speaker’s attitude as negative (Andrews et al. 1986). Newer literature has clearly demonstrated that irony serves many communicative goals, among which are such phenomena as social bonding (Dynel 2008) and humour (Hirsch 2011; Dynel 2013), and that irony may – albeit implicitly – communicate positive attitudes (Bromberek-Dyzman et al. 2022). Thus, the present research does not take speaker attitude recognition as a comprehension measure. Instead, the current study looks into bilingual children’s perceptions of ironic attitude. More specifically, it seeks to explore the different attitudes that mono- and bilingual children of different ages ascribe to the ironist. Here, responses given in both languages spoken by the bilinguals will be looked at so as to check whether any hints of “the foreign-language effect” (Keysar et al. 2012; Costa et al. 2014) would be observed. As the research goals concerning ironic attitude appreciation are of an exploratory nature, a qualitative analysis of the obtained data will be presented.

5.3. Development of research materials

Two tools were created and employed in the current study: the Sarcastic Irony Battery, and the “English and You” Questionnaire. The Sarcastic Irony Battery was designed as a diagnostic test for measuring the different aspects of children’s comprehension of ironic stimuli.

The stimuli were designed in such a way as to represent all five speech act types as distinguished by Searle (1969). The “English and You” Questionnaire, in turn, was intended as a simple, practicable, and child-friendly tool for collecting information about mono- and bilingual participants’ linguistic backgrounds.

5.3.1. The Sarcastic Irony Battery

The Sarcastic Irony Battery – the major research instrument employed in the current study – was intended as a versatile tool for measuring four basic aspects of irony comprehension: context comprehension and recognition of speaker belief, intention, and attitude, all of which have been recognised, explored, and discussed in the relevant psycholinguistic literature.³⁰⁵ The battery was created with the aim of integrating two perspectives – that of Wilson (2017) and of Kumon-Nakamura and colleagues (2007). Thus, the stimuli making up the instrument were supposed to be salient, that is either unambiguously ironic or literal, and – at the same time – varied, that is encompassing different (but mutually corresponding and comparable) forms of ironic and literal utterances. The following sections will present in detail how the tool was developed and discuss the steps that were taken in order to make it well-suited for developmental research.

5.3.1.1. Stimuli creation

Initially, fifty-one short, two-sentence scenarios were created in Polish. These presented brief interactions between two characters. The first, and the beginning of the second sentence provided the situational background, depicting a given context and introducing the first character. This character always either exhibited an excessive or exaggerated behaviour, or boasted about having a certain skill, and then failed at this very ability. Next, the second character made a comment related to the first character’s behaviour or failure.³⁰⁶ It

³⁰⁵ For a critical discussion of the findings relevant to these four aspects, consult sections (2.3.3), (2.3.5), (2.3.6), and (2.3.7), respectively.

³⁰⁶ Here, the author would like to express her gratitude to Jacek Mańko, for his invaluable help in the process of contriving the many potentially ironic situations and comments which would be appropriate to these scenarios.

is the comments uttered by the second character that had the greatest relevance for the current research.

As one of the major goals of the study was to look into comprehension of various forms of irony, ten different comment types were created to each of the fifty scenarios, resulting in five hundred comments. These comments invariably expressed a critical attitude. Half of them were ironic, whereas the other half – literal. Thus, of each ten comments that were written for a given scenario, five were ironic and five were literal. On the other hand, every set of ten comments was made up of five sentence pairs – each consisting of one ironic and one literal sentence – such that every pair belonged to a different speech act category, as distinguished by Searle (1969): assertive, directive, commissive, expressive, and declarative.³⁰⁷ To illustrate, take the following context:

(24) *Paweł often boasted that he played football very well. When he missed the goal for the fifth time, Tomek said:*

Here, the range of answers included two assertives – one ironic (25a) and one literal (25b):

- (25) a. *You really are a great player.*
b. *You are a poor football player.*

Similarly, there was one ironic (26a) and one literal (26b) directive:

- (26) a. *Teach me some football tricks.*
b. *Get some more practice.*

Below is an example of an ironic (27a) and a literal (27b) commissive:

- (27) a. *I will learn to play football so well, too.*
b. *I will teach you how to play football.*

³⁰⁷ This was in line with the proposal put forward by Kumon-Nakamura and colleagues (2007), who postulated that all five speech act types could communicate irony. One of the major advantages of employing Searle's (1969) speech acts as experimental stimuli is that they constitute mutually exclusive and collectively exhaustive categories, which is instrumental in creating a methodologically sound study design.

Along the same lines, there was one ironic (28a), and one literal (28b) expressive:

- (28) a. *It's nice that you are doing so well.*
b. *Too bad that you are doing so poorly.*

Finally, the sentence in (29a) is an example of an ironic declarative, while the one in (29b) – of a literal declarative:

- (29) a. *I declare you the best player of all times.*
b. *I declare you the worst player of the year.*

Several major principles were adhered to in the creation of the scenarios and comments. Only such situations were depicted that would be familiar to a five-year-old, typically developing child.³⁰⁸ Also, while the age of the characters in the stories was unspecified, it could be inferred that they were peers. More importantly, the interactants always had equal status – that is, there was no power imbalance between them, as would have been the case had the interactions occurred between an adult and a child.³⁰⁹ The language of the contexts and comments was simple and clear, and the length of the target utterances was reduced to a strict minimum – the comments were supposed to be only six words long.³¹⁰ The criteria were established with a view to minimising comprehension and working memory demands for the young participants.

³⁰⁸ Here, insights from the work of Smith and Hart (2011) proved instrumental.

³⁰⁹ Not much is known about the actual effects of ironic speaker status on irony comprehension. Given the findings of Recchia and colleagues (2010), who noted a difference in how mothers and fathers used irony with their children, it seems reasonable to expect that power imbalance could bear upon children's understanding of an ironic utterance, let alone their perception of the ironic speaker. And indeed, Banasik-Jemielniak and Bokus (2019) recently found that whether it was a child or an adult that uttered an ironic comment to a child was significant for their youngest participants. Hence, to avoid this potential confound, only child-to-child interactions have been employed as stimuli in the current research – a methodological choice which stands in contrast to those employed in some of the other studies that have been conducted into irony comprehension by children (e.g. Banasik 2013; Banasik and Podsiadło 2016).

³¹⁰ The comments cited in examples (25) to (29) are close translations of the original stimuli, and hence their length differs from that of the Polish stimuli. To see the complete list of the Polish stimuli, consult Appendix A, p. 383.

5.3.1.2. Pretest

To ensure stimuli salience, all scenarios, together with the corresponding comments, underwent extensive pretesting. To this end, a group of 228 volunteers – naive language users – was recruited who were supposed to rate how ironic or literal the comments were. The raters were asked to provide information about their age, gender, and education. Here, an exclusion criterion was established, which was doing or having a degree in languages or in linguistics. The reason for this was that such raters' elevated linguistic awareness would have biased the pretest results. Therefore, responses obtained from these raters were excluded from further analysis.

For practical reasons, all the materials initially created were divided into 10 lists, each comprising 50 contexts. The contexts were the same for each list, but different comments were assigned to them. To illustrate, an ironic assertive was assigned to list 1, an ironic directive to list 2, an ironic commissive to list 3, an ironic expressive to list 4, and an ironic declarative to list 5. Further, the 5 respective literal counterparts were assigned to the remaining 5 lists. Each rater received only one list, and at least twenty rates were assigned to rate each list (the number varied from 20 to 28).

The pretest was performed as an online questionnaire, using Google Forms. The raters' task was to read each scenario and rate the target comment on a 5-point Likert-type irony scale, where 1 stood for "very literal", and 5 – for "very ironic". Once the ratings were obtained, mean values were calculated for each comment. The criteria that were set before the analysis were a mean value between $M = 4.0 - 5.0$ for ironic comments, and a mean value between $M = 2.0 - 1.0$ for their literal counterparts. Once the means were calculated, it evinced that the comments were, overall, rated as highly salient.

Forty highly salient items were selected for the Sarcastic Irony Battery – 20 ironic, and 20 literal ones. The least ironic stimulus that was chosen for the study had a mean rating of $M = 4.65$, whereas the least literal stimulus had a mean rating of $M = 1.9$. At the same time, care was taken to ensure an equal number of comments as expressed by each speech act type. Thus, of the forty items, there were eight assertives, eight directives, eight commissives, eight expressives, and eight declaratives.

5.3.1.3. Target questions

To each of the items selected for the Sarcastic Irony Battery, a series of four questions was devised such that each question targeted a different aspect of irony comprehension and appreciation. Let us illustrate this with the following scenario, which was given to participants as an example in the instruction to the task:

- (30) *Janek told Agnieszka that he liked going to sleep late. When, one evening, he fell asleep right after supper, Agnieszka said:*
- You really like going to bed late.

The first of the four target questions checked whether participants understood the situational context at all. While previous research into children's comprehension of irony tended to omit this issue (e.g. Loukusa and Leinonen 2008; Glenwright and Pexman 2010), it is believed that a manipulation probing participants' understanding of the situation is an important element of a methodologically sound design in a study checking children's comprehension of any figure of speech. Thus, in the current study, the decision was made to check whether participants understood the situation before checking their comprehension of the ironic comment, as in the example below:

- (31) *Did Janek go to bed late?*

There were just two answers possible to the context question: *YES* and *NO*.

The second target question tapped participants' Theory of Mind ability, as it probed their recognition of the ironic speaker's belief:

- (32) *Does Agnieszka think that Janek went to bed late?*

Here, too, only two options were available as responses; these were *YES* and *NO*.

The third question explored participants' appreciation of the ironic speaker's intention:

- (33) *In her comment:*
a. *Agnieszka made a mistake*
b. *Agnieszka wanted to deceive Janek*

- c. *Agnieszka wasn't speaking seriously*
- d. *none of the above*

As has been demonstrated above, four answers were possible. If a participant chose the first answer, this meant that they believed the ironic speaker made a slip of the tongue. If they chose the second answer, this meant that they mistook the ironic comment for a lie. If they chose the third answer, this meant that they correctly recognised the nonliteral ironic meaning. The fourth answer was used as a distractor; it was the correct response to literal stimuli.

The final of the four target questions was an open-ended one:

(34) *How do you think Agnieszka was behaving towards Janek?*

Here, participants were encouraged to write an adjective that would best describe the speaker's behaviour, or the attitude conveyed in the comment.

5.3.1.4. Final version of the stimuli: Polish version

The final version of the stimuli comprised 40 items. Each item was made up of a context followed by a target comment that was either ironic or literal. Thus, half of the items were ironic, and the other half – literal. On the other hand, each speech act type was represented by eight items, four of which were ironic, and the other four – literal. For instance, there were eight assertives, including four ironic, and four literal comments. A complete list of all stimuli is available in Appendix A, p. 383.

Each stimulus was tape-recorded by an adult male speaker. As the effects of intonation were beyond the scope of the current study, and given that salient ironic intonation cues irony comprehension (Glenwright et al. 2014), the speaker was instructed to read the ironic comments with the same pitch as he did their literal counterparts. The intonation of the speaker was neutral for both the literal and ironic comment types.

In addition, forty simple black-and-white drawings were prepared which illustrated the situations depicted in the stimuli.³¹¹ These were created with a view to minimising working memory demands.

5.3.1.5. Final version of the stimuli: English version

All the experimental stimuli that ended up in the Sarcastic Irony Battery were translated into English by the author. Here, as it was impossible to make the target comments as short as they were in the Polish version (6 words at maximum), care was taken to ensure that they were the shortest possible.

Subsequently, the translated stimuli were thoroughly checked by a professional translator and a cognitive scientist who had extensive research experience working with children and adolescents.

Next, a group of ten native speakers of English were asked to rate whether they considered the ironic stimuli to be ironic, and the literal ones – literal. They were also invited to share their comments and suggestions. The check was performed in order to make sure that the translations retained the salience of the original stimuli. Nine native speakers agreed to submit their responses, which they did. In some cases, the responses were accompanied by comments. Whenever it was deemed necessary, minor changes in the wording of the stimuli were applied so as to make the stimuli more natural, in line with the suggestions of the native speakers. A complete list of all stimuli is available in Appendix B, p. 388.

Finally, the English version of the Sarcastic Irony Battery was recorded by an adult male native speaker of English with a British accent. As was the case for the Polish version of the stimuli, the intonation of the speaker was neutral for both the literal and ironic comment types.

³¹¹ To see the illustrations, consult Appendix D, p. 394.

5.3.2. The “English and You” Questionnaire

To collect information regarding participants’ language background, a brief questionnaire was developed. The goal was to elicit information similar to that collected by LEAP-Q (Marian et al. 2007), including age and order of acquisition, language dominance, frequency and context of use and exposure, and language attainment; however, the questionnaire employed in the current research had to be easy to use with young children without their parents’ assistance. Hence, care was taken to ensure that all questions were short, simple, and easy to understand, even by the youngest participants. The Questionnaire is available in Appendix C, p. 393.

The first section of the questionnaire collected participants’ basic demographic data (age, date of birth, gender, city of residence, school and class attended). What followed was a set of eight questions whose goal was to probe the nature of participants’ contact with the English language.

Question 1 collected general information about the languages spoken by participants and the respective ages of their acquisition. Participants were asked to list all the languages they spoke and to specify how old they were when they started learning each language. Questions 2 and 3 gathered data about participants’ language dominance. In Question 2, participants were asked to write the language in which they:

- Think;
- Count;
- Dream;
- Communicate most frequently.

These data were complemented by answers to Question 3, in which participants were supposed to specify in which language they find it easiest to communicate. Here, the following options were available:

- Polish;
- English;
- It does not make a difference/does not matter to me;
- Another language (please, specify which).

Questions 4 and 5 looked into participants' early contact and experiences with the English language. Question 4 asked participants to provide information about the place where their contact with English started. They had three options to choose from:

- At home – I have known the language since early childhood;
- In kindergarten;
- At school.

In Question 5, participants were asked whether they had lived in an English-speaking country. The possible answers were:

- Yes (specify how old you were then, how long you lived there, and where it was);
- No.

Questions 6 and 7 were together concerned with participants' current contact with the English language. Question 6 collected information about the frequency of this contact. The possibilities to choose from were the following:

- Every day;
- Every second day;
- Two times a week.

Question 7 supplemented the information provided in Question 6, and asked about the places in which participants currently had contact with English. This was the only multiple-choice question in which participants were allowed to select more than one of the available responses; these were:

- At home, talking to my family;
- On the Internet (reading and watching films);
- At school, in English classes;
- In extracurricular classes;
- Other (please, specify).

The final – eighth – question aimed to collect very general information about the level of participants’ command of English. As some of the participants were young, they were not able to provide an accurate description of their language proficiency. Hence, Question 8 only asked them to provide the title of their English coursebook and write the grades they typically received in their English classes. The purpose of Question 8 was to allow identifying the level of each of the coursebooks in accordance with the Common European Framework of Reference for Languages (Council of Europe 2001).

Importantly, the “English and You” Questionnaire was to be administered to participants both in the bilingual and monolingual groups. The reason behind this decision was that – as has been the case with the majority of earlier research comparing monolinguals with bilinguals – the monolinguals in the current study were not monolingual in the strictest sense of the word.³¹² Previous research differed with regard to how it addressed this issue. For instance, Gollan and Acenas (2004) advise against “[i]nvesting (...) effort to recruit pure monolinguals”, as “such individuals may differ from the bilinguals tested in systematic ways” (Gollan and Acenas 2004: 249). The researchers point out that “individuals with no exposure to another language may include those who purposefully avoided language study”, which in turn could be indicative of “the presence of a subtle or even obvious cognitive disadvantage or deficit” (Gollan and Acenas 2004: 249). In contrast to the approach taken by Gollan and Acenas (2004), some scholars did not raise the issue of how monolingual the members of their monolingual groups actually were; such authors simply made no mention of the linguistic background of the monolinguals.³¹³ The researchers who, on the other hand, made an explicit acknowledgement of this possible problem, either spelled out the specific selection criteria by means of which they assigned participants to a monolingual group³¹⁴, collected more or less detailed information about the degree of con-

³¹² The reason for this is that it is very difficult, if not impossible, to find participants that would be purely monolingual – i.e. having absolutely no knowledge of a foreign language. A similar point has been made by Kang (2012), who investigated phonological awareness in Korean monolingual and Korean-English bilingual children. Describing the participants of her study, the author notes that “because of the general trend in Korean early education, it is almost impossible to find monolingual Korean children who have no English exposure these days” (Kang 2012: 417).

³¹³ A case in point is the research by Okanda and colleagues (2010), who explored the link between language and cognitive shifting in mono- and bilingual children. The only piece of information that these authors give about the linguistic profile of the monolingual group is that these children “spoke Japanese as their first language” (Okanda et al. 2010: 71).

³¹⁴ The research by Kang (2012) is an example. The author writes that the children who were labelled as monolingual in her study “receive[d] limited English exposure (from a Korean-speaking teacher) but [could

tact/familiarity that the monolinguals had with any foreign language³¹⁵, or did both of these³¹⁶ – an approach that will be pursued in the current study. Data obtained from the “English and You” Questionnaire will be instrumental in obtaining the language profiles of the mono- and bilingual participants of the current research. They will also serve as an important basis for the creation of exclusion criteria from participant groups.

5.4. Participants

256 participants took part in the study. They were divided into three age groups. Three exclusion criteria were established for the monolingual participants. The first was failing to provide a complete answer to Question 2 of the “English and You” Questionnaire; the question was meant as a major measure of participants’ language dominance. The second exclusion criterion, which was also indexed by responses to Question 2, was participants’ declaring that they thought predominantly in English. The third exclusion criterion was failing to respond to all the ironic speaker attitude questions on the Sarcastic Irony Battery. Data provided by monolinguals meeting any of these three criteria were excluded from further analysis.

For students who were not old enough to give informed consent to participate in the study, parental consent was obtained either directly, or via school authorities.

Below, detailed information will be presented concerning each of the three age groups.

not] yet converse or read in English”; she also notes that “none of these monolingual children could speak English beyond one-word level or decode English words yet” (Kang 2012: 417).

³¹⁵ An example is the study by Gollan and Silverberg (2001), whose monolingual participants filled out a self-rating scale, on which they rated their fluency in a second language. The scale ranged from 0, which indicated “no knowledge of a second language whatsoever”, to 6, which stood for “being a fluent speaker of a second language” (Gollan and Silverberg 2001: 67). The authors report that no rating was above a 2. A similar procedure was employed by Gollan and Acenas (2004), whose participants filled out “a language history questionnaire in which they estimated their daily use of Spanish (for bilinguals) or some language other than English (for monolinguals) and their proficiency level in each language on a scale of 1–7 with 1 being *little to no knowledge* and 7 being *like a native speaker*” (Gollan and Acenas 2004: 249).

³¹⁶ Among the examples here are the studies by Carlson and Meltzoff (2008) and by Barac and colleagues (2016).

5.4.1. Group 1: Younger children

The first group comprised children between 6 and 8 years old. 19 children in this group were monolingual (age range: 6.5-9), and 34 were bilingual (age range: 6-8), as depicted in Table 1.

Table 1. Basic demographic data for Group 1.

	Group 1: younger children	
	monolinguals	bilinguals
N	19	34
Girls	10	19
Boys	9	15
Age range	6.5-9	6-8

The monolinguals were students of grades 1 and 2 at Primary School number 36, located in Poznań. All monolinguals received education in Polish. They were not pure uncontaminated monolinguals, as – in accordance with the Polish core curriculum – all children receiving primary education have to attend foreign language lessons at school. However, all participants reported Polish as the only language in which they thought.

The bilingual participants attended the International School of Poznań, where they attended grades G-1 and G-2. They received all education in the English language, with the exception of one hour of Polish a week.

5.4.2. Group 2: Older children

The second group comprised children between 10 and 12 years old. 30 children in this group were monolingual (age range: 9-12), and 27 were bilingual (age range: 10-12), as can be seen in Table 2.

Table 2. Basic demographic data for Group 2.

	Group 2: older children	
	monolinguals	bilinguals
N	30	26
Girls	15*	9
Boys	14*	17
Age range	9-12	10-12

* One participant did not provide data on gender.

The monolinguals were students of grades 4 and 5 at Primary School number 21, Primary School number 23, and Primary School number 36, all of which are located in Poznań. All the monolinguals received education in Polish. As was the case with the younger monolinguals, the older monolingual children also were not pure uncontaminated monolinguals, as regulated by the Polish core curriculum, according to which all children have to attend foreign language classes at school. All the older monolingual children reported that Polish was the only language in which they thought.

All bilingual participants belonging to this age group attended the International School of Poznań, where they attended grades G-5 and G-6. One participant attended grade G-4, but she was the same age as her peers attending G-5. For the bilingual students, English was the language of school instruction.

5.4.3. Group 3: Teenagers

The third group comprised teenagers between 14 and 16 years old. Initially, there were 91 monolinguals in this age group, but data from 10 participants had to be discarded, as they met two or all of the exclusion criteria. Thus, as is depicted in Table 3, data from 81 monolinguals (age range: 13-16), and 55 bilinguals (age range: 14-16) were used in the analyses.

Table 3. Basic demographic data for Group 3.

	Group 3: teenagers	
	monolinguals	bilinguals
N	81	55
Girls	48	35
Boys	33	20
Age range	13-16	14-16

The monolinguals were students of grades 1, 2 and 3 at Junior High School number 43, and Junior High School number 63 in Poznań. The monolinguals received education in Polish, but attended foreign language classes at school, as required by the Polish core curriculum. All participants reported Polish as the only language in which they thought.

The bilingual participants belonging to this age group attended grades 2 and 3 of the junior high programme at the International School of Poznań, and grade 2 at Junior High School number 58. The bilingual students all received instruction in English for at least one

course in the area of humanities, and at least one course in the area of science. Moreover, their school programme comprised 5 hours of English at minimum.

5.5. Procedure

For each age group, all participants were first familiarised with a cover story, according to which the purpose of the research was to study communication. No mention of irony was made. Subsequently, instructions were read out loud specifying the procedure: participants were first to hear a scenario, after which they were supposed to provide answers to four questions. Finally, they were reassured that there were no good or bad answers. Next, an example scenario was presented and analysed together.

The younger children were tested individually, in as many sessions as was required. The children were free to take as much time as they needed, and to stop at any time they wanted. Visual prompts were used to lower working memory demands. The older children and the teenagers were tested in groups, in single sessions of approximately 40 minutes, with no interruptions.

5.6. Aspect 1: Recognition of speaker belief

The first part of the study constituting the focal part of the current dissertation looked at participants' recognition of ironic speaker's belief. This issue has been explored quantitatively using Mann-Whitney U tests, one for each age group.

5.6.1. Research aims

The goal of this part of the study was to look into participants' ability to correctly recognise the ironic speaker's belief – a task that monolingual literature has identified as an important first step towards acquiring the ability to understand ironic utterances (Aguert et al. 2017; Glenwright and Pexman 2010; Nilsen et al. 2011; Pexman 2008; Pexman and Glenwright 2007). The key issue here was to compare the performance of bilingual participants with

that of their monolingual peers and to check whether a bilingual advantage would be obtained. As speaker belief recognition is, in essence, a task tapping mentalising skills (Glenwright and Pexman 2010), and given that these have an established developmental trajectory (Westby and Robinson 2014), the study sought to investigate ironic speaker belief recognition in participants belonging to three age groups and to check whether differences would obtain between the mono- and bilinguals in any of these groups.

Research has found that children learn to attribute first-order mental states between the ages of four and five (Glenwright and Pexman 2010), and that their performance on tasks testing ToM abilities is at ceiling over the age of five (Wellman et al. 2001; Liddle and Nettle 2006: 232). Westby and Robinson (2014: 365) note that it is “[d]uring the toddler and preschool years [that] children (...) develop the social-cognitive and language skills that are associated with passing false belief tasks.” On the other hand, ample findings are available demonstrating that children begin to notice the discrepancy between what an ironic speaker says and believes when they are around six years of age (Ackerman 1983; Andrews et al. 1986; Winner and Leekam 1991; de Groot et al. 1995; Dews et al. 1996; Hancock et al. 2000; Nakassis and Snedeker 2002; Harris and Pexman 2003; Pexman and Glenwright 2007; Pexman 2008; Glenwright and Pexman 2010; Nilsen et al. 2011). Given all of the above, it is hypothesised that bilingual children will outperform their monolingual peers only in the youngest age group – that is, between the ages of 6 and 8. For the two remaining age groups, it is hypothesised that mono- and bilinguals’ performance on recognising the ironic speaker’s belief will not differ significantly.

5.6.2. Data analysis

For this part of the study, participants’ responses to the context comprehension and speaker belief question were analysed together. A participant was credited with having correctly recognised speaker belief whenever he or she provided correct answers to both these questions. As parametric assumptions were not met, the non-parametric counterpart of an independent groups t-test was selected (Sani and Todman 2006). Thus, a Mann-Whitney U test was run to determine if there were differences in speaker belief recognition between mono- and bilingual participants in the three age groups. The results are reported below.

5.6.3. Results

5.6.3.1. Group 1

A Mann-Whitney U test indicated that speaker belief recognition scores of mono- (Mdn = 19) and bilingual children (Mdn = 19) were not statistically significantly different, $U = 288.5$, $z = -.665$, $p = .506$.

5.6.3.2. Group 2

A Mann-Whitney U test indicated that speaker belief recognition scores of mono- (Mdn = 20) and bilinguals (Mdn = 20) in Group 2 were not statistically significantly different, $U = 400.5$, $z = -.078$, $p = .938$.

5.6.3.3. Group 3

Similar to the results obtained for the previous two age groups, a Mann-Whitney U test indicated that speaker belief recognition scores of mono- (Mdn = 20) and bilingual teenagers (Mdn = 20) were not statistically significantly different, $U = 2175$, $z = -.263$, $p = .793$.

5.6.4. Discussion

Contrary to what was hypothesised, bilingual children aged between 6 and 8 did not outperform their monolingual peers on the task requiring them to recognise ironic speaker belief. Both the monolingual and bilingual participants reached high scores on this task, which could be taken to indicate that by the age of 7 or 8, the ability to correctly recognise ironic speaker's belief is developed, regardless of the language status. Also, as was hypothesised, no performance difference was found between monolingual and bilingual participants aged between 10 and 12, as well as between those aged between 14 and 16.

These findings are in line with those of prior research. Antoniou et al. (2020: 188) note that “bilingual benefits have been most consistently reported for preschool-aged children.” Indeed, Goetz (2003) found a bilingual advantage on ToM tasks in children aged between three and four. Similar results were later obtained by Farhadian et al. (2010), who found that bilingual pre-schoolers aged between 43 to 66 months significantly outperformed their monolingual peers on tasks tapping ToM. In these authors’ study, “over and above age and verbal ability, language status predicted ToM development significantly” (Farhadian et al. 2010: 44). Dahlgren et al. (2017), on the other hand, found no difference between mono- and bilingual children in their performance on ToM tasks. Similarly to Farhadian et al. (2010), these authors, too, worked with very young children; the range here was between two and five years. It needs to be noted, though, that none of these studies tested recognition of ironic speaker’s belief or mental state, but only looked at ToM – an ability that is related to the former, and actually necessary for it to develop (Pexman and Glenwright 2010), but by no means identical with it. Indeed, little research has been conducted that compared bilingual children’s recognition of ironic speaker belief with that of their monolingual peers’. On the other hand, related studies offer valuable insights into the problem.

A relevant point has been made by Antoniou et al. (2020), who were looking for a bilingual or bi-dialectal advantage for processing multiple pragmatic meanings and obtained null results with children aged between 10 and 12. These authors point to a possibility that “a bilingual advantage in older children is found only when using very demanding tasks” Antoniou et al. (2020: 188). The authors’ explanation here is that such children may already have reached “an advance level of cognitive development”, which in turn could make it more difficult to detect “any bilingual advantages” (Antoniou et al. 2020: 188).

Studies conducted with monolingual children also offer interesting insights. Banasik et al. (2020: 1) recently reported that they found “[n]o differences (...) in ToM scores between proficient and non-proficient irony comprehenders.” Given the above and taking into account reports of monolingual five-year-olds’ performance on ToM tasks being at ceiling level (Wellman et al. 2001; Liddle and Nettle 2006), the current findings come as less of a surprise – even if we acknowledge that speaker belief recognition does entail more advanced mentalising ability than do classical ToM tasks.

5.7. Aspect 2: Recognition of speaker intention

The second part of the current study was devoted to examining mono- and bilingual children's recognition of ironic speaker's intention. As has been the case with speaker belief, this problem, too, has been addressed from a quantitative perspective. Below, detailed information as to the aims and method of this part of the study will be given. Next, the results of three statistical analyses (two-way mixed ANOVAs, one for each age group) will be presented and followed by a discussion of the findings in the light of the relevant literature.

5.7.1. Research aims

The goal of this part of the study was to look for potential differences in recognition of ironic speaker intention in mono- and bilingual children belonging to three age groups. Importantly, the study sought to investigate not only the effects of the language status, but also of the ironic utterance type. Five categories of ironic statements were looked at: assertives, directives, commissives, expressives, and declaratives. In this study, along with what has been the case with seminal monolingual research on irony comprehension (e.g. Glenwright and Pexman 2010), correct recognition of ironic intent is understood as being synonymous with having understood an ironic utterance. What this means is that when children are able to attribute ironic intent, they can recognise the actual pragmatic purpose that the ironic speaker had in mind while uttering a certain speech act. Glenwright and Pexman's (2010: 429) findings demonstrate that this ability does not develop "until later in middle childhood." Research conducted in the monolingual context actually demonstrates that to attribute speaker intent correctly is the major challenge children face when making sense of ironic utterances (Filippova and Astington 2008). Pexman et al. (2019: 2) point out that some "aspects of irony comprehension are still developing into adolescence." Given such a protracted developmental path of irony comprehension skills, a bilingual advantage is not expected in the youngest participant group. However, it is hypothesised that bilingual participants will outperform their monolingual peers on ironic intent recognition in the older children and in the teenage group.

5.7.2. Data analysis

For this part of the study, participants' responses to the context comprehension, speaker belief, and speaker intent question were analysed together. A participant was credited with having correctly recognised speaker intention whenever he or she provided correct answers to all three questions. The correct response to the speaker intent question was that the speaker "wasn't speaking seriously."

Three patterns of incorrect recognition of ironic intent were possible. When a participant correctly recognised speaker belief, but chose that the speaker meant to deceive the hearer as the response to the speaker intent question, then the irony was misunderstood as a lie. When a participant correctly recognised speaker belief, but chose that the speaker made a mistake as the response to the speaker intent question, then the irony was misunderstood as a slip of the tongue. Finally, when a participant incorrectly recognised speaker belief, and chose that the speaker made a mistake as the response to the speaker intent question, then the irony was misunderstood as a mistake on the part of the speaker.

For each of the three age groups, a 2 (language status: monolingual, bilingual) x 5 (speech act type: assertive, directive, commissive, expressive, declarative) mixed ANOVA was run to determine if there were differences in speaker intent recognition between mono- and bilingual children for the five speech act types. Language status was a between-subjects variable while speech act type a within-subjects variable.

5.7.3. Results

In the following sections, results of three statistical analyses that have been performed on intent recognition data will be reported. Results obtained with each of the three age groups will be presented separately.

5.7.3.1. Group 1

No main effect of speech act type was found $F(4, 204) = 2.062, p = .087$, partial $\eta^2 = .039$. The main effect of language status was insignificant as well, $F(1, 51) = .110, p = .742$, par-

tial $\eta^2 = .002$. There was no statistically significant interaction between participants' language status and speech act type, $F(4, 204) = 1.240$, $p = .295$, partial $\eta^2 = .024$.

As can be seen in Fig. 1, mono- and bilingual children performed equally well on ironic intention recognition in ironies expressed by the five speech act types.

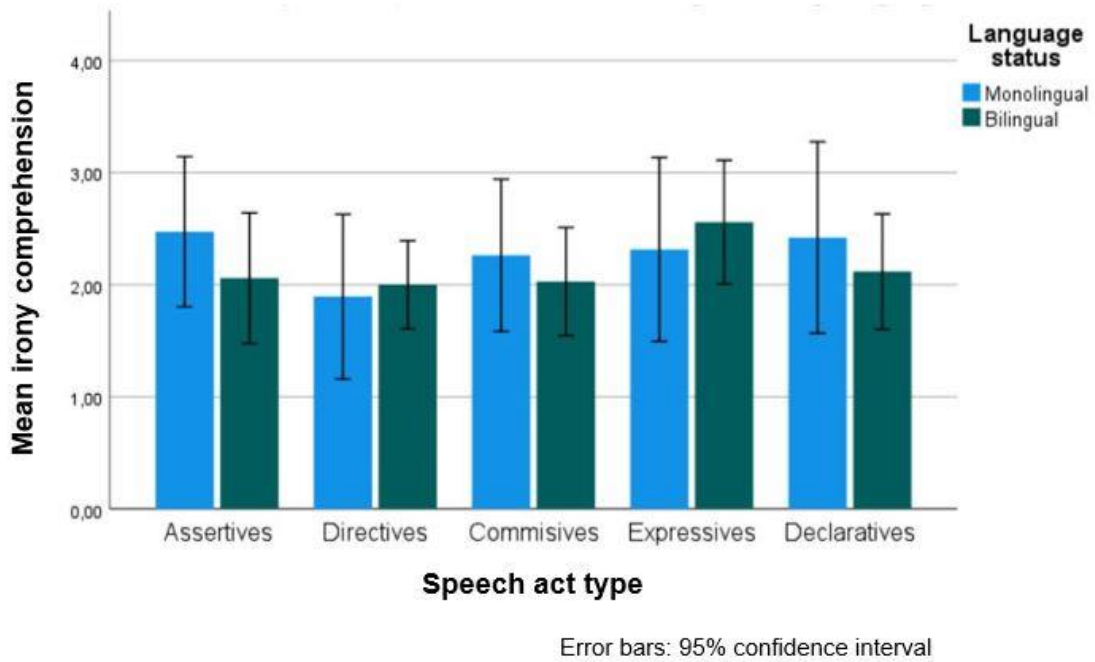


Fig. 1. Younger children: Mean intent recognition scores by language status for the five speech act types.

5.7.3.2. Group 2

The main effect of speech act type turned out statistically significant, $F(4, 220) = 2.753$, $p < .05$, partial $\eta^2 = .048$. As can be seen in Fig. 2, irony comprehension was statistically significantly higher for expressives than for commissives ($M = 0.407$, $SE = 0.121$, $p < .05$).

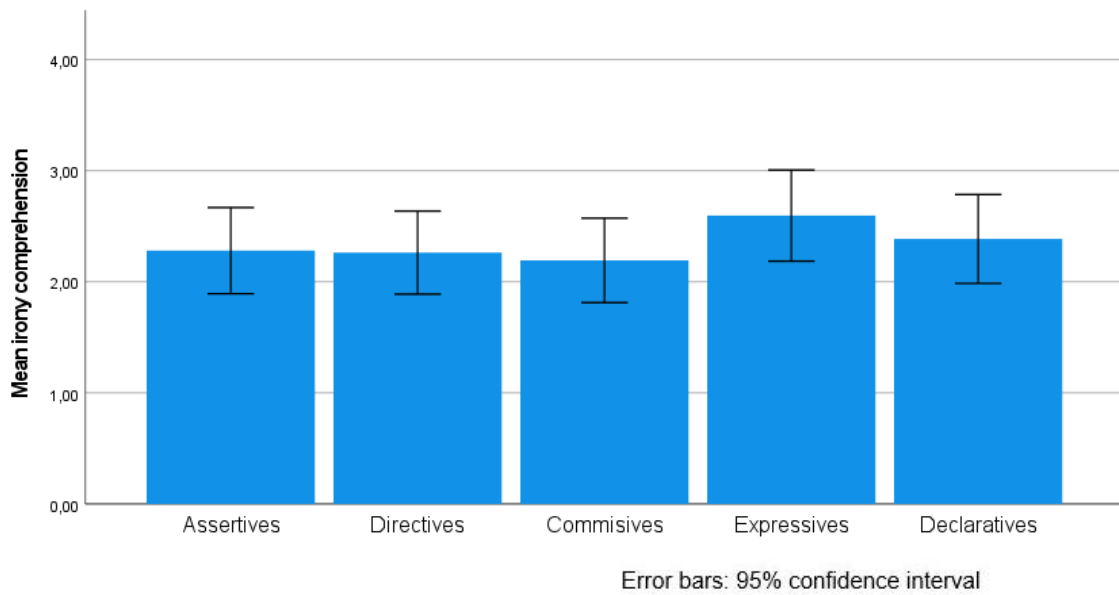


Fig. 2. Older children: Mean intent recognition scores by speech act type.

The main effect for language status was not significant, $F(1, 55) = .049, p = .825$, partial $\eta^2 = .001$. As shown in Fig. 3, the two-way interaction between language status and speech act type turned out insignificant as well, $F(4, 220) = .523, p = .719$, partial $\eta^2 = .009$.

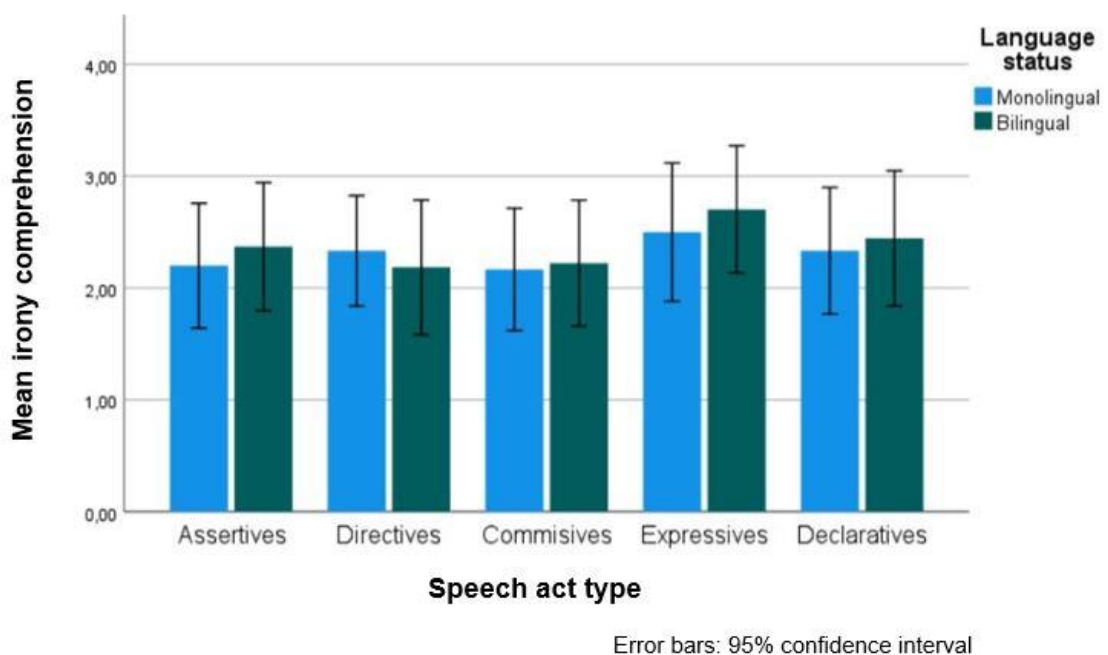


Fig. 3. Older children: Mean intent recognition scores by language status for the five speech act types.

5.7.3.3. Group 3

There was a statistically significant interaction between participants' language status and speech act type, $F(3.856, 516.658) = 2.540, p < .05$, partial $\eta^2 = .019$.

Given the significant interaction, effects of language status were compared across five categories of the within-subjects factor: assertives, directives, commissives, expressives, and declaratives. For all pairwise comparisons, data are mean \pm standard error, unless otherwise stated.

There was a statistically significant difference in irony comprehension between mono- and bilinguals for assertives, $F(1, 134) = 9.375, p < .01$, partial $\eta^2 = .065$. As shown in Fig. 4, irony comprehension was statistically significantly greater in the bilingual ($0.738 \pm 0.241, p < .01$) than the monolingual group.

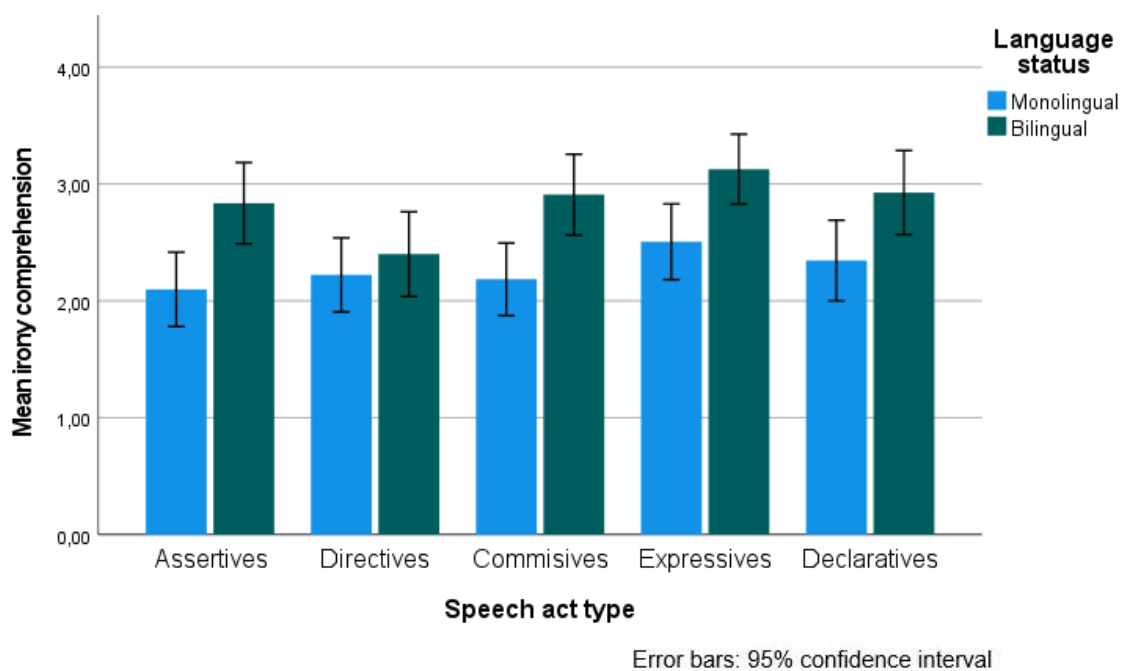


Fig. 4. Teenagers: Mean intent recognition scores by language status for the five speech act types.

There was a statistically significant difference in irony comprehension between mono- and bilinguals for commissives, $F(1, 134) = 9.322, p < .01$, partial $\eta^2 = .065$. As depicted in Fig. 4, irony comprehension was statistically significantly greater in the bilingual ($0.724 \pm 0.237, p < .01$) than the monolingual group.

There was a statistically significant difference in irony comprehension between mono- and bilinguals for expressives, $F(1, 134) = 7.104, p < .01$, partial $\eta^2 = .050$. As can be seen in Fig. 4, irony comprehension was statistically significantly greater in the bilingual ($0.621 \pm 0.233, p < .01$) than the monolingual group.

There was a statistically significant difference in irony comprehension between mono- and bilinguals for declaratives, $F(1, 134) = 5.119, p < .05$, partial $\eta^2 = .037$. Fig. 4 demonstrates that irony comprehension was statistically significantly greater in the bilingual ($0.582 \pm 0.257, p < .05$) than the monolingual group.

No difference was found in irony comprehension between mono- and bilinguals for directives, $F(1, 134) = .531, p = .467$, partial $\eta^2 = .004$.

Subsequently, effects of speech act type were compared across two categories of the between-subjects factor: the mono- and bilingual group. For all pairwise comparisons, data are mean \pm standard error, unless otherwise stated.

In the monolingual group, there was a statistically significant effect of speech act type, $F(4, 320) = 2.691, p < .05$, partial $\eta^2 = .033$. As shown in Fig. 5, irony comprehension was statistically significantly higher for expressives than for assertives ($M = 0.407, SE = 0.134, p < .05$).

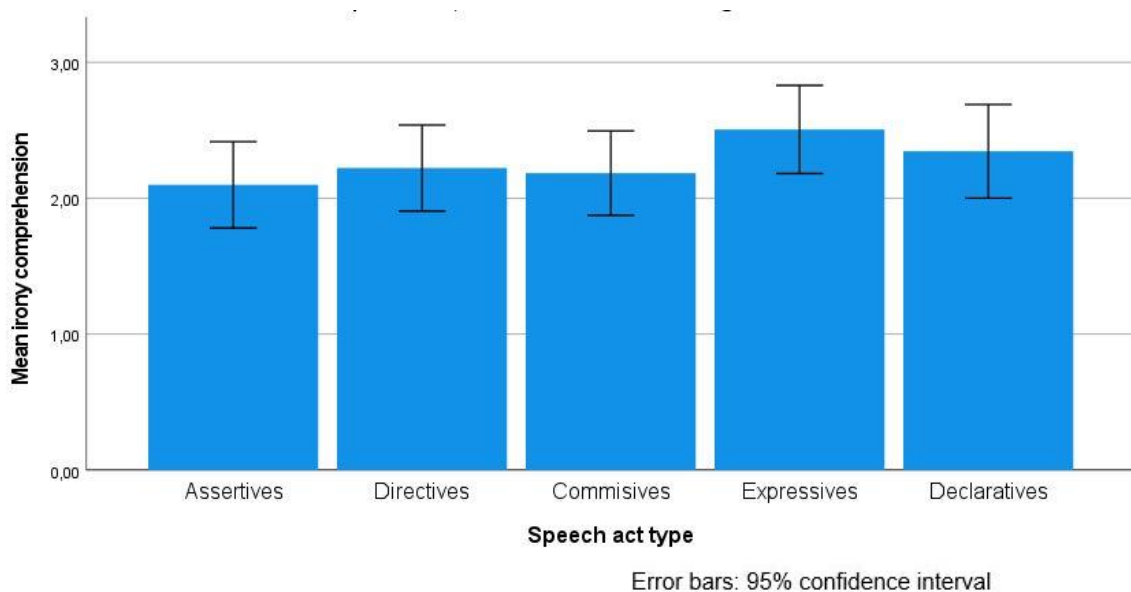


Fig. 5. Monolingual teenagers: Mean intent recognition scores by speech act type.

In the bilingual group, there was a statistically significant effect of speech act type on irony comprehension, $F(3.687, 199.075) = 7.230, p < .001$, partial $\eta^2 = .118$. As depict-

ed in Fig. 6, irony comprehension was statistically significantly lower for directives than for commissives ($M = 0.509$, $SE = 0.153$, $p < .05$), for directives than for expressives ($M = 0.727$, $SE = 0.161$, $p < .001$), and for directives than for declaratives ($M = 0.527$, $SE = 0.160$, $p < .05$).

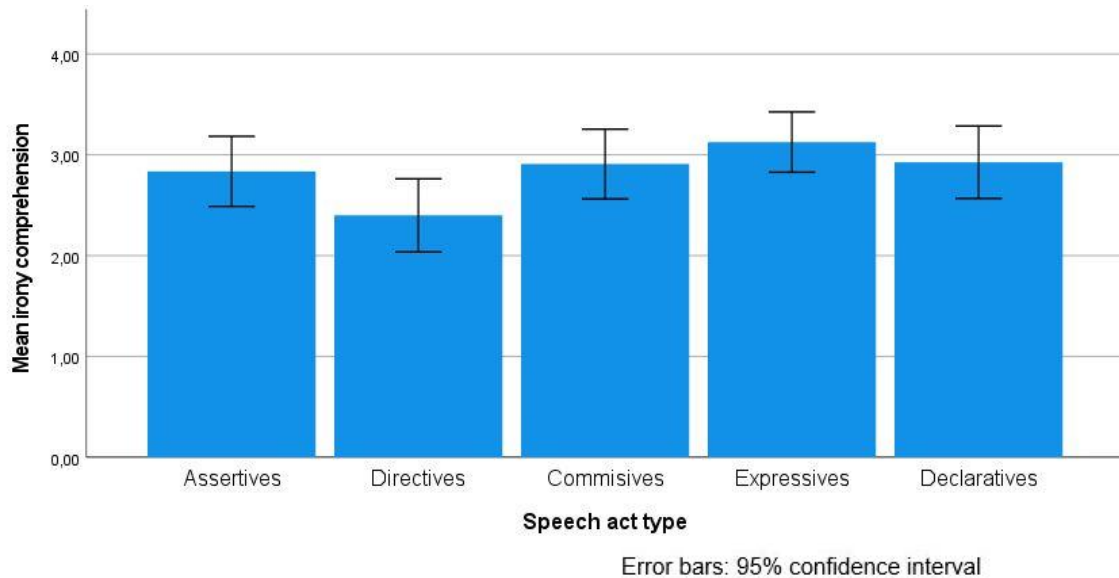


Fig. 6. Bilingual teenagers: Mean intent recognition scores by speech act type.

5.7.4. Discussion

The task compared how mono- and bilingual children belonging to three age groups differ in their comprehension of ironic utterances as expressed by five speech act types. In the task, comprehension was indexed by children correctly recognising ironic speaker intent.

In line with what was hypothesised, no differences were found between the performances of mono- and bilinguals belonging to the youngest group. The bilinguals ($M = 2.153$, $SE = 0.218$) actually scored slightly lower than the monolinguals ($M = 2.274$, $SE = 0.292$), but this result was not significant ($p = .742$). The task proved quite demanding for both participant groups, as out of 20 ironic items in total, their mean accuracies approximated 11. This aligns with the findings of Nicholson et al. (2013), whose 8-year-old participants' performance on ironic intent recognition was at chance level. The low performance of the 6- to 8-year-olds on speaker intent recognition in the current study cannot have been due to task demands, as the mono- and bilinguals were almost at ceiling in the control lit-

eral scenarios, with mean performances reaching at least 19 for both groups. These results indicate that – contrary to what has been the case for speaker belief recognition – the abilities required for correctly understanding the intent of an ironic speaker are still in their development in mono- and bilingual children aged between 6 and 8 years. It seems, indeed, that children experience difficulty understanding irony “well into the school years” (Köder and Falkum 2021: 1).

The null results concerning a bilingual advantage for irony comprehension that have been obtained in the youngest group are also in line with the findings of Antoniou and Katsos (2017), who compared multilingual, bi-dialectal, and monolingual children’s understanding of different types of implicature. These authors’ stimuli included scalar, relevance, manner implicatures, as well as novel metaphors, all of which are challenging to understand. The results demonstrated that “[d]espite lower scores in language ability in the target language, multilingual and bilingual children performed at rates comparable to the monolinguals” (Antoniou and Katsos 2017: 787). Importantly, these findings were obtained with children aged between 6 and 9, which is roughly the same age as that of the youngest participants of the current study. Given that irony is claimed to be “the most difficult and late-developing pragmatic meaning for children” (Antoniou et al. 2020: 188) and taking into account the comparable performance of Antoniou and Katsos’ (2017) mono- and multilingual participants on less challenging pragmatic meanings, the current findings obtained with the youngest group do not come as a surprise. Aguert et al. (2017: 260) note that “young children do not perceive the communication situation as a whole, but rather give precedence to either the utterance or the context”; this is exactly what could have happened in the case of the 6- to 8-year-olds participating in the current study.

If we look at how well these participants performed on the different speech act types, expressives turned out to be the easiest, while directives – the most difficult speech act type. It needs to be pointed out, though, that none of the accuracy differences between the five speech act types reached statistical significance. We might speculate that the exceptionally explicit evaluation characteristic of the expressive could serve as a cue for irony comprehension, as it highlights ironic contrast (Pexman et al. 2019). Indeed, the incongruity between the actual state of affairs and the emotion expressed by the ironic speaker is particularly vivid in this speech act type – and previous research has postulated that “[i]ncongruity between a positive statement and a negative context is a cue to verbal irony” (Nilsen et al. 2011: 374). Facts of the situation and their appraisal expressed by the speaker

do stand in stark contrast in the expressive. And exaggeration, be it prosodic or lexical, has also been discussed in the relevant literature in terms of an ironic marker (Aguert et al. 2017).

Interesting results concerning expressives were obtained in the second age group, with participants between 10 and 12 years of age. Here, no interaction between language status and speech act type was found, but a main effect of speech act type was obtained, with expressives yielding significantly more correct responses than commissives. As has been proposed above, ironic expressives seem to be quite unique in that they offer a clue to irony comprehension. The mismatch between the actual situation and the emotion expressed by the speaker – a feature particular to the ironic expressive – is all the more evident in the case of this speech act. No such thing occurs for ironic commissive, which has the form of a commitment, and might therefore be taken to be an innocent offer, as implied by its surface form. This could be the reason for the difference in participants' performance on the two ironic speech act types.

The null results concerning a bilingual advantage for irony comprehension in the older group of children (10 to 12 years) are contrary to what was hypothesised. However, these results are in line with those obtained by Antoniou et al. (2020), who tested multilingual, bi-dialectal, and monolingual 10- to 12-year-old children's understanding and processing of a broad range of pragmatic meanings: "scalar, contrastive, manner implicatures, novel metaphors and irony" (Antoniou et al. 2020: 186). The authors point out that they chose to study children of this very age for several reasons, one of them being that prior research has found "pragmatic meanings such as irony (...) to develop until late in childhood" (Antoniou et al. 2020: 189). They also wanted the participants to be "old and competent enough to understand the pragmatic meanings examined" (Antoniou et al. 2020: 189). The findings demonstrated that, in general, the children were "least accurate with metaphors and irony", and that these two figures of speech "were also the most difficult to process", as pragmatic responses for those meanings proved slower than literal responses to the same target stimuli (Antoniou et al. 2020: 186). In the current study, irony comprehension also posed difficulty to participants – mean performance was slightly over 11 (for a total of 20 stimuli), which is only slightly higher than chance level. However, on closer examination of the data, it was found that the children tended to provide either many accurate, or many inaccurate responses – a phenomenon similar to that observed by Nicholson et al. (2013), yet here obtained with older participants (the children in Nicholson et al.'s

(2013) study were 8- and 9-year-olds). Nicholson et al. (2013) take that such a pattern of results to indicate that “some children” belonging to the age group studied “are able to appreciate ironic language”, which, in turn, suggests “that this age group, in which children seem to be on the cusp of irony appreciation (...) is suitable for (...) investigation of irony processing” (Nicholson et al. 2013: 7). Viewed in this light, the current findings would point to the age range 10 to 12 as the one when children are on the brink of truly appreciating ironic meanings. As has been discussed above, this is very much in line with what Antoniou et al. (2020) postulated about the competencies of children belonging to this age group.

Coming back to the topic of the potential effects of language status on irony comprehension, the current study – similarly to Antoniou et al. (2020) – did not find any of these for children aged between 10 and 12 years. Antoniou et al. (2020: 186) report that they “found no bilingual or bi-dialectal advantage over monolinguals in pragmatic responses or speed of pragmatic processing”, and hence “conclude that bilingual children demonstrate monolingual-like pragmatic interpretation.”

The most interesting results that the current study has yielded concerning ironic intent recognition are those obtained in the teenage group, that is with participants aged between 14 and 16 years. Here, in line with what was hypothesised, a significant interaction was found between participants’ language status and speech act type. Bilingual participants significantly outperformed their monolingual peers on all speech act types except directives. This is a very interesting finding and one that necessitates a closer look at ironic directives.

Directives are defined as “attempts by a speaker to get a hearer to do something” (Fitch 2008: 1326). Brown and Levinson’s (1987) Politeness Theory points to an interesting property that is characteristic of almost all directive speech acts, be it orders or requests: they share an underlying face threat. The idea here is that “the speaker (S) does not intend to avoid impeding [the hearer’s] H’s freedom of action” (Brown and Levinson’s 1987: 65). Fitch (2008: 1327) points out that “[t]he presumed face threat inherent in directives creates in many cases a social need to mitigate such threats.” This is not least because “[d]irectives claim an entitlement to control the actions of the recipient” (Kent 2012: 58). They are, indeed, “a highly assertive and invasive social action” (Kent 2012: 58).

The picture becomes all the more interesting when one takes into account teenagers’ experiences with directives. One might speculate that many, if not most of these experienc-

es, stem from the “cultural assumption that parents should be able to expect compliance from their children in a way they would not from other adults” (Kent 2012: 58). Kent (2012: 58), in her analysis of children’s options for reacting to parental directives, gives just two possibilities: “[w]hen faced with a directive from a parent, children can comply (and accept their parent’s right to control them) or resist the directive, challenge their parent’s authority and dispute the legitimacy of the directive.” Neither of these are pleasant experiences. Kent (2012: 57) reports that “[i]t is very difficult for children to resist parental directives without initiating a dispute.” She further points out that “the directive does not make acceptance relevant as a next action; it makes relevant compliance” (Kent 2012: 60). Hence, it may be assumed that even experiences with peer-to-peer directives, such as those employed in the current study stimuli, are not emotionally neutral. And indeed, Gordon and Grant (1997: 16f.), who asked young people to “list three things that make [them] unhappy”, report such responses as “people putting pressure on me”, and “people taking my freedom away.” Other answers include “being told what to do” and “not getting their own way” (Gordon and Grant 1997: 17). Thus, directives may indeed be entwined with a certain level of negativity. Negative mood, in turn, has repeatedly been “strongly associated with extended inhibition of cognitive mechanisms engaged in information processing” (Naranowicz et al. 2023: 52).

Ironic directives, such as those employed in the current study, seem to be particularly negative. Ironic criticism as such does not invoke positive associations, and ironic criticism conveyed via the obtrusive declarative might be viewed as all the more painful.³¹⁷ Thus, the negative mood associated with ironic directives might have added to the processing complexity of these utterances.

Another reason why ironic directives are more challenging than other ironic speech acts is that they are not a prototypical form of irony, as is the case with assertives (Kumon-Nakamura et al. 2007). Moreover, they typically do not begin with a performative verb or contain a clichéd formula, as do declaratives, which could act as a signal that a figurative or jocular meaning follows.³¹⁸ Neither do they provide an explicit clue that would focalise the ironic contrast between the actual state of affairs and its appraisal, as is the case with expressives. What they require, in contrast, is an extra step that the hearer needs to take,

³¹⁷ Analysis of participants’ perceptions of attitudes expressed by ironic directives has substantiated this claim.

³¹⁸ A good example here would be “I declare you...”.

which is to reject the surface form of an order, and understand the utterance in terms of a critical evaluation. In this respect, directives are similar to commissives; the latter, however, have the surface form of a proposal or offer, and hence are not associated with a face threat. This, in turn, may make them easier to process.

Further interesting findings were obtained from analysis of simple main effects of speech act. In the bilingual group, participants performed significantly worse on directives than they did on commissives, expressives, and declaratives. Here, in line with what has been discussed above, commissives are claimed to be easier than directives, as they do not constitute “actions through which the speaker can assert control or authority over the recipient” (Kent 2012: 60), as do directives, and hence are not loaded with such negative connotations. The ease of expressives, in turn, stems from the overt manifestation of an emotional reaction that stands in stark contrast to facts of the situation, which acts as a clear cue signalling irony (Nilsen et al. 2011; Pexman et al. 2019). A similar cue is available in the case of declaratives, which typically entail “a performative verb in the first person present indicative active”, or employ “*ad hoc* conventional formulas” (Sbisà 2013: 69), which may signal that a non-literal meaning is going to follow.

Another interesting finding was obtained in the monolingual group. Here, expressives were found to be significantly easier than assertives. This is interesting, as it is assertives that “have been the focus of virtually all prior studies of irony and have generally been considered prototypical of ironic utterances” (Kumon-Nakamura et al. 2007: 66). It could be the case, however, that the notion of assertives being the prototypical ironic speech act is actually an artifact stemming from the fact that scholars have tended to employ them as experimental stimuli in virtually all studies on irony. The prevalence of assertives in irony research does not have to translate into their prevalence as the most widely used and recognised form of irony as indexed by actual language use.

The findings obtained in the monolingual group are very much in line with the results of Kumon-Nakamura et al. (2007). These authors report interesting results of a pilot study in which they rated various utterance types on irony in order to obtain salient stimuli for one of their experiments. The utterance type which obtained the highest rating was expressives, and the one which obtained the lowest rating was directives. While these differences did not reach statistical significance, the authors themselves wonder why it was expressives, and not assertives – “the most prototypical form of irony” (Kumon-Nakamura et al. 2007: 66) – that received the highest mean irony rating. The explanation put forward

here is, again, that expressives provide a salient clue to irony comprehension: the manifestation of an explicit emotional response that is incompatible with facts of the situation alerts the hearer to the duality between what is said and implicated, which is the constitutive feature of irony (Bromberek-Dyzman 2015). This incongruity acts as a cue to verbal irony (Nilsen et al. 2011).

5.8. Aspect 3: Perception of ironic speaker attitude

The third – and final – part of the current study was devoted to examining participants' perceptions of ironic speaker attitude. In contrast to what has been the case with speaker belief and intention, this problem has been addressed from a qualitative perspective. The open-ended nature of the attitude question employed in the current study has made it possible to elicit a wide range of highly nuanced responses which, it is hoped, will provide new insights into what is currently known about children's perceptions of ironic speaker's attitude. The aims and method of this part of the study will be described. Subsequently, general results will be presented. The most interesting responses will be highlighted and examined in detail. A discussion of the obtained results will follow that will review them against the backdrop of prior research findings.

5.8.1. Research aims

The goal of the current analysis was to take a closer look at the attitudes that mono- and bilingual children of various ages assign to the ironic speaker. In the bilingual group, the key idea was to look into these attitudes as expressed by children performing the task in their first and second language.

This part of the study had an exploratory nature; the objective was to make sure that the participants were given the opportunity to share their feelings and evaluations of the ironic speaker's behaviour freely, and in a non-judgmental environment. This, it was believed, would invite them to provide true answers even if those might appear somewhat inappropriate, as when the ironist appears so rude that the participant would wish to use an offensive word.

Developmental studies into speaker attitude recognition conducted with monolingual populations have pointed to two major areas: irony's critical and humour functions. Consequently, responses highlighting these two aspects are expected to emerge in the current study. As recognition of the humour function has been shown to develop later than that of the critical function (Dews et al. 1996), it will be interesting to find whether participants belonging to the youngest age group would evaluate any of the ironic comments as funny. Another interesting question in this context is whether more nuanced or complex answers than the prototypical "mean" or "funny" will obtain, and, if so, in which age and language status groups they will emerge.

The final question is whether the responses provided by the bilinguals performing the task in their L2 will be less emotionally valenced, which would be in line with "the foreign-language-effect" (Keysar et al. 2012; Costa et al. 2014) and related earlier reports, according to which bilinguals experience emotions less strongly in their second language (Pavlenko 2006; Dewaele 2010). Given the exploratory character of the current research into ironic attitude recognition, it is hoped that the findings will shed new light on mono- and bilingual children's appreciation of ironic attitude.

5.8.2. Data analysis

For this part of the study, a qualitative analysis of participants' responses to the open-ended speaker attitude question was performed. The focus was on those responses that were given to correctly understood stimuli – i.e., those, to which participants correctly answered all three test questions (context comprehension, speaker belief recognition, and speaker intent recognition). However, situations in which a participant provided an intriguing or surprising response to a stimulus that was not correctly understood were analysed, too.

5.8.3. Findings

Below, an account will be given of participants' answers to the question probing speaker attitude perception. Whenever a response is discussed that was given to a misunderstood stimulus, a relevant annotation will be made.

Findings obtained from each age group will be presented separately. Within each age group, responses provided by the monolinguals will be presented first, followed by those provided by the bilinguals performing the task in Polish, and then by the bilinguals performing the task in English.

5.8.3.1. Group 1

This section presents responses provided by the youngest participants – those between 6 and 8 years of age. A list of all responses given to ironic stimuli in this group is available in Appendix E, p. 400.

A number of monolingual children belonging to this age group provided short answers that signalled that they viewed the ironic speaker's behaviour as unambiguously negative. Many described the ironist as “unpleasant”³¹⁹ (*niemiły*) and “not nice” (*niefajny*). Some responses were highly emotionally marked, such as “boor” (*cham*), or “disgusting, yuck” (*obleśny, a ble*). A few participants noted that the ironic speaker was “mean” (*wredny, złośliwy*) or “disagreeable” (*przykry*). One participant explicitly noted the ironicalness of the comments, and his responses were slightly more complex, such as “ironically unpleasant” (*ironicznie niemiła*). Interestingly, this boy pointed out the ironicalness quite frequently; however, only one such response – the one quoted above – was given to a stimulus that he actually understood, as indexed by correct recognition of both ironic speaker belief and intention. To illustrate, another similar response provided by the boy – that the speaker was “ironic, wanted to make him [the hearer] sad” (*ironiczna, chciała przykrość mu zrobić*) – was given to a stimulus where the boy incorrectly marked the speaker's intention as to deceive. A small number of respondents recognised the humour function of irony, as evidenced by responses such as “funny” (*śmieszny*), “joked intrusively” (*żartował wścibsko*), or “bad – not nice jokes” (*zła – niefajne żarty*). Thus, it seems that recognition of the humour function of irony does not preclude a negative evaluation of the ironist's behaviour. Few respondents judged the ironic attitude as unambiguously positive – as in “nice” (*miła*) or “friendly” (*przyjacielska*), or neutral, as in “normal” (*normalny*).

³¹⁹ All translations are mine, DJP.

Bilingual children who performed the task in Polish provided many responses that revealed their negative perception of irony, as in “unpleasant” (*niemiły*), and “not nice” (*niefajny*). Responses demonstrating highly negative evaluations, such as “nasty” (*paskudny*) were scarce. A few participants noted that the ironic speaker was “mean” (*wredny; złośliwy*). In some cases, the negative assessment was tempered by a quantifier, as in “a bit mean” (*trochę wredna*) or “a bit bad” (*trochę zły*). Along the same lines, a number of participants wrote that the ironist’s behaviour was “so-so” (*średni*), which indicates a mildly negative perception. Some responses demonstrated that participants recognised an element of the humour function of irony, but at the same time had some reservations as to the ironist’s comment, as in “not exactly funny” (*nie do końca zabawne*). Many respondents provided temperate assessments, such as “neutral” (*neutralne*) or “normal” (*normalny*), a more popular answer in this category.

Among bilingual children who performed the task in English, *mean*, *bad*, and *not nice* were very popular answers. Three participants described the ironist’s behaviour as *stupid* (including one whose response was *stupid mean*). The word *stupid* also appeared in responses of participants who failed to understand the ironic comment – there were two such instances: *stupid mistake*, and *stupid in a nice way*. One respondent wrote that the ironic speaker was *malicious*. A few responses highlight the funny side of irony, which may, but does not have to, go hand in hand with a positive evaluation – thus, answers such as *funny joke* and *good joke* are present alongside such answers as *bad joke* and *mean joke*. Three answers described the ironist as a liar – these were a *normal lie*, *nice lie*, and *nice lie – funny*; in all three cases, however, the children misunderstood the ironic intent as to deceive. Some responses described the ironic speaker as just *normal*.

5.8.3.2. Group 2

This section presents responses provided by the older children – those between 10 and 12 years of age. A list of all responses given to ironic stimuli in this group is available in Appendix F, p. 402.

In the monolingual group, a high number of responses revealed the children’s unambiguously negative perception of the ironist’s behaviour, as in “bad” (*zły*), “unpleasant” (*niemiły*), or “not nice” (*niefajny*). Some responses were emotionally marked, demonstrat-

ing highly negative evaluations – such as “boorish” (*chamski*). A number of respondents pointed to the malicious character of ironic comments, as evidenced by such responses as “mean” (*złośliwy; wredny*) or “terse” (*oschły*). One participant described the ironist as “mean – conceited” (*wredny – wymądrzały*). A few children described the ironist’s behaviour as “honest” (*szczery*). A number of responses highlighted the humour function of irony, as in “funny” (*zabawny*) and “playful” (*żartobliwy*). Responses demonstrating a positive perception of irony – such as “nice” (*miły*) – were scarce. Few participants noted that the ironic speaker was just “ironic” (*ironiczny*). A few respondents – despite having correctly recognised ironic intent – described the speaker’s behaviour as lying, as evidenced by such responses as “deceitful” (*kłamiwa*) or “lied” (*kłamał*). Two responses were nuanced and reflected the ambiguity inherent in irony; these were “nice/unpleasant” (*miła/niemila*), and “bad but told the truth” (*zły ale powiedział prawdę*).

Many of the responses provided by the bilinguals who performed the task in Polish explicitly labelled the ironic utterance as “sarcastic” (*sarkastyczny*) or “ironic” (*ironiczny*). Many responses were negative, as in “unpleasant” (*niemila*) and “mean” (*wredny*), or very negative, as in “boorish” (*chamski*), “stupid” (*głupi*), or “terrible” (*okropny*). One participant called the ironist “weird” (*dziwna*). A few respondents described the ironist as “normal” (*normalna*). Some respondents pointed out the humorous side of irony, writing that the speaker was “funny” (*śmieszny*). Positive perceptions – such as “nice” (*miła*) – were incidental in this group.

The bilingual children who performed the task in English provided a number of unambiguously negative responses, such as *mean*, *bad*, *rude*, and *malicious*; however, no highly emotionally valenced negative words were registered in this subgroup. Some responses explicitly pointed to the phenomenon of sarcasm (*sarcasm; sarcastic*). A few participants described the ironist’s behaviour as just *normal*. A number of responses in this group pointed to the humour function of irony, as was the case with *joking* and *funny*. Importantly, participants seemed to be well aware that laughter might be combined with radically different attitudes, as evidenced by such answers as *joking nice* and *joking mean*. Alongside these nuanced responses, there was one more that also revealed the participant’s awareness of the complex nature of irony. This participant wrote that the ironist’s behaviour was *rude but it was honest*.

5.8.3.3. Group 3

This section presents responses provided by the oldest participants – teenagers between 14 and 16 years old. A list of all responses given to ironic stimuli in this group is available in Appendix G, p. 404.

The monolinguals in this group provided a number of varied and interesting responses. Several responses demonstrated a purely negative perception of irony, as in “unpleasant” (*niemiła*) and “mean” (*wredna*). Some of the pejorative evaluations were expressed by words showing that participants had a more nuanced concept of ironic attitude – as in “harsh” (*surowy*), “terse” (*oschły*), “tart” (*zgrzyźliwy*), or “cheeky” (*bezczelny*). A few were highly negative, as in “boorish” (*chamski*), “contemptuous” (*pogardliwy*), “pooh-poohing” (*naśmiewał się*), or “brusque” (*opryskliwy*) – all four were registered to declaratives. One participant wrote that the ironist’s behaviour was “disloyal” (*nielojalna*), and another one – that it was “selfish” (*egoistyczny*). A few responses touched upon the jocular side of irony, as in “funny” (*zabawny*) and “playful” (*żartobliwy*). Some of these responses – while noting the humour inherent in the ironic comment – also conveyed a degree of negativity, as in “mocking” (*prześmiewcza*) and “unkind but playful” (*nieuprzejmy ale żartobliwy*). A number of respondents just noted the irony, as in “ironic” (*ironiczna*) and “sarcastic” (*sarkastyczna*); others, however, supplemented this with an explicit evaluation, which was invariably negative (“boorish – sarcastic!?”: *chamska – sarkastyczna*; “ironic – boorish”: *ironiczny – chamski*). A few responses show that participants did not evaluate the ironist’s behaviour negatively, e.g. “ok” (*ok*) and “fair” (*fair*). Some responses demonstrate that different participants had contrasting perceptions of the ironist. While a number of children wrote about the ironist being “insincere” (*nieszczery*) or “untruthful” (*nieprawdomówna*), others wrote about the ironist being “honest” (*szczery*). Finally, one respondent seemed to have tuned himself in to the ironic convention to such an extent that he provided a jocular response himself, writing that the ironist “blurted out some good advice” (*strzelił mu dobrą radę*).

The bilingual teenagers who performed the test in Polish provided many responses demonstrating that they recognised the irony in the target comment, as evidenced by such answers as “ironic” (*ironiczna*) and “sarcastic” (*sarkastyczna*). Some of these responses were accompanied by adjectives expressing evaluation, as in “unpleasant – ironic” (*niemiła – ironiczna*) and “mean – sarcastic” (*wredny – sarkastyczny*). The evaluations here were

mostly negative; some, however, pointed out the humorous aspect of irony, as in “unpleasant – playful – ironic” (*niemiły – żartobliwy – ironiczny*), or “sarcastic – playful” (*sarkastyczna – żartobliwa*). Some responses combined humour with negativity, as in “lol! Unpleasant” (*hahaha! Niemiły*). A few responses, such as “cynical” (*cyniczny*), “boorish” (*chamski*), and “cruel” (*okrutny*), revealed intensely negative evaluations. One respondent used bad language, and he responded in a highly emotional way, calling the ironist a “dick” (*kutas*). A number of responses revealed complex perceptions of ironic attitude, as in “sarcastic – mean – unpleasant – honest” (*sarkastyczna – wredna – niemiła – szczerą*), “mean/hater/boorish” (*wredna/hejter/chamska*), and “pointed but was right” (*uszczypliwy ale miał rację*). One respondent wrote that the ironic speaker was “mean – sweet” (*wredny – kochany*), indicating that she was able to tune herself in to the ironic convention.

A number of perceptions provided by the bilingual teenagers who performed the test in English were negative, as evidenced by such responses as *bad*, *mean*, and *rude*. Many respondents noted the irony, writing that the speaker was *ironic* or *sarcastic*. Also, responses such as *funny* and *joking*, which highlighted the funny side of the ironic comment, were frequent. Here, some participants demonstrated awareness that ironic laughter may go hand in hand with negative sentiments, as in *laugh at him*, or *he was making fun of him*. A few responses revealing positive evaluations were present, such as *kind* and *nice*. Some respondents judged the ironic speaker’s behaviour as *normal*. One respondent wrote that the ironic speaker was *cool*. A few responses demonstrate that some participants had contrasting perceptions of the ironist: while some wrote that the speaker was *honest*, others wrote just the opposite (*not honest*). No highly emotionally valenced or offensive descriptions were registered among the bilinguals performing the task in English.

5.8.4. Discussion

Early research into irony viewed attitude recognition as a separate comprehension step, alongside speaker belief and speaker intent recognition (Creusere 1999). Moreover, the frequent assumption was that the hearer needed to view the ironic comment as negative – otherwise it was claimed that the ironic message was not understood (Andrews et al. 1986). Newer studies have brought about the much-needed shift of perspective, whereby – rather than being treated as a comprehension measure – attitude recognition became an object of

study in its own right (Long and Kreuz 1991; Dews et al. [1995a] 2007; Dews and Winner 1995; Dews et al. 1996; Harris and Pexman 2003; Pexman et al. 2005). Thus, rather than making the a priori assumption that the ironic attitude is, and has to be, invariably and inevitably negative, researchers started exploring either what it actually is that language users mean when they label an utterance ironic, or, simply, how they evaluate ironic utterances. The current study is rooted in this very approach, as it sought to look into children and teenagers' perceptions of irony.

The findings of the study are in line with prior research demonstrating that children tend to view the ironic speaker as mean (Dews et al. 1996; Harris and Pexman 2003; Pexman et al. 2005; Nilsen et al. 2011). In the current study, negative perceptions of the ironist's behaviour, some of which were highly emotionally marked, were evident in numerous responses across all age groups, regardless of language status and language of the test. Such responses were the most expected ones, as – of irony's two prototypical functions, to criticise and to be humorous – recognition of the critical function has been found to precede recognition of the humour function developmentally (Dews et al. 1996).

Interesting findings concerning children's recognition of the humour function of irony were obtained in the youngest group. A few 6- to 8-year-olds, both those mono- and bilingual, actually did consider the ironist's behaviour funny, demonstrating that at least some children of this age are able to appreciate irony's function to be humorous. This is sooner than reported by Dews et al. (1996), in whose study only children aged between 8 and 9 were able to rate critical ironic utterances as funny. The current findings also differ from those of Harris and Pexman (2003: 156), in whose study "7- to 8-year-old (...) rated ironic criticisms as somewhat serious." Along the same lines, Demorest et al. (1984) and Pexman et al. (2005) found that, typically, it is around the age of 9 or 10 that children begin to recognise the humour inherent in irony. One reason for the disparate findings might be that the current study explored attitude perception qualitatively, with participants providing spontaneous answers to an open-ended question. In contrast, the other studies looked into children's perceptions of irony using a quantitative approach and forced-choice paradigms where participants were explicitly asked to rate how funny the ironist was. Hence, the obtained findings are difficult to compare. On the other hand, an important point relevant to the discussion of the current findings is that the task instructions did not cue participants to the concept of humour. Thus, the study findings do point to a dawning awareness of the humour function of irony in 6- to 8-year-olds.

Moreover, some of the responses provided by the youngest participants in this study revealed, if indirectly, that they recognised an element of ambiguity inherent in irony. These answers demonstrate the children's awareness that one may be funny and critical at the same time. Previous research, including the studies discussed above, tended to require that participants rate ironic utterances on their meanness and humour. The current findings, in contrast, demonstrate that even 6- to 8-year-old children may appreciate, and spontaneously point to, the highly ambivalent character of irony, which is "inherently *two-faced*, humorous and hurtful, funny and stingy, criticizing and praising at the same time" (Bromberek-Dyzman 2015: 219).

Another interesting finding of the current study is that children as young as between six and eight years of age may demonstrate a dawning awareness of the concept of irony. The study has found that they may detect an aura of irony even if they have not understood the ironic comment fully. This is interesting, as it indicates that children may go through a developmental stage where they clearly recognise that there is something special about ironic comments that makes them different from literal ones, but are not yet able to assign ironic intention correctly, or cannot appreciate all the pragmatic goals that can be achieved with irony. A similar idea of a developing awareness has been pointed out by Winner et al. (1988: 61), who write that "[t]here is some evidence that six-year-olds grasp what is meant in irony even *before* they note (or can reproduce) the distinction between what is said and what is meant."

An interesting, if subtle, point emerges upon looking into the responses of the youngest bilingual children performing the task in English. Here, among the different perceptions of the ironic speaker, the label *stupid* stands out as particularly negative. This word appeared in seven responses, but only three were provided to contexts that were correctly understood: *stupid mean*, *stupid*, and *stupid*. All three were given by three different participants, and all seem to be highly negative and emotionally valenced answers. However, analysis of the four remaining responses including the word *stupid*, i.e., those given to contexts that were misunderstood, demonstrates that the label does not necessarily have to be interpreted as a more negative and emotionally valenced synonym of *mean*. Interestingly, all four instances were provided by the same participant, a boy who also used the word *stupid* to one instance of irony that was correctly understood. The first of the answers provided to incorrectly understood stimuli was *stupid mistake*. Here, analysis of all the answers clustered together revealed that the boy took the ironic utterance to be a mistake on the part

of the speaker, as he provided an incorrect response to both the speaker belief and the speaker intention question.³²⁰ An identical situation was the case with the second occurrence of the word *stupid* in a response to a misunderstood stimulus. The third such occurrence was *stupid in a nice way* – here, the boy was found to take the ironic utterance for a slip of the tongue, as he provided an incorrect response only to the speaker intention question. Finally, the fourth such occurrence was *stupid*, and here the boy was found to mistake the ironic comment for a lie, a clearly negative intention. Thus, in three of the four cases discussed, the ironic speaker who was called *stupid* simply made a mistake. It may be the case, then, that the young participants who understood the ironic stimuli and used the word *stupid* to describe the ironist's behaviour may have been making a critical assessment of the speaker's intellectual prowess rather than pointing out his or her meanness. Indeed, only one of the three responses provided to correctly understood stimuli reveals an unequivocal perception of meanness, and this is *stupid mean*. Thus, it may be the case that when an ironist is dubbed *stupid*, he or she is viewed as the unintelligent rather than the bad guy. This may be even more so given the idea of children's evolving awareness of irony, whereby they are not yet aware of all the pragmatic functions of irony, as has been proposed above.

Findings obtained with the older children – those between 10 and 12 years – demonstrated that these participants tend to be familiar with the concepts of irony and sarcasm, as evidenced by a number of responses explicitly pointing out the ironic or sarcastic attitude of the speaker. It also seems that children of this age show a more complex understanding of ironic attitude, as evidenced by frequent responses juxtaposing contradictory evaluations. This kind of developmental progression is in line with research findings demonstrating that certain aspects of irony appreciation are in development well into adolescence (Glenwright et al. 2017).

The findings obtained in the teenage group showed highly ambivalent perceptions of irony. Some responses – particularly those provided by participants performing the task in Polish – included language that was rather foul, hinting at elevated emotional reactions to ironic comments presented in the first language. This is in line with reports of L1 being the language in which emotions are both felt and experienced with greater intensity (Pavlenko 2006; Dewaele 2010). Apart from responses revealing that participants perceived

³²⁰ Section (5.7.2) discusses how the various ways of misunderstanding irony were operationalised in the current study. To see how this operationalisation is grounded in the relevant psychopragmatic developmental literature, consult section (2.3.6).

irony negatively – and rightly so, as the figure is commonly viewed “as an instrument of aggression, criticism, and negativity” (Kreuz 2020: 129) – a number of highly complex responses demonstrated the teenagers’ nuanced understanding of ironic attitude. The participants viewed the ironic speaker as sarcastic and funny, but impolite, or sarcastic and cool at the same time. Such responses are very much in line with one of the common uses of the term *ironic*, which – as noted by Kreuz (2020: 65) – relates “to a particular sort of affectation” such that “it describes a person whose disposition is detached, but also cynical; wry, but also scornful; hip, but also flippant.” A complex perception that integrates bipolar evaluations, as those evidenced in the teenage group, resembles adult appreciation of ironic attitude.

Interesting findings were obtained with the bilingual older children and teenagers performing the task in English. None of these participants – unlike their peers performing the task in Polish – provided highly negatively valenced perceptions, as would be evidenced by swearwords, or disparaging words. This is in line with “the foreign-language effect” (Keysar et al. 2012; Costa et al. 2014), which postulates that “when [a] problem is presented in a FL [foreign language] – [this] is likely to elicit a milder emotional reaction” (Costa et al. 2014: 237). Nonetheless, the finding does merit further investigation using a sound quantitative approach.

Taken together, the findings obtained on ironic attitude perception indicate that at first children tend to assign simple and, typically, univalenced attitudes to the ironic speaker. It is only later that they reach a more complex appreciation of the wide, and sometimes contradictory, pragmatic goals that can be attained via irony. It also appears to be the case that irony as experienced through the lens of one’s first language is perceived as stingier, though this finding needs further and more in-depth investigation using a quantitative approach.

5.9. General discussion

The ability to understand irony is a “major milestone in the development of children’s social cognition” (Aguert et al. 2017: 260). Children do not “acquire th[is] ability (...) overnight” (Kotthoff 2009: 56). It is to the contrary; complete comprehension of irony is “a difficult and protracted process” (Creusere 1999: 216). Research conducted in the monolin-

gual context has identified three key aspects related to irony comprehension; these are recognition of speaker belief, recognition of speaker intention, and appreciation of speaker attitude (Creusere 1999). Studies looking into these three aspects in bilingual children are scarce, and the current study aimed at filling this gap. It sought to explore whether a bilingual advantage exists for irony comprehension and what kind of attitudes mono- and bilingual children and teenagers ascribe to the ironic speaker.

Taken together, the obtained findings demonstrate that the ability to understand and appreciate ironic meanings does indeed have a prolonged developmental path, as established by earlier research (Creusere 1999; Kotthoff 2009). The current study extends these findings by adding that this is the case for both mono- and bilingual children.

The study found no significant differences between the mono- and bilingual participants on speaker belief recognition, which is believed to be the first step of irony comprehension (Pexman and Glenwright 2007; Pexman 2008; Glenwright and Pexman 2010; Nilsen et al. 2011; Aguert et al. 2017). Contrary to what was hypothesised, no differences were found in the youngest group, in children between 6 and 8 years old. While the ability to attribute first-order mental states – a prerequisite to recognising speaker intent – is believed to be developed around the age of five (Glenwright and Pexman 2010), the ability to note the discrepancy between what an ironic speaker says and believes has been found to begin to emerge around the age of six (Ackerman 1983; Andrews et al. 1986; Winner and Leekam 1991; de Groot et al. 1995; Dews et al. 1996; Hancock et al. 2000; Nakassis and Snedeker 2002; Harris and Pexman 2003; Pexman and Glenwright 2007; Pexman 2008; Glenwright and Pexman 2010; Nilsen et al. 2011). The youngest participants of the current study were almost at ceiling on speaker belief recognition, which is in line with Wellman et al. (2001) and Liddle and Nettle (2006), who found that children’s performance on tasks measuring mentalising skills reaches the ceiling level over the age of five. Thus, it could be the case that the current task was not sensitive enough to yield a bilingual advantage. Using an online task might be an interesting direction, though previous developmental research conducted with young participants has used such methods with limited success (Banasik 2017) – “children do not usually have the reading skills required for reading time studies” (Nicholson 2013: 2), and reaction times are not always reliable with very young children (Banasik 2017). It might also be the case that a bilingual advantage on ironic speaker belief recognition should be looked for in younger participants, such as preschool-aged children,

as it is for such participants that “bilingual benefits have been most consistently reported” (Antoniou et al. 2020: 188).

In the current study, in line with what was hypothesised, a bilingual advantage has been observed for ironic intent recognition, albeit only in the latest group tested – for teenagers aged between 14 and 16 years. This is not surprising, as intent recognition is a task far more complex than recognition of speaker belief (Creusere 1999). Research indicates that assigning the right intention to the speaker is the key difficulty children encounter when comprehending ironic utterances (Filippova and Astington 2008). Thus, the advantage that was observed in the current study was only registered for the oldest participant group, and for all speech act types except directives. These results are in line with prior research (Demorest et al. 1984; Glenwright et al. 2017), which has found that certain “aspects of irony comprehension are still developing into adolescence” (Pexman et al. 2019: 2). Hence, it was at later stages of cognitive development that performance differences were expected to emerge, and especially so given the processing difficulty associated with irony – ample language acquisition research has found it to be the most challenging type of nonliteral language (Kotthof 2009). Indeed, it is teenagers and adults that possess “complex social-reasoning skills” which, in turn, give them “an advantage (...) in terms of critically assessing the message of an ironist” (Filippova 2014: 273). A few important skills come into play here, the first being the ability to successfully integrate “situational facts and conflicting statements”, and the second – “a proper assessment of (...) mental states” (Filippova 2014: 274). Bilinguals do seem to enjoy an advantage here, as bilingual children have been found to outperform monolinguals not only on mentalising, as measured by various ToM tasks (Goetz 2003; Farhadian et al. 2010), but also on many other aspects of social reasoning, including perspective taking (Yow and Markman 2011a; Yow and Markman 2011b; Fan et al. 2015), and repairing communication breakdowns (Comeau et al. 2007).

Other areas of importance that may contribute to a bilingual advantage in ironic intent recognition are “[l]anguage skills and cognitive competencies”, which also help children understand ironic language (Filippova 2014: 274). Currently, ample findings are available pointing to bilinguals’ superior executive functions (Carlson and Meltzoff 2008; Bialystok 2015; Javan and Ghonsooly 2018) and linguistic skills, including various areas of language awareness (Ricciardelli 1992; Bruck and Genesee 1995; Campbell and Sais 1995; Verhoeven 2007; Davidson et al. 2010; Kuo and Anderson 2010).

Bilingual children also enjoy an advantage in terms of the richness of their language experience: with exposure to two languages, they are likely to have more experience with irony, or, at least, to have experienced irony in more varied forms – and “[c]hildren’s experience with ironic language in their environment plays an (...) important role in the development of skills at irony comprehension” (Filippova 2014: 274).

The fact that the teenage bilinguals outperformed their monolingual peers on all speech acts except directives merits in-depth discussion. In the current study, the bilinguals were also found to perform significantly worse on directives than they did on commissives, expressives, and declaratives. Taken together, these results point to a processing difficulty of directives – and it indeed seems to be the case that, as a vehicle for irony, directives pose a particular comprehension challenge. Similar findings were reported by Kumon-Nakamura et al. (2007), whose participants rated directives as the least ironic of all their experimental stimuli. While these rating differences were non-significant, there are many reasons why ironic directives are different from other ironic speech acts.

In brief, directives are defined as “attempts by the speaker to get the hearer to do something” (Searle 1975: 355) and, as such, they are entwined with an underlying face threat that makes them “a highly assertive and invasive social action” (Kent 2012: 58). To say that people highly dislike being imposed on is an understatement, and teenagers have particularly negative emotions and experiences related with being directed (Gordon and Grant 1997) – especially at home (Kent 2012), where parents’ curb their independence (Campbell 2006). Younger children might be less sensitive to this, as there is a cultural norm according to which parents “should be able to expect compliance from their children” (Kent 2012: 58). For teenagers, however, directives may be entwined with a considerable amount of negativity. Negative mood, in turn, has been found to have an adverse impact on information processing (Naranowicz et al. 2023).

Another reason why the processing of ironic directives may pose a greater challenge than that of other ironic speech acts is that they do not constitute a prototypical form of irony, as has been postulated for assertives (Kumon-Nakamura et al. 2007), but instead have the surface form of an order or a request. This might be confusing: rather than taking the utterance to be an ironic evaluation, the hearer may take it at face value, mistaking it for a direction, or a piece of advice. Thus, to fully comprehend an ironic directive, the hearer needs to take an extra step whereby he or she has to reject the surface form of the utterance – that is, acknowledge that the speaker is not trying to get them to do something, but ex-

pressing a certain attitude. Then, as is the case for all irony, the hearer may decode that the actual attitude that is conveyed is opposite to what is implied in the literal meaning.

Another speech act type for which the current study yielded interesting results is expressives. In the older group of children, where participants were between 10 and 12 years old, comprehension scores were significantly higher for expressives than for commissives. In the teenage group, in turn, monolinguals scored significantly higher on expressives than they did on assertives. Both findings point to the relative processing ease of expressives. This idea is in line with Kumon-Nakamura et al. (2007), whose participants rated various stimuli on irony and it was expressives, and not assertives, deemed to be the prototypical form of irony, that received the highest irony rating. While the rating differences obtained by Kumon-Nakamura et al. (2007) were not statistically significant, they do merit further discussion. It seems to be the case that irony communicated by means of an expressive is easier than irony communicated otherwise, as expressives provide an extra cue to irony comprehension than is not available in the case of other speech acts. Assertives, expressives and declaratives may all be postulated to incorporate one such cue, because their form often contains a clear hint as to the presence of an “[i]ncongruity between a positive statement and a negative context”, which acts as a cue signalling irony (Nilsen et al. 2011: 374). Expressives, however, which consist in directly communicating the speaker’s “psychological state (...) about a state of affairs” (Searle 1975: 356), may be postulated to contain an additional clue of this type. As “[i]rony can be signalled by a contrast between the valence of what is literally said and the larger context in which the remark is made” (Pexman et al. 2019), the overt expression of feelings highly incongruent with the situation – a feature characteristic of the expressive – once again highlights the contrast between the actual state of affairs and its appraisal, making it highly salient. This, in turn, facilitates irony comprehension even more.

Directives and commissives lack such a cue. Directives constitute “attempts by the speaker to get the hearer to do something” (Searle 1975: 355), whereas commissives essentially “commit the speaker to a certain course of action” (Austin 1962: 156). As is the case with directives, commissives may also be taken to be what they seem to be on the surface level – for instance a promise, or a vow. These two speech types are similar in this respect, as both may be postulated to involve an extra processing step whereby the hearer has to reject directing the hearer, or making an offer, as the speaker’s viable communicative goal.

Commissives, however, do not have the underlying face threat and their processing may therefore be less demanding than that of directives.

The study yielded interesting findings concerning the relationship between children's ability to recognise ironic intent and assign ironic attitude. Here, research conducted with monolingual populations yielded disparate findings. Some authors, such as Winner and Leekam (1991), postulate that the former skill precedes the latter developmentally. Others, on the other hand, such as McDonald and Pearce (1996: 81), report that "attitude is not pivotal to the detection of sarcastic inference." Their findings were obtained with patients with frontal lobe damage. For such patients, the "[a]bility to process attitude was not associated with success at recognizing sarcasm" McDonald and Pearce (1996: 81). In the current study, it was found that some participants labelled the speaker's attitude ironic while not being fully able to correctly assign ironic intent. This demonstrates that – contrary to what was assumed by authors conducting early research (Andrews et al. 1986) – intent recognition and attitude perception are separable aspects of irony comprehension. A related claim has been made about "children's detection of nonliteral utterances and their interpretation of the speaker's pragmatic intent" (Hancock et al. 2000: 227), and the current findings add to this picture.

The obtained findings are also very much in line with Winner et al. (1988: 61), who note that "[t]here is some evidence that six-year-olds grasp what is meant in irony even *before* they note (or can reproduce) the distinction between what is said and what is meant." It seems to be the case that, especially for young children, there is not only a stage whereby they understand some ironic utterances while not understanding other, but also a developmental stage – however short – whereby they understand some ironic utterances only to a certain degree. These children may recognise that ironic comments are somehow different from other messages that they encounter; they may even be able to correctly label irony, but they are not yet fully able to identify the speaker's pragmatic goal in uttering something that is clearly not literally true, but where the intention to lie may also not be the right one, as the falsity is all too evident. This idea is in line with the results obtained by Demorest et al. (1984), in whose study even adult participants were not always able to correctly recognise ironic intent. Thus, as postulated by Creusere (1999: 236), "comprehension of irony and sarcasm may not be an 'all-or-nothing' phenomenon."

It seems that the ability to appreciate all the attitudes that can be conveyed via irony indeed develops with age (Creusere 1999). In the current study, participants' perceptions of

ironic attitude – regardless of their age – seemed to be in line with “[t]he popular conception of verbal irony suggest[ing] that it has a bad reputation” (Kreuz 2020: 129), as many of them were negative. On the other hand, the responses given by participants – especially the older children and teenagers – often revealed that this negativity frequently differed in intensity, and had various dimensions. This is in line with the observation made by Creusere (1999: 240), who notes that “that there is a great deal of variability in how listeners perceive the negativity of ironic remarks, even those utterances that are characterized by experimenters as mean or sarcastic.” In this respect, particularly interesting findings were obtained in the teenage group, where – in contrast to what was found for the younger children – participants’ perceptions of the ironist’s behaviour were complex and ambivalent, often juxtaposing contrasting sentiments. Such responses reveal a highly nuanced, and rather adult-like, understanding of ironic attitude.

Very interesting results concerning ironic attitude recognition were obtained in the youngest group. Prior research has found that children’s ability to appreciate the humour function of irony develops with age, and that children begin to acknowledge that ironic utterances are funny when they are around 8 or even 9 years old (Dews et al. 1996). Pexman et al. (2005: 286) report that children aged between 7 and 10 years “are only beginning to share adults’ perceptions that ironic remarks are intended to be funnier, and more teasing, than literal remarks.” These authors attribute this difficulty to “children’s face concerns about personal remarks, difficulties representing conflicting emotions and intentions, and their limited knowledge about the communicative payoffs achieved by verbal irony” (Pexman et al. 2005: 286). The current study found, however, that some children aged between 6 and 8, spontaneously mention humour as the attitude of the ironist. A few explanations are available for this finding. It is possible that a cultural change is taking place whereby irony is becoming more and more commonplace – and indeed, “over the past 30 years, irony seems to have become a defining feature of Western culture” (Kendall 2022). On the other hand, it may be the case that Polish culture is dripping with irony – and a few recent publications have been pointing in that direction (Banasik-Jemielniak and Kałowski 2022: 80). Finally, recent research has been putting emphasis on individual differences in irony use (Kałowski et al. 2023); one’s perception of an ironic comment as predominantly funny may stem from positive experiences with irony. Banasik-Jemielniak et al. (2020: 1) found “positive associations between children’s levels of irony comprehension and levels of mothers’ irony use.” It has also been found that “[c]hildren who are proficient

in understanding irony have parents that declare a more positive attitude towards irony” (Banasik-Jemieliak et al. 2020: 9). If one grows up in an environment that finds irony entertaining, one is likely to share such a positive attitude towards ironic teasing.

In line with what was expected, the current study also yielded preliminary findings which may be taken to indicate that irony as experienced in one’s second language is indeed less stingy, or – at least – that bilinguals describe the ironist using less emotionally charged words in L2 when they have been exposed to ironic language in their second language. This is in agreement with “the foreign-language effect” (Keysar et al. 2012; Costa et al. 2014), whereby individuals operating in their second language are believed to experience a “subjective impression of relative affective detachment” (Jończyk et al. 2019: 895). The most negative attitudes that were registered in the current study – with responses containing swearwords or words hinting at truly despicable intentions – were indeed provided in Polish. No such words were provided by the older bilingual children and teenagers performing the task in English. The younger bilingual children performing the task in English provided three responses containing the word *stupid*, which may be considered an emotionally valenced one; however, as has been discussed in section (5.8.4), the adjective may reflect a critical evaluation of the speaker’s intelligence rather than point to him or her being perceived as exceptionally mean. Taken together, the obtained findings on speaker attitude appreciation in L1 and L2 provide support for the “the foreign-language effect”, at least in the older age groups. However, an alternative explanation of the obtained findings exists whereby the lack of highly emotionally valenced words could reflect participants’ reduced vocabulary span in the second language. On the other hand, it has been postulated that “[p]eople learning a new language often learn its swearwords first” (Wilson 2005); and indeed, even the youngest bilinguals in the study were proficient enough to provide a highly negative word, such as *stupid*. Thus, the issue of children’s perceptions of ironic attitude as modulated by language of exposure and language of the task does merit further investigation using a carefully designed quantitative method.

5.10. Limitations of the study

As is the case with all empirical research, the current study is not free from potential limitations. One of these is that in the three bilingual groups, for speaker belief and intent recog-

dition, participants' responses given in English and Polish were analysed together. In order to assess the impact of this on the interpretation of the obtained findings, two post-hoc tests were conducted for each of the three age groups – one comparing their performance on speaker belief, and another comparing their performance on speaker intention recognition. As the data were not normally distributed, the Mann-Whitney U test was selected in order to test for the possible differences (Sani and Todman 2006).

In the younger children group, a Mann-Whitney U test indicated that speaker belief recognition scores of the bilingual participants performing the task in Polish (Mdn = 19) and those performing the task in English (Mdn = 19) were not statistically significantly different, $U = 99, z = -1.625, p = .104$. Also, speaker intent recognition scores of the participants performing the task in Polish (Mdn = 11) and those performing the task in English (Mdn = 11) were not statistically significantly different, $U = 135, z = -.328, p = .743$. Thus, the post-hoc tests conducted in this group found that the bilingual participants performing the task in English were not at a disadvantage for speaker belief and speaker intent recognition. Hence, it can be concluded that the scores of participants performing the task in English did not lower overall bilingual scores in this age group.

In the older children group, a Mann-Whitney U test indicated that speaker belief recognition scores of the bilingual participants performing the task in Polish (Mdn = 20) and those performing the task in English (Mdn = 19) were not statistically significantly different, $U = 87, z = -.158, p = .874$. Also, speaker intent recognition scores of the participants performing the task in Polish (Mdn = 12) and those performing the task in English (Mdn = 14.5) were not statistically significantly different, $U = 75, z = -.734, p = .453$. Thus, the post-hoc tests conducted in this group found that the bilingual participants performing the task in English were not at a disadvantage for speaker belief and speaker intent recognition. It can therefore be concluded that the scores of participants performing the task in English did not lower overall bilingual scores in this age group.

In the teenage group, a Mann-Whitney U test indicated that speaker belief recognition score was greater for the teenagers performing the task in Polish (Mdn = 20) than those performing the task in English (Mdn = 19), $U = 221, z = -2.934, p < .01$. Also, speaker intent recognition score was greater for the teenagers performing the task in Polish (Mdn = 17.5) than those performing the task in English (Mdn = 14), $U = 230.500, z = -2.501, p < .05$. Thus, the post-hoc tests conducted in this group found that the bilingual participants performing the task in English were at a disadvantage for both speaker belief and

speaker intent recognition. Delving deeper into the issue of English proficiency of the participants belonging to this group, the frequency of their contact with the English language, as reported by them in the “English and you” questionnaire was almost identical. All the bilingual participants in the teenage group reported that they had contact with the language on a daily basis with the exception of three participants who performed the task in Polish – these individuals reported that they had contact with the English language every other day. Nonetheless, what the performance difference means for the interpretation of the findings obtained in the study is that, in the teenage group, speaker belief and speaker intent scores of participants performing the task in English might have lowered overall bilingual scores. This, in turn, may have weakened the bilingual advantage observed in this age group. Thus, the current findings might have underestimated the extent of the bilingual advantage as obtained for recognition of ironic intention.

One more potential limitation that needs to be addressed is that the current study did not control for participants’ socioeconomic status (SES). It may have been the case that the bilinguals enjoyed a higher SES than did their monolingual peers. Although “it is rarely possible to equate bilingual children and monolingual children on all variables aside from the number of languages they speak” (Carlson and Meltzoff 2008: 285), inclusion of SES measures would have benefited the generalisability of the obtained findings, as it is a variable that may affect children’s performance on various tasks (e.g. Mezzacappa 2004). It needs to be noted, though, that the concept of SES is multi-dimensional, and many of its commonly used operationalisations are problematic, and would also be so in the context of the current study. To illustrate, Siegal et al. (2009), in their research on bilingualism and conversational understanding, thus report general information on participants’ SES: “[a]ll children (...) attended preschools in working class areas, and were from working class backgrounds in which few parents had any education beyond high school” (Siegal et al. 2009: 116). In the context of Poznań, which is where the current study was conducted, it is difficult to speak of such a phenomenon as a working-class area; moreover, children attending bilingual classes often commute to school. Further, the concept of a working-class background is also slowly becoming obsolete, as Polish society is becoming more and more diverse, and its educational level is constantly increasing (GUS 2021). As regards parents’ education level, this does not always go hand-in-hand with affluence. Banasik (2017), who studied social reasoning in children, employed maternal education level as a SES measure. However, there are families in which mothers are the better educated parent.

In a recent work into the very phenomenon of SES, Antonoplis (2023: 275) postulates that, in spite of the concept's significance, "how to appropriately conceive of and measure it remains unsettled." The author points out that "psychologists rarely define SES theoretically (...) but call a great number of operationalizations measures" – the author quotes the number to be 147 (Antonoplis 2023: 275). He further notes that "current recommendations for studying SES permit contradictory predictions, rendering the recommendations unsatisfactory" (Antonoplis 2023: 275). Thus, the choice of the most appropriate SES measure is a complex and challenging task that would require thorough research, and would not be free from limitations.

In the context of studies into bilingual advantage, the issue of SES becomes even more complex. The role of the concept "in producing a bilingual advantage has been studied in relation to EF [executive function] performance and is complicated by language status and the degree to which bilingual language proficiency is balanced" (Siegal 2009: 121). Thus, the contribution of SES to bilingual advantage can by no means be perceived as a unidimensional problem.

Taking all of the above into account, the findings obtained in the current study need to be interpreted with a certain degree of caution. Clearly, further developmental research is much needed in the area of bilingual children's understanding of irony.

5.11. Suggestions for further research

The current study has provided interesting and novel insights into our knowledge of mono- and bilingual children's comprehension of various types of ironic utterances. The obtained findings may be considered a window into future research that would further expand our understanding of the relevant aspects of this process.

One area that merits more in-depth investigation is mono- and bilingual children's understanding of various forms of irony. Here, a similar approach is recommended as the one employed in the current research – namely integrating the idea of Wilson (2017), who emphasised the need for scientific rigour in stimuli creation, with that of Kumon-Nakamura et al. (2007), who focussed on the need for more varied ironic stimuli. Using Searle's (1969) speech acts and replicating the current findings, especially those concerning the comprehension ease of expressives and the difficulty of directives, would be an interesting

research goal. Looking into these problems – also with younger participants – seems a promising research avenue.

Another issue that merits further investigation in the area of the various irony types is speaker belief recognition. A bilingual advantage on speaker belief recognition, a task that – in essence – taps ToM skills (Creusere 1999), might be found in pre-schoolers, who have previously been found to outperform their monolingual peers on ToM (Goetz 2003; Farhadian et al. 2010). Looking into mono- and bilingual pre-schoolers' performance on speaker belief recognition using the different speech act types as ironic stimuli is a research topic that has, as yet, not been empirically addressed and which could expand our understanding of how children comprehend the different forms irony.

Another interesting idea would be to look for differences in mono- and bilingual children and teenagers' understanding of the different ironic speech acts using an online, on top of an offline, task. This would make it possible to tap subtle processing differences which cannot be registered using investigator-administered, or self-administered questionnaires. While online methods may not be fully viable with very young children, as was the case with the study by Banasik (2017), children as old as between 10 and 12 years may be considered “old and competent enough (...) to perform unaided a computerised task recording RTs” (Antoniou et al. 2020: 189).

Yet another fascinating and promising research direction is mono- and bilingual children's appreciation of ironic speaker attitude. Here, two major areas may be outlined. Firstly, one may look for speaker attitude perception differences between mono- and bilingual individuals. Secondly, one may explore “the foreign-language effect” (Keysar et al. 2012; Costa et al. 2014). The current study found that the bilinguals assessing ironic speaker's attitude in their non-native language did not provide highly negative emotionally valenced responses, which stood in contrast to their peers performing the task in L1. Future research could address this problem using a sound quantitative approach. Thus, the current finding, which was obtained using an exploratory qualitative approach, could be verified.

Finally, one more area should be given more consideration in future developmental explorations of irony undertaken in the bilingual context: the impact that the various layers of culture – national, social, and domestic – have on irony use and understanding. A similar idea has recently been explored by Banasik-Jemielniak and Kałowski (2022: 80), who rightly highlight “the need to incorporate the cross-cultural perspective in psycholinguistic irony research.” It may be the case that some countries, societies, and even households are

more ironic than others, and children raised within these may be more apt at understanding irony. To illustrate, Banasik-Jemielniak et al. (2020) recently reported a positive correlation between mothers' use of irony and children's comprehension of irony. These problems do merit more in-depth investigation. Here, an interdisciplinary approach is recommended whereby corpus linguistics research findings would inform psychopragmatic developmental research on irony, especially in terms of naturalistic stimuli creation. In line with Filipova's (2014: 274) claim, "an array of existing language corpora should be examined for spontaneous production of irony in diverse linguistic settings." Such studies should be conducted cross-linguistically, so that their findings could inform bilingualism research.

Indeed, a number of fascinating questions are yet to be answered in the realm of irony research.

5.12. Concluding remarks

Putting together all the results and findings obtained – those concerning recognition of ironic speaker belief and intention, as well as those concerning appreciation of ironic speaker attitude – the study has found evidence for the existence of a bilingual advantage for irony comprehension. Such an advantage has only been observed for intent recognition, and for all speech act types except declaratives. Importantly, it has been found to emerge at a late stage of individuals' cognitive development – namely, in their teens. It indeed appears to be the case that, in general, children – be it mono- or bilingual – “first begin to understand ironic sarcasm at a very primitive level and only gradually come to appreciate it in all its glory” (Capelli et al. 1990: 1824).

Conclusion

The current study aimed at shedding light on a rather unexplored area of how mono- and bilingual children and teenagers understand different forms of irony. Here, relevant literature has identified three areas as key for studying irony: speaker belief recognition, speaker intent recognition, and speaker attitude appreciation (Creusere 1999; Harris and Pexman 2003; Pexman et al. 2005; Glenwright and Pexman 2010; Pexman et al. 2019). The primary goal of the current research was to compare mono- and bilingual children and teenagers' performances on a task tapping ironic speaker belief and intent recognition. As the study employed stimuli representing Searle's (1969) five speech act types, it was possible to check whether comprehension accuracy varied by irony type. The second goal of the study was to explore participants' perceptions of the attitude of the ironic speaker. Here, within each age group, responses were divided into those provided by monolinguals, those provided by bilinguals performing the task in their native language, and those provided by bilinguals performing the task in their non-native language.

The study found no differences between the mono- and bilingual participants belonging to any of the three age groups on speaker belief recognition, an important early stage of children's progressing ability to comprehend ironic utterances (Pexman and Glenwright 2007; Pexman 2008; Glenwright and Pexman 2010; Nilsen et al. 2011; Aguert et al. 2017). The null results are in line with findings concerning the developmental trajectory of mentalising skills (Wellman et al. 2001; Liddle and Nettle 2006).

A bilingual advantage was observed for what is considered to be the most difficult aspect of irony comprehension (Filippova and Astington 2008) – that is, speaker intent recognition. The advantage was obtained in the teenage group for all speech act types except directives. The finding demonstrates that the bilingual advantage for irony comprehen-

sion emerges at a late stage of cognitive development – a situation postulated to be the case “only when using very demanding tasks” (Antoniou et al. 2020: 188). Thus, the finding further testifies to irony comprehension being a challenging task which taps late developing skills. Finally, the finding shows that ironic meanings as expressed by various speech acts differ in terms of difficulty. Specifically, the study has found expressives to be relatively easy, and directives to be cognitively taxing.

The study yielded interesting results concerning speaker attitude appreciation. While many children and teenagers highlighted the critical function of irony, some of the youngest participants not only pointed to the humour function, but also noted the ambiguity inherent in irony. One of the youngest participants, moreover, exhibited a dawning awareness of the concept of ironicity. Thus, the findings indicate that, at least for some children, recognition of the complex nature of irony and appreciation of its humour function may emerge earlier than indicated by prior research findings (Demorest et al. 1984; Dews et al. 1996; Pexman et al. 2005).

Finally, the study demonstrated lack of highly emotionally valenced perceptions of ironic speaker’s attitude among the older children and teenagers who performed the task in their second language – a finding consistent with “the foreign-language effect” (Keysar et al. 2012; Costa et al. 2014). It indeed seems to be the case that, when evaluating the ironist’s attitude in L2, bilinguals are somewhat emotionally detached from the negative affective content of critical irony presented to them in their non-native language.

Taken together, the findings make a valid contribution to our understanding of how mono- and bilingual children and teenagers make sense of different types of ironic meanings. Nevertheless, more research is needed which would shed more light on how, when, and to what extent bilingualism and irony type affect recognition of ironic speaker belief, intent and attitude.

Abstract

The focus of the project is irony comprehension in mono- and bilingual children. Prior research has identified three key aspects of understanding irony: speaker belief, speaker intent, and speaker attitude recognition. While these problems have been investigated in the monolingual setting, they have not received due attention in the bilingual context. The topic does merit attention, as ample findings are available pointing to bilinguals' superior language awareness, executive function, mentalising and perspective taking skills, as well as the ability to mitigate communication breakdowns. It is hypothesised that bilinguals may enjoy a similar advantage for irony comprehension.

The study investigates the three aspects of irony comprehension in Polish monolinguals and Polish-English bilinguals belonging to three age groups: younger children (aged 6-8), older children (10-12 years of age), and teenagers (ages 14-16). Ironies expressed by five types of speech acts – assertives, directives, commissives, expressives, and declaratives – were employed in the study.

The results showed no difference between the mono- and bilinguals when it comes to speaker belief recognition. However, a significant difference was obtained for speaker intent recognition. Bilingual teenagers decoded ironic speaker intent significantly better than their monolingual peers in ironic comments expressed by assertive, commissive, expressive, and declarative speech acts. Thus, a bilingual advantage for irony comprehension has been found to emerge at a late stage of cognitive development.

Qualitative analysis demonstrated that young children's recognition of irony and their ability to appreciate the humour function of irony may emerge as early as at between six and eight years of age. The findings obtained for the older children and teenage bilingual groups, in turn, point to a lack of highly emotionally-valenced negative perceptions of

irony – a finding in line with the “foreign-language effect”, according to which bilinguals experience a sense of detachment from the affective content presented in their second/foreign language (L2).

Taken together, the current findings are an important first step in expanding our knowledge of how mono- and bilingual children make sense of ironic content. They also point to the existence of a bilingual advantage for irony comprehension.

Streszczenie

Projekt skupia się wokół rozumienia ironii przez dzieci jednojęzyczne i dwujęzyczne. Wcześniejsze badania wyodrębniły trzy kluczowe aspekty rozumienia ironii: rozpoznanie przekonania, intencji, oraz nastawienia osoby mówiącej. Choć aspekty te były badane w kontekście jednojęzycznym, nie poświęcono im należytej uwagi w badaniach przeprowadzanych z uczestnikami dwujęzycznymi. Opisane w pracy zagadnienia wydają się być obiecującym tematem badawczym w świetle naukowych doniesień, iż osoby dwujęzyczne mają przewagę nad jednojęzycznymi na płaszczyźnie świadomości językowej, funkcji wykonawczych, teorii umysłu, rozumieniu cudzej perspektywy, czy radzeniu sobie z problemami komunikacyjnymi. Niewykluczone, że podobna przewaga może dotyczyć również umiejętności rozumienia ironii.

Przeprowadzone badanie skupia się na trzech aspektach rozumienia ironii u polskich dzieci jednojęzycznych i polsko-angielskich dzieci dwujęzycznych należących do trzech grup wiekowych: młodsze dzieci (6-8 lat), starsze dzieci (10-12 lat) i nastolatki (14-16 lat). W badaniu wykorzystano wypowiedzi ironiczne wyrażone za pomocą pięciu rodzajów aktów mowy: asercji, aktów dyrektywnych, komisywnych, ekspresywnych i deklaratywnych.

Analizy statystyczne nie wykazały różnic między dziećmi jedno- i dwujęzycznymi na poziomie rozpoznania przekonań osoby mówiącej. Odnotowano natomiast statystycznie istotne różnice w rozpoznawaniu intencji mówiącego. Dwujęzyczne nastolatki odczytały ironiczną intencję lepiej niż ich jednojęzyczni rówieśnicy w ironicznym komentarzach mających postać asercji, aktów komisywnych, ekspresywnych i deklaratywnych. Badanie wykazało zatem, że w przypadku rozumienia ironii przewaga osób dwujęzycznych pojawia się na późnym etapie rozwoju poznawczego.

Analizy jakościowe wykazały, że u młodszych dzieci umiejętność rozpoznania ironii i jej humorystycznego charakteru może pojawić się już między szóstym a ósmym rokiem życia. Z kolei wyniki uzyskane w grupie starszych dzieci i nastolatków wykazały brak silnie nacechowanych emocjonalnie negatywnych percepcji ironii, co jest zgodne z „efektem języka obcego” – doświadczanym przez osoby dwujęzyczne poczuciem oderwania od treści afektywnych prezentowanych w drugim lub obcym języku.

Podsumowując, badanie stanowi istotny pierwszy krok przybliżający nam zrozumienie tego, w jaki sposób jedno- i dwujęzyczne dzieci dekodują ironiczne treści. Uzyskane wyniki wskazują, że w przypadku rozumienia ironii możemy mówić o przewadze osób dwujęzycznych.

References

- Abel, Beate. 2003. "English idioms in the first language and second language lexicon: A dual representation approach", *Second Language Research* 19, 4: 329-358.
- Abello-Contesse, Christian. 2008. "Age and the critical period hypothesis", *ELT Journal* 63, 2: 170-172.
- Ackerman, Brian P. 1981. "Young children's understanding of a speaker's intentional use of a false utterance", *Developmental Psychology* 17, 4: 472-480.
- Ackerman, Brian P. 1982. "Contextual integration and utterance interpretation: The ability of children and adults to interpret sarcastic utterances", *Child Development* 53: 1075-1083.
- Ackerman, Brian P. 1983. "Form and function in children's understanding of ironic utterances", *Journal of Experimental Child Psychology* 35: 487-508.
- Adachi, Taeko, Tatsuya Koeda, Shinichi Hirabayashi, Yukinori Maeoka, Madoka Shiota, Edward Charles Wright and Ayako Wada. 2004. "The metaphor and sarcasm scenario test: A new instrument to help differentiate high functioning pervasive developmental disorder from attention deficit/hyperactivity disorder", *Brain and Development* 26, 5: 301-306.
- Aguert, Marc, Coralie le Vallois, Katine Martel, and Virginie Laval. 2017. "'That's really clever!' Ironic hyperbole understanding in children", *Journal of Child Language* 45, 1: 260-272.
- Ahmad, Saadia A. and Erin M. Warriner. 2001. "Review of the NEPSY: A Developmental Neuropsychological Assessment", *The Clinical Neuropsychologist* 15, 2: 240-249.

- Ahmed, Mohamed Abdel-Salam. 1954. "Mental manipulation", *Egyptian Yearbook of Psychology* 1: 23-88.
- Akimoto, Yoritaka, Shiho Miyazawa and Toshiaki Muramoto. 2012. "Comprehension processes of verbal irony: The effects of salience, egocentric context, and allo-centric theory of mind", *Metaphor and Symbol* 27, 3: 217-242.
- Alba-Juez, Laura. 1994. "Irony and politeness", *Revista española de lingüística aplicada*: 9-16.
- Alba-Juez, Laura. 1995. "Irony and the other off record strategies within politeness theory", *Miscelánea: A Journal of English and American Studies* 16: 13-23.
- Alexander, Richard J. 1991. "Hopes and fears of a corpus linguist: Or, the sad but edifying tale of a corpus search for fixed expressions", *Linguistic LAUD Agency. Series A: General & Theoretical Papers* 311: 1-15.
- Alladi, Suvarna, Thomas H. Bak, Vasanta Duggirala, Bapiraju Surampudi, Mekala Shailaja, Anuj Kumar Shukla, Jaydip Ray Chaudhuri and Subhash Kaul. 2013. "Bilingualism delays age at onset of dementia, independent of education and immigration status", *Neurology* 81, 22: 1938-1944.
- Alladi, Suvarna, Thomas H. Bak, Shailaja Mekala, Amulya Rajan, Jaydip Ray Chaudhuri, Eneida Mioshi, Rajesh Krovvidi, Bapiraju Surampudi, Vasanta Duggirala and Subhash Kaul. 2016. "Impact of bilingualism on cognitive outcome after stroke", *Stroke* 47, 1: 258-261.
- Altarriba, Jeanette and Roberto R. Heredia. 2008. "Introduction", in: Jeanette Altarriba and Roberto R. Heredia (eds.), *An introduction to bilingualism: Principles and processes*. New York: Psychology Press, 3-11.
- Altman, Carmit, Tamara Goldstein, and Sharon Armon-Lotem. 2018. "Vocabulary, metalinguistic awareness and language dominance among bilingual preschool children", *Frontiers in Psychology* 9: 1953: 1-18.
- Anastasi, Anne. 1961. *Psychological testing*. (2nd edition.) New York: Macmillan.
- Andrews, Janet, Elisabeth Rosenblatt, U. Malkus, Howard Gardner and Ellen Winner. 1986. "Children's abilities to distinguish metaphoric and ironic utterances from mistakes and lies", *Communication and Cognition* 19, 281-298.
- Angeleri, Romina and Gabriella Airenti. 2014. "The development of joke and irony understanding: A study with 3-to 6-year-old children", *Canadian Journal of Experimental Psychology* 68, 2: 133-146.

- Anolli, Luigi, Rita Ciceri and Maria Giaele Infantino. 2000. "Irony as a game of implicitness: Acoustic profiles of ironic communication", *Journal of Psycholinguistic Research* 29, 3: 275-311.
- Antoniou, Kyriakos, Alma Veenstra, Mikhail Kissine, and Napoleon Katsos. 2020. "How does childhood bilingualism and bi-dialectalism affect the interpretation and processing of pragmatic meanings?", *Bilingualism: Language and Cognition* 23, 1: 186-203.
- Antoniou, Kyriakos and Emmanouela Milaki. 2021. "Irony comprehension in bidialectal speakers", *The Modern Language Journal* 105, 3: 697-719.
- Antoniou, Kyriakos, and Napoleon Katsos. 2017. "The effect of childhood multilingualism and bilectalism on implicature understanding", *Applied Psycholinguistics* 38, 4: 787-833.
- Antonoplis, Stephen. 2023. "Studying socioeconomic status: Conceptual problems and an alternative path forward", *Perspectives on Psychological Science* 18, 2: 275-292.
- Aronson, Elizabeth, Heather Biegler, Bradley Bond, Ruth Anne Clark, Kristin Drogos, Mattea A. Garcia, Sarah G. Gleisner, Adrienne Hendee, Vincent Licciardello, Suzanne C. Linder, Sarah Mannone, Leigh Marshall, Vincent Pham, Robert Porter, Allison M. Scott, Joan M. Volkmann and Ashley Yahn. 2007. "Norms for teasing among college students", *Communication Research Reports* 24, 2: 169-176.
- Arsenian, Seth. 1945. "Bilingualism in the post-war world", *Psychological Bulletin* 42, 2: 65-86.
- Astington, Janet Wilde, Janette Pelletier and Bruce Homer. 2002. "Theory of mind and epistemological development: The relation between children's second-order false-belief understanding and their ability to reason about evidence", *New Ideas in Psychology* 20, 2: 131-144.
- Attardo, Salvatore. 2000. "Irony as relevant inappropriateness", *Journal of Pragmatics* 32, 6: 793-826.
- Attardo, Salvatore. 2001. "Humor and irony in interaction: From mode adoption to failure of detection", in: Luigi Anolli, Rita Ciceri and Giuseppe Riva (eds.), *Say not to say: New perspectives on miscommunication*. Amsterdam: IOS Press.

- Attardo, Salvatore, Jodi Eisterhold, Jennifer Hay and Isabella Poggi. 2003. "Multimodal markers of irony and sarcasm", *Humor* 16, 2: 243-260.
- Attardo, Salvatore, Lucy Pickering and Amanda Baker. 2001. "Prosodic and multimodal markers of humor in conversation", *Pragmatics and Cognition* 19, 2: 224-247.
- Austin, John L. 1962. *How to do things with words*. Oxford: Oxford University Press.
- Baetens Beardsmore, Hugo. 1982. *Bilingualism: Basic principles*. Clevedon: Multilingual Matters.
- Bak, Thomas H. 2015. "Beyond a simple 'yes' and 'no'", *Cortex* 73: 332-333.
- Bak, Thomas H. 2016a. "Cooking pasta in La Paz: Bilingualism, bias and the replication crisis", *Linguistic Approaches to Bilingualism* 6, 5: 699-717.
- Bak, Thomas H. 2016b. "The impact of bilingualism on cognitive ageing and dementia: Finding a path through a forest of confounding variables", *Linguistic Approaches to Bilingualism* 6, 1-2: 205-226.
- Bak, Thomas H., Jack J. Nissan, Michael M. Allerhand and Ian J. Deary. 2014. "Does bilingualism influence cognitive aging?", *Annals of Neurology* 75, 6: 959-963.
- Bak, Thomas H. and Ian Robertson. 2017. "Biology enters the scene – a new perspective on bilingualism, cognition, and dementia", *Neurobiology of Aging* 50: iii-vi.
- Baker, Colin. 2001. *Foundations of bilingual education and bilingualism*. Clevedon: Multilingual Matters.
- Baker, Colin and Sylvia Prys Jones. 1998. *Encyclopedia of bilingualism and bilingual education*. Clevedon: Multilingual Matters.
- Banasik, Natalia. 2013. "Non-literal speech comprehension in preschool children—an example from a study on verbal irony", *Psychology of Language and Communication* 17, 3: 309-324.
- Banasik, Natalia. 2017. *Rozwój wnioskowania społecznego u dzieci. Rozumienie ironii werbalnej a teoria umysłu [Social reasoning in children. Irony comprehension and theory of mind]*. [Unpublished Ph.D. dissertation, University of Warsaw, Warszawa.].
- Banasik, Natalia and Barbara Bokus. 2012. *Measuring the understanding of verbal irony in children*. (Paper presented at Psycholinguistics in Flanders, Berg en Dal, 6-7 June 2012.).

- Banasik, Natalia and Kornelia Podsiadło. 2016. "Comprehension of ironic utterances by bilingual children", *Psychology of Language and Communication* 20, 3: 316-335.
- Banasik-Jemielniak, Natalia. 2019. "Children's exposure to irony in the first four years of their life: What we learn about the use of ironic comments by mothers from the analysis of the Providence Corpus of CHILDES", *Psychology of Language and Communication* 23, 1: 1-13.
- Banasik-Jemielniak, Natalia and Barbara Bokus. 2019. "Children's comprehension of irony: Studies on Polish-Speaking preschoolers", *Journal of Psycholinguistic Research* 48, 5: 1217-1240.
- Banasik-Jemielniak, Natalia, Sandra Bosacki, Anna Mitrowska, Diana Wyrębek Walters, Katarzyna Wisiecka, Natalia Ewelina Copeland, Lara Wieland, Ljiljana Popovic, Jovana Piper, and Aleksandra Siemieniuk. 2020. "'Wonderful! We've just missed the bus.' – Parental use of irony and children's irony comprehension", *PLoS ONE* 15, 2: e0228538. (doi:10.1371/journal.pone.0228538).
- Banasik-Jemielniak, Natalia, and Piotr Kałowski. 2022. "Socio-cultural and individual factors in verbal irony use and understanding: What we know, what we don't know, what we want to know", *Review of Communication Research* 10: 80-113.
- Banasik-Jemielniak, Natalia, Piotr Kałowski, Büşra Akkaya, Aleksandra Siemieniuk, Yasemin Abayhan, Duygu Kandemirci-Bayız, Ewa Dryll, Katarzyna Branowska, Anna Olechowska, Melanie Glenwright, Maria Zajączkowska, Magdalena Rowicka, and Penny M. Pexman. 2022. "Sarcasm use in Turkish: The roles of personality, age, gender, and self-esteem", *PLoS ONE* 17, 11: e0276073. (doi:10.1371/journal.pone.0276073).
- Barac, Raluca, Ellen Bialystok, Dina C. Castro and Marta Sanchez. 2014. "The cognitive development of young dual language learners: A critical review", *Early Childhood Research Quarterly* 29, 4: 699-714.
- Barac, Raluca, Sylvain Moreno and Ellen Bialystok. 2016. "Behavioral and electrophysiological differences in executive control between monolingual and bilingual children", *Child Development* 87, 4: 1277-1290.
- Barbe, Katharina. 1995. *Irony in context*. Amsterdam: John Benjamins Publishing Company.

- Barke, Ethel M. 1933. "A study of the comparative intelligence of children in certain bilingual and monoglot schools in South Wales", *British Journal of Educational Psychology* 3, 3: 237-250.
- Baron-Cohen, Simon, Alan M. Leslie and Uta Frith. 1985. "Does the autistic child have a 'theory of mind'?", *Cognition* 21, 1: 37-46.
- Baxter, Leslie A. 1992. "Forms and functions of intimate play in personal relationships", *Human Communication Research* 18, 3: 336-363.
- Beck, Sara D. and Andrea Weber. 2016. "Bilingual and monolingual idiom processing is cut from the same cloth: The role of the L1 in literal and figurative meaning activation", *Frontiers in Psychology* 7, 1350: 1-16.
- Bee Chin, Ng and Gillian Wigglesworth. 2007. *Bilingualism: An advanced resource book*. London: Routledge.
- Bellugi, Ursula, Shelly Marks, Amy M. Bihrlé and Helene Sabo. 1988. "Dissociation between language and cognitive function in Williams Syndrome", in: Dorothy Bishop and Kay Mogford (eds.), *Language development in exceptional circumstances*. Edinburgh: Churchill Livingstone, 177-189.
- Bennett, David A., Robert S. Wilson, Julie A. Schneider, Denis A. Evans, Carlos F. Mendes De Leon, Steven E. Arnold, Lisa L. Barnes and Julia L. Bienias. 2003. "Education modifies the relation of AD pathology to level of cognitive function in older persons", *Neurology* 60, 12: 1909-1915.
- Ben-Zeev, Sandra. 1977. "The influence of bilingualism on cognitive strategy and cognitive development", *Child Development* 48, 3: 1009-1018.
- Berguno, George and Dermot M. Bowler. 2004. "Communicative interactions, knowledge of a second language, and Theory of Mind in young children", *The Journal of Genetic Psychology* 165, 3: 293-309.
- Berko, Jean. 1958. "The child's learning of English morphology", *Word* 14, 2-3: 150-177.
- Berntsen, Dorthé and John M. Kennedy. 1996. "Unresolved contradictions specifying attitudes – in metaphor, irony, understatement and tautology", *Poetics* 1, 24: 13-29.
- Berrendonner, Alain. 1981. *Eléments de pragmatique linguistique* [Elements of linguistic pragmatics]. Paris: Les Éditions de Minuit.

- Best, John R., Patricia H. Miller and Jack A. Naglieri. 2011. "Relations between executive function and academic achievement from ages 5 to 17 in a large, representative national sample", *Learning and Individual Differences* 21, 4: 327-336.
- Bhattacharjee, Yudhijit. 2012. "Why bilinguals are smarter", *The New York Times*, 17 March 2012. (<http://www.nytimes.com/2012/03/18/opinion/sunday/the-benefits-of-bilingualism.html>) (date of access: 6 Feb. 2017).
- Białecka-Pikul, Marta. 2012. *Narodziny i rozwój refleksji nad myśleniem* [The birth and development of reflection on thinking]. Kraków: Wydawnictwo Naukowe Uniwersytetu Jagiellońskiego.
- Bialystok, Ellen. 1986. "Children's concept of word", *Journal of Psycholinguistic Research* 15, 1: 13-32.
- Bialystok, Ellen. 1988. "Levels of bilingualism and levels of linguistic awareness", *Developmental Psychology* 24, 4: 560-567.
- Bialystok, Ellen. 1999. "Cognitive complexity and attentional control in the bilingual mind", *Child Development* 70, 3: 636-644.
- Bialystok, Ellen. 2001a. *Bilingualism in development. Language, literacy and cognition*. New York: Cambridge University Press.
- Bialystok, Ellen. 2001b. "Metalinguistic aspects of bilingual processing", *Annual Review of Applied Linguistics* 21: 169-181.
- Bialystok, Ellen. 2006. "Effect of bilingualism and computer video game experience on the Simon task", *Canadian Journal of Experimental Psychology* 60, 1: 68-79.
- Bialystok, Ellen. 2009. "Bilingualism: The good, the bad, and the indifferent", *Bilingualism: Language and Cognition* 12, 1: 3-11.
- Bialystok, Ellen. 2015. "Bilingualism and the development of executive function: The role of attention", *Child Development Perspectives* 9, 2: 117-121.
- Bialystok, Ellen, Jubin Abutalebi, Thomas H. Bak, Deborah M. Burke and Judith F. Kroll. 2016. "Aging in two languages: Implications for public health", *Ageing Research Reviews* 27: 56-60.
- Bialystok, Ellen, Fergus I. M. Craik and Morris Freedman. 2007. "Bilingualism as a protection against the onset of symptoms of dementia", *Neuropsychologia* 45, 2: 459-464.

- Bialystok, Ellen, Fergus I. M. Craik, Raymond Klein and Mythili Viswanathan. 2004. "Bilingualism, aging, and cognitive control: Evidence from the Simon task", *Psychology and Aging* 19, 2: 290-303.
- Bialystok, Ellen, Fergus I. M. Craik and Gigi Luk. 2008. "Lexical access in bilinguals: Effects of vocabulary size and executive control", *Journal of Neurolinguistics* 21, 6: 522-538.
- Bialystok, Ellen, Fergus I. M. Craik and Gigi Luk. 2012. "Bilingualism: Consequences for mind and brain", *Trends in Cognitive Sciences* 16, 4: 240-250.
- Bialystok, Ellen, Gigi Luk, Kathleen F. Peets and Sujin Yang. 2010. "Receptive vocabulary differences in monolingual and bilingual children", *Bilingualism: Language and Cognition* 13, 4: 525-531.
- Bialystok, Ellen, Shilpi Majumder and Michelle M. Martin. 2003. "Developing phonological awareness: Is there a bilingual advantage?", *Applied Psycholinguistics* 24, 1: 27-44.
- Bialystok, Ellen and Michelle M. Martin. 2004. "Attention and inhibition in bilingual children: Evidence from the dimensional change card sort task", *Developmental Science* 7, 3: 325-339.
- Bialystok, Ellen and Lili Senman. 2004. "Executive processes in appearance–reality tasks: The role of inhibition of attention and symbolic representation", *Child Development* 75, 2: 562-579.
- Birch, Susan A. J. 2005. "When knowledge is a curse: Children's and adults' reasoning about mental states", *Current Directions in Psychological Science* 14, 1: 25-29.
- Birdsong, David. 1992. "Ultimate attainment in second language acquisition", *Language* 68, 4: 706-755.
- Birdsong, David and Michelle Molis. 2001. "On the evidence for maturational constraints in second-language acquisition", *Journal of Memory and Language* 44, 2: 235-249.
- Bishop, George F., Alfred J. Tuchfarber and Robert W. Oldendick. 1986. "Opinions on fictitious issues: The pressure to answer survey questions", *Public Opinion Quarterly* 50, 2: 240-250.
- Blanca, María J , Rafael Alarcón, Jaume Arnau, Roser Bono, and Rebecca Bendayan. 2017. "Non-normal data: Is ANOVA still a valid option?", *Psicothema* 29, 5: 552-557.

- Blasko, Dawn G. and Cynthia M. Connine. 1993. "Effects of familiarity and aptness on metaphor processing", *Journal of Experimental Psychology: Learning, Memory, and Cognition* 19, 2: 295-308.
- Bloomfield, Leonard. 1933. *Language*. New York: The University of Chicago Press.
- Bohrn, Isabel C., Ulrike Altmann and Arthur M. Jacobs. 2012. "Looking at the brains behind figurative language: A quantitative meta-analysis of neuroimaging studies on metaphor, idiom, and irony processing", *Neuropsychologia* 50, 11: 2669-2683.
- Bonfiglio, Thomas Paul. 2010. *Mother tongues and nations: The invention of the native speaker*. New York: De Gruyter Mouton.
- Bongaerts, Theo, Chantal van Summeren, Brigitte Planken and Erik Schils. 1997. "Age and ultimate attainment in the pronunciation of a foreign language", *Studies in Second Language Acquisition* 19, 4: 447-465.
- Booth, Wayne. 1974. *A rhetoric of irony*. Chicago: University of Chicago Press.
- Bountrogianni, Marie. 1988. "Bilingualism and metaphor comprehension", *European Journal of Psychology of Education* 3, 1: 53-64.
- Bowdle, Brian F. and Dedre Gentner. 2005. "The career of metaphor", *Psychological Review* 112, 1: 193-216.
- Boxer, Diana and Florencia Cortés-Conde. 1997. "From bonding to biting: Conversational joking and identity display", *Journal of Pragmatics* 27, 3: 275-294.
- Bradley, Lynette and Peter E. Bryant. 1983. "Categorising sounds and learning to read: A causal connection", *Nature* 301: 419-421.
- Bradley, Robert H. and Robert F. Corwyn. 2002. "Socioeconomic status and child development", *Annual Review of Psychology* 53: 371-399.
- Brock, Jon. 2007. "Language abilities in Williams syndrome: A critical review", *Development and Psychopathology* 19, 1: 97-127.
- Bromberek-Dyzman, Katarzyna. 2011. "Język emocji a język ironii w pragmatyce eksperymentalnej" [The language of emotions and the language of irony in experimental pragmatics], *Studia z Kognitywistyki i Filozofii Umysłu* 5, 1: 5-38.
- Bromberek-Dyzman, Katarzyna. 2012. "Affective twist in irony processing", *Humana Mentis Journal of Philosophical Studies* 5, 23: 83-111.
- Bromberek-Dyzman, Katarzyna. 2014. *Attitude and language : On explicit and implicit attitudinal meaning processing*. Poznań: Wydawnictwo Naukowe UAM.

- Bromberek-Dyzman, Katarzyna. 2015. "Irony processing in L1 and L2: Same or different?", in: Roberto R. Heredia and Anna B. Cieślicka (eds.), *Bilingual figurative language processing*. New York: Cambridge University Press, 268-297.
- Bromberek-Dyzman, Katarzyna, Joanna Kowalik and Anna Pękacz. 2022. "Task effects in irony comprehension in English as a foreign language", *Language and Speech*: 1-18. (doi:10.1177/00238309221127).
- Bromberek-Dyzman, Katarzyna, Katarzyna Jankowiak and Paweł Chełminiak. 2021. "Modality matters: Testing bilingual irony comprehension in the textual, auditory, and audio-visual modality", *Journal of Pragmatics* 180: 219-231.
- Bromberek-Dyzman, Katarzyna and Karolina Rataj. 2016. "Irony comprehension in the nonnative language comes at a cost", *Psychology of Language and Communication* 20, 3: 336-353.
- Bromberek-Dyzman, Katarzyna, Karolina Rataj and Jacek Dylak. 2010. "Mentalizing in the second language: Is irony online inferencing any different in L1 and L2?", in: Iwona Witczak-Plisiecka (ed.), *Pragmatic perspectives on language and linguistics*. Vol. 1: *Speech actions in theory and applied studies*. Newcastle: Cambridge Scholars Publishing, 197-216.
- Brown, Penelope and Stephen C. Levinson. 1978. "Universals in language usage: Politeness phenomena", in: Esther N. Goody (ed.), *Questions and politeness: Strategies in social interaction*. Cambridge: Cambridge University Press, 56-311.
- Brown, Penelope and Stephen C. Levinson. 1987. *Politeness: Some universals in language usage*. Cambridge: Cambridge University Press.
- Brownell, Hiram H., Tracy L. Simpson, Amy M. Bihrlle, Heather H. Potter and Howard Gardner. 1990. "Appreciation of metaphoric alternative word meanings by left and right brain-damaged patients", *Neuropsychologia* 28, 4: 375-383.
- Bruck, Maggie and Fred Genesee. 1995. "Phonological awareness in young second language learners", *Journal of Child Language* 22, 2: 307-324.
- Bruin, Angela de, Thomas H. Bak and Sergio Della Sala. 2015a. "Examining the effects of active versus inactive bilingualism on executive control in a carefully matched non-immigrant sample", *Journal of Memory and Language* 85: 15-26.
- Bruin, Angela de, Barbara Treccani and Sergio Della Sala. 2015b. "Cognitive advantage in bilingualism: An example of publication bias?", *Psychological Science* 26, 1: 99-107.

- Bruin, Klaas J., Albertus A. Wijers and Annoesjka S. J. Van Staveren. 2001. "Response priming in a go/nogo task: do we have to explain the go/nogo N2 effect in terms of response activation instead of inhibition?", *Clinical Neurophysiology* 112, 9: 1660-1671.
- Bruntsch, Richard and Willibald Ruch. 2017. "Studying irony detection beyond ironic criticism: Let's include ironic praise", *Frontiers in Psychology* 8, 606: 1-15.
- Bryant, Gregory A. and Jean E. Fox Tree. 2002. "Recognizing verbal irony in spontaneous speech", *Metaphor and Symbol* 17, 2: 99-119.
- Bryant, Gregory A. and Jean E. Fox Tree. 2005. "Is there an ironic tone of voice?", *Language and Speech* 48, 3: 257-277.
- Brydges, Christopher R., Allison M. Fox, Corinne L. Reid and Mike Anderson. 2014. "Predictive validity of the N2 and P3 ERP components to executive functioning in children: A latent-variable analysis", *Frontiers in Human Neuroscience* 8, 80: 1-10.
- Bucciarelli, Monica, Livia Colle and Bruno G Bara. 2003. "How children comprehend speech acts and communicative gestures", *Journal of Pragmatics* 35, 2: 207-241.
- Burke, Deborah M., Donald G. MacKay, Joanna S. Worthley and Elisabeth Wade. 1991. "On the tip of the tongue: What causes word finding failures in young and older adults?", *Journal of Memory and Language* 30, 5: 542-579.
- Burnett, Debra. L. 2015. "Exploring the role of conventionality in children's interpretation of ironic remarks", *Journal of Child Language* 42, 6: 1267-1288.
- Butler, Yuko G. and Kenji Hakuta. 2006. "Bilingualism and second language acquisition", in: Tej K. Bhatia and William C. Ritchie (eds.), *The handbook of bilingualism*. Padstow: Blackwell Publishing, 114-144.
- Cacciari, Cristina. 2015. "Foreword", in: Roberto R. Heredia and Anna B. Cieřlicka (eds.), *Bilingual figurative language processing*. New York: Cambridge University Press, xiii-xvii.
- Caffarra, Sedy, Arman Motamed Haeri and Elissa Michell. 2019. "When is irony influenced by communicative constraints? ERP evidence supporting interactive models", *European Journal of Neuroscience* 50, 10: 3566-3577.
- Caffarra, Sedy, Elissa Michell and Clara D. Martin. 2018. "The impact of foreign accent on irony interpretation", *PLoS ONE* 13, 8: e0200939. (doi:10.1371/journal.pone.0200939).

- Caillies, Stéphanie, Vincine Bertot, Jacques Motte, Christine Raynaud and Michel Abe-ly. 2014. "Social cognition in ADHD: Irony understanding and recursive Theory of Mind", *Research in Developmental Disabilities* 35, 11: 3191-3198.
- Caillies, Stéphanie, Anaïs Hody and Arnaud Calmus. 2012. "Theory of Mind and irony comprehension in children with cerebral palsy", *Research in Developmental Disabilities* 33, 5: 1380-1388.
- Calvo, Noelia, Adolfo M. García, Laura Manoiloff and Agustín Ibáñez. 2016. "Bilingualism and cognitive reserve: A critical overview and a plea for methodological innovations", *Frontiers in Aging Neuroscience* 7, 249: 1-17.
- Campbell, Rachel. 2006. "Teenage girls and cellular phones: Discourses of independence, safety and 'rebellion'", *Journal of Youth Studies* 9, 2: 195-212.
- Campbell, Ruth and Efsia Sais. 1995. "Accelerated metalinguistic (phonological) awareness in bilingual children", *British Journal of Developmental Psychology* 13, 1: 61-68.
- Capelli, Carol A., Noreen Nakagawa and Cary M. Madden. 1990. "How children understand sarcasm: The role of context and intonation", *Child Development* 61, 6: 1824-1841.
- Carlson, Stephanie M., Dorothy J. Mandell and Luke Williams. 2004a. "Executive function and Theory of Mind: Stability and prediction from ages 2 to 3", *Developmental Psychology* 40, 6: 1105-1122.
- Carlson, Stephanie M. and Andrew N. Meltzoff. 2008. "Bilingual experience and executive functioning in young children", *Developmental Science* 11, 2: 282-298.
- Carlson, Stephanie M. and Louis J. Moses. 2001. "Individual differences in inhibitory control and children's Theory of Mind", *Child Development* 72, 4: 1032-1053.
- Carlson, Stephanie M., Louis J. Moses and Casey Breton. 2002. "How specific is the relation between executive function and theory of mind? Contributions of inhibitory control and working memory", *Infant and Child Development* 11, 2: 73-92.
- Carlson, Stephanie M., Louis J. Moses and Laura J. Claxton. 2004b. "Individual differences in executive functioning and theory of mind: An investigation of inhibitory control and planning ability", *Journal of Experimental Child Psychology* 87, 4: 299-319.

- Carpendale, Jeremy I. M and Charlie Lewis. 2004. "Constructing an understanding of mind: The development of children's social understanding within social interaction", *Behavioral and Brain Sciences* 27, 1: 79-150.
- Carpenter, Helen. 2013. "Myelination", in: Peter Robinson (ed.), *The Routledge Encyclopedia of Second Language Acquisition*. New York: Routledge, 451-453.
- Carrol, Gareth, Kathy Conklin and Henrik Gyllstad. 2016. "Found in translation: The influence of the L1 on the reading of idioms in a L2", *Studies in Second Language Acquisition* 38, 3: 403-443.
- Chan, Raymond C. K., David Shum, Timothea Touloupoulou and Eric Y. H. Chen. 2008. "Assessment of executive functions: Review of instruments and identification of critical issues", *Archives of Clinical Neuropsychology* 23, 2: 201-216.
- Chao, Ruth and Vivian Tseng. 2002. "Parenting of Asians", in: Marc H. Bornstein (ed.), *Handbook of parenting*. Vol. 4: *Social conditions and applied parenting*. Mahwah: Lawrence Erlbaum, 59-93.
- Cheang, Henry S. and Marc D. Pell. 2008. "The sound of sarcasm", *Speech Communication* 50, 5: 366-381.
- Cheang, Henry S. and Marc D. Pell. 2009. "Acoustic markers of sarcasm in Cantonese and English", *Journal of Acoustical Society of America* 126, 3: 1394-1405.
- Cheang, Henry S. and Marc D. Pell. 2011. "Recognizing sarcasm without language: A cross-linguistic study of English and Cantonese", *Pragmatics and Cognition* 19, 2: 203-223.
- Chen, Hongjun, Xiaoshuang Peng and Yanli Zhao. 2013. "An ERP study on metaphor comprehension in the bilingual brain", *Chinese Journal of Applied Linguistics* 36, 4: 505-517.
- Chen, Sylvia Xiaohua and Michael Harris Bond. 2010. "Two languages, two personalities? Examining language effects on the expression of personality in a bilingual context", *Personality and Social Psychology Bulletin* 36, 11: 1514-1528.
- Chertkow, Howard, Victor Whitehead, Natalie Phillips, Christina Wolfson, Julie Atherton and Howard Bergman. 2010. "Multilingualism (but not always bilingualism) delays the onset of Alzheimer disease: Evidence from a bilingual community", *Alzheimer Disease and Associated Disorders* 24, 2: 118-125.

- Chin, Richard. 2011. "The science of sarcasm? Yeah, right", *Smithsonian Magazine*, 14 Nov. 2011. (<http://www.smithsonianmag.com/science-nature/the-science-of-sarcasm-yeah-right-25038/>) (date of access: 1 May 2014).
- Cieślicka, Anna B. 2002. "Comprehension and interpretation of proverbs in L2", *Studia Anglica Posnaniensia* 37: 173-200.
- Cieślicka, Anna B. 2004. *On processing figurative language: Towards a model of idiom comprehension in foreign language learners*. Poznań: Motiwex.
- Cieślicka, Anna B. 2006a. "Literal salience in on-line processing of idiomatic expressions by second language learners", *Second Language Research* 22, 2: 115-144.
- Cieślicka, Anna B. 2006b. "On building castles on the sand, or exploring the issue of transfer in the interpretation and production of L2 fixed expressions", in: Janusz Arabski (ed.), *Cross-linguistic influences in second language lexicon*. Clevedon: Multilingual Matters, 226-245.
- Cieślicka, Anna B. 2015. "Idiom acquisition and processing by second/foreign language learners", in: Roberto R. Heredia and Anna B. Cieślicka (eds.), *Bilingual figurative language processing*. New York: Cambridge University Press, 208-244.
- Cieślicka, Anna B. and Roberto R. Heredia. 2011. "Hemispheric asymmetries in processing L1 and L2 idioms: Effects of salience and context", *Brain and Language* 116, 3: 136-150.
- Cieślicka, Anna B. and Roberto R. Heredia. 2013. The multiple determinants of eye movement patterns in bilingual figurative processing. (Paper presented at the 25th APS Annual Convention, Washington, 23-26 May 2013.).
- Cieślicka, Anna B., Roberto R. Heredia and Tanya García. 2017. "Task effects in bilingual idiom comprehension", *Poznań Studies in Contemporary Linguistics* 53, 1: 95-117.
- Cieślicka, Anna B., Roberto R. Heredia and Marc Olivares. 2014. "It's all in the eyes: How language dominance, salience, and context affect eye movements during idiomatic language processing", in: Mirosław Pawlak and Larissa Aronin (eds.), *Essential topics in applied linguistics and multilingualism: Studies in honor of David Singleton*. Cham: Springer, 21-41.
- Clark, Herbert H. and Thomas B. Carlson. 1982. "Hearers and speech acts", *Language* 58, 2: 332-373.

- Clark, Herbert H. and Richard J. Gerrig. 1984. "On the pretense theory of irony", *Journal of Experimental Psychology: General* 113, 1: 121-126.
- Clyne, Michael. 2005. *Australia's language potential*. Sydney: University of New South Wales Press.
- Coderre, Emily, Kathy Conklin and Walter J. B. van Heuven. 2011. "Electrophysiological measures of conflict detection and resolution in the Stroop task", *Brain Research* 1413: 51-59.
- Coderre, Emily L. and Walter J. B. van Heuven. 2014. "Electrophysiological explorations of the bilingual advantage: Evidence from a Stroop Task", *PLoS ONE* 9, 7: e103424. (doi:10.1371/journal.pone.0103424).
- Colston, Herbert L. [1997] 2007. "Salting a Wound or Sugaring a Pill: The Pragmatic Functions of Ironic Criticism", in: Raymond W. Gibbs Jr. and Herbert L. Colston (eds.), *Irony in language and thought*. New York: Lawrence Erlbaum Associates, 319-338.
- Colston, Herbert L. and Raymond W. Gibbs Jr. 2002. "Are irony and metaphor understood differently?", *Metaphor and Symbol* 17, 1: 57-80.
- Colston, Herbert L. and Raymond W. Gibbs Jr. 2007. "A brief history of irony", in: Raymond W. Gibbs Jr. and Herbert L. Colston (eds.), *Irony in language and thought*. New York: Lawrence Erlbaum Associates, 3-21.
- Colston, Herbert L. and Sabrina Y. Lee. 2004. "Gender differences in verbal irony use", *Metaphor and Symbol* 19, 4: 289-306.
- Comeau, Liane, Fred Genesee and Morton Mendelson. 2007. "Bilingual children's repairs of breakdowns in communication", *Journal of Child Language* 34, 1: 159-174.
- Cook, Vivian. 2002. "Background to the L2 User", in: Vivian Cook (ed.), *Portraits of the L2 User*. Clevedon: Multilingual Matters, 1-28.
- Coombs, William T., James Algina, and Debra Olson Oltman. 1996. "Univariate and multivariate omnibus hypothesis tests selected to control type I error rates when population variances are not necessarily equal", *Review of Educational Research* 66, 2: 137-179.
- Costa, Albert, Alice Foucart, Inbal Arnon, Melina Aparici, and Jose Apesteguia. 2014. "'Piensa' twice: On the foreign language effect in decision making", *Cognition* 130, 2: 236-54.

- Costa, Albert, Alice Foucart, Sayuri L. Hayakawa, Melina Aparici, Jose Apesteguia, Joy Heafner and Boaz Keysar. 2014. "Your morals depend on language", *PloS ONE* 9, 4: e94842. (doi:10.1371/journal.pone.0094842).
- Costa, Albert, Mireia Hernández, Jordi Costa-Faidella and Núria Sebastián-Gallés. 2009. "On the bilingual advantage in conflict processing: Now you see it, now you don't", *Cognition* 113, 2: 135-149.
- Coulson, Seana and Cyma Van Petten. 2007. "A special role for the right hemisphere in metaphor comprehension? ERP evidence from hemifield presentation", *Brain Research* 1146: 128-145.
- Council of Europe. 2001. *Common European Framework of Reference for languages: Learning, teaching, assessment*. Strasbourg: Cambridge University Press.
- Craik, Fergus IM, Ellen Bialystok and Morris Freedman. 2010. "Delaying the onset of Alzheimer disease Bilingualism as a form of cognitive reserve", *Neurology* 75, 19: 1726-1729.
- Creusere, Marlena A. 1999. "Theories of adults' understanding and use of irony and sarcasm: Applications to and evidence from research with children", *Developmental Review* 19, 2: 213-262.
- Creusere, Marlena A. 2000. "A developmental test of theoretical perspectives on the understanding of verbal irony: Children's recognition of allusion and pragmatic insincerity", *Metaphor and Symbol* 15, 1-2: 29-45.
- Cummins, James. 1976. "The influence of bilingualism on cognitive growth: A synthesis of research findings and explanatory hypotheses", *Working Papers on Bilingualism* 9: 1-43.
- Cummins, James. 1978. "Bilingualism and the development of metalinguistic awareness", *Journal of Cross-Cultural Psychology* 9, 2: 131-149.
- Cummins, Jim. 1984. *Bilingualism and special education: Issues in assessment and pedagogy*. Clevedon: Multilingual Matters.
- Cummins, Jim. 1994. "Semilingualism", in: *Encyclopedia of language and linguistics*. (2nd edition.) Oxford: Elsevier Science, 3812-3814.
- Curcó, Carmen. 2000. "Irony: Negation, echo and metarepresentation", *Lingua* 110, 4: 257-280.
- Curtiss, Susan R. 1977. *Genie: A psycholinguistic study of a modern-day wild child*. New York: Academic Press.

- Cutler, Anne. 1976. "Beyond parsing and lexical look-up: An enriched description of auditory sentence comprehension", in: Roger J. Wales and Edward Walker (eds.), *New approaches to language mechanisms: A collection of psycholinguistic studies*. Amsterdam: North-Holland Publishing Company, 133-149.
- Dahlgren, SvenOlof, Helena Almén, and Annika Dahlgren Sandberg. 2017. "Theory of Mind and executive functions in young bilingual children", *The Journal of Genetic Psychology* 178, 5: 303-307.
- Darcy, Natalie T. 1953. "A review of the literature on the effects of bilingualism upon the measurement of intelligence", *The Journal of Genetic Psychology* 82, 1: 21-57.
- Davidson, Denise, Vanessa R. Raschke and Jawad Pervez. 2010. "Syntactic awareness in young monolingual and bilingual (Urdu–English) children", *Cognitive Development* 25, 2: 166-182.
- Davies, Alan. 1991. *The native speaker in applied linguistics*. Edinburgh: Edinburgh University Press.
- Davies, Alan. 2003. *The native speaker: Myth and reality*. Clevedon: Multilingual Matters.
- Davies, Mary and Arthur George Hughes. 1927. "An investigation into the comparative intelligence and attainments of Jewish and non-Jewish school children", *British Journal of Psychology. General Section* 18, 2: 134-146.
- Davine, M., G. Richard Tucker and Wallace E. Lambert. 1971. "The perception of phoneme sequences by monolingual and bilingual elementary school children", *Canadian Journal of Behavioral Science* 3, 1: 72-76.
- Davis, Kingsley. 1940. "Extreme social isolation of a child", *American Journal of Sociology* 45, 4: 554-565.
- De Luca, Cinzia R. and Richard J. Leventer. 2010. "Developmental trajectories of executive functions across the lifespan", in: Vicki Anderson, Rani Jacobs and Peter J. Anderson (eds.), *Executive functions and the frontal lobes: A lifespan perspective*. New York: Taylor and Francis, 23-56.
- Dehaene, Stanislas. 1999. "Fitting two languages into one brain", *Brain* 122, 12: 2207-2208.
- Dell'Amore, Christine. 2011. "To stave off Alzheimer's, learn a language?", *National Geographic*, 18 Feb. 2011.

- (<http://news.nationalgeographic.com/news/2011/02/100218-bilingual-brains-alzheimers-dementia-science-aging/>) (date of access: 6 Feb. 2017).
- Demorest, Amy, Christine Meyer, Erin Phelps, Howard Gardner and Ellen Winner. 1984. "Words speak louder than actions: Understanding deliberately false remarks", *Child Development* 55, 4: 1527-1534.
- Demorest, Amy, Lisa Silberstein, Howard Gardner and Ellen Winner. 1983. "Telling it as it isn't: Children's understanding of figurative language", *British Journal of Developmental Psychology* 1, 2: 121-134.
- DePaulo, Bella M. 1978. "Decoding discrepant nonverbal cues", *Journal of Personality and Social Psychology* 36, 3: 313-323.
- Dewaele, Jean-Marc. 2010. *Emotions in multiple languages*. Houndmills: Palgrave Macmillan.
- Dewaele, Jean-Marc and Seiji Nakano. 2013. "Multilinguals' perceptions of feeling different when switching languages", *Journal of Multilingual and Multicultural Development* 34, 2: 107-120.
- Dews, Shelly, Joan Kaplan and Ellen Winner. [1995a] 2007. "Why not say it directly? The social functions of irony", in: Raymond W. Gibbs Jr. and Herbert L. Colston (eds.), *Irony in Language and Thought*. New York: Lawrence Erlbaum Associates, 297-317.
- Dews, Shelly and Ellen Winner. 1995. "Muting the meaning: A social function of irony", *Metaphor and Symbolic Activity* 10, 1: 3-19.
- Dews, Shelly and Ellen Winner. 1999. "Obligatory processing of literal and nonliteral meanings in verbal irony", *Journal of Pragmatics* 31, 12: 1579-1599.
- Dews, Shelly, Ellen Winner, Joan Kaplan, Elizabeth Rosenblatt, Malia Hunt, Karen Lim, Angela McGovern, Alison Qualter and Bonnie Smarsh. 1996. "Children's understanding of the meaning and functions of verbal irony", *Child Development* 67, 6: 3071-3085.
- Dews, Shelly, Ellen Winner, Natasha Nicolaidis and Malia Hunt. 1995b. Forms and functions of verbal irony found in children's and adults' television shows. (Paper presented at American Psychological Association, New York, Aug. 1995.).
- Dickersin, Kay. 1990. "The existence of publication bias and risk factors for its occurrence", *Journal of the American Medical Association* 263, 10: 1385-1389.
- Diebold, Richard A. 1961. "Incipient bilingualism", *Language* 37, 1: 97-112.

- Diebold, Richard A. 1966. The consequences of early bilingualism in cognitive development and personality formation. (Paper presented at The Study of Personalist Symposium, Rice University, Houston, Nov. 1966.).
- Dirven, René and Günter Radden. 2004. "The cognitive basis of language: Language and thought", in: René Dirven and Marjolijn Verspoor (eds.), *Cognitive exploration of language and linguistics*. Amsterdam: John Benjamins Publishing Company, 1-23.
- Doody, Gill A., M. Götz, E. C. Johnstone, Christopher D. Frith and David G. Owens. 1998. "Theory of Mind and psychoses", *Psychological Medicine* 28, 2: 397-405.
- Dörnyei, Zoltán and Richard Clément. 2001. "Motivational characteristics of learning different target languages", in: Zoltán Dörnyei and Richard Schmidt (eds.), *Motivation and second language acquisition*. Honolulu: University of Hawaii, 399-432.
- Dress, Megan L., Roger J. Kreuz, Kristen E. Link and Gina M. Caucci. 2008. "Regional variation in the use of sarcasm", *Journal of Language and Social Psychology* 27, 1: 71-85.
- Dryer-Seymour, Jennifer and Maureen Callanan. 2005. Parents and children talk about irony. (Paper presented at the Biennial Conference of the Society for Research in Child Development, Atlanta, April 2005.).
- Dunn, Bruce R., Denise A. Dunn, Marlin Languis and David Andrews. 1998. "The relation of ERP components to complex memory processing", *Brain and Cognition* 36, 3: 355-376.
- Dunn, Lloyd M. 1959. *Peabody Picture Vocabulary Test*. Circle Pines: American Guidance Service.
- Dunn, Lloyd M. and Douglas M. Dunn. 2007. *Peabody Picture Vocabulary Test*. (4th edition.). Minneapolis: Pearson Assessments.
- Dunn, Lloyd M. and Leota M. Dunn. 1997. *Peabody Picture Vocabulary Test*. (3rd edition.). Bloomington: Pearson Assessments.
- Dunn, Lloyd M., Delia E. Lugo, Eligio R. Padilla and Leota M. Dunn. 1986. *Test de vocabulario en imágenes Peabody* [Peabody Picture Vocabulary Test]. Circle Pines: American Guidance Service.
- Dynel, Marta. 2008. "No aggression, only teasing: The pragmatics of teasing and banter", *Lodz Papers in Pragmatics* 4, 2: 241-261.

- Dynel, Marta. 2013. "When does irony tickle the hearer? Towards capturing the characteristics of humorous irony", in: Marta Dynel (ed.), *Developments in linguistic humour theory*. Amsterdam: John Benjamins Publishing Company, 289-320.
- Dynel, Marta. 2014a. "Isn't it ironic? Defining the scope of humorous irony", *Humor* 27, 4: 619-639.
- Dynel, Marta. 2014b. "Linguistic approaches to (non)humorous irony", *Humor* 27, 4: 537-550.
- Dynel, Marta. 2016. "Two layers of overt untruthfulness: When irony meets metaphor, hyperbole or meiosis", *Pragmatics and Cognition* 23, 2: 259 -283.
- Dynel, Marta. 2018a. "Deconstructing the myth of positively evaluative irony", in: Manuel Jobert and Sandrine Sorlin (eds), *The pragmatics of irony and banter*. Amsterdam: John Benjamins Publishing Company, 41-57.
- Dynel, Marta. 2018b. *Irony, deception and humour: Seeking the truth about overt and covert untruthfulness*. Berlin: De Gruyter Mouton.
- Dynel, Marta. 2019. "Ironic intentions in action and interaction", *Language Sciences* 75: 1-14.
- e-COST. 2011. *COST Action IS0804. Language impairment in a multilingual society: Linguistic patterns and the road to assessment*.
(http://www.cost.eu/COST_Actions/isch/IS0804) (date of access: 1 Oct. 2017).
- Edwards, John. 2006. "Foundations of bilingualism", in: Tej K. Bhatia and William C. Ritchie (eds.), *The handbook of bilingualism*. Padstow: Blackwell Publishing, 7-31.
- Eggs, Ekehart. 1979. "Eine Form des uneigentlichen Sprechens: Die Ironie" [A form of improper speech: Irony]", *Folia Linguistica* 13: 413-435.
- Eigsti, Inge-Marie. 2013. "Peabody Picture Vocabulary Test", in: Fred R. Volkmar (ed.), *Encyclopedia of Autism Spectrum Disorders*. New York: Springer, 2143-2146.
- Eisterhold, Jodi, Salvatore Attardo and Diana Boxer. 2006. "Reactions to irony in discourse: Evidence for the least disruption principle", *Journal of Pragmatics* 38, 8: 1239-1256.
- Epley, Nicholas, Carey K. Morewedge and Boaz Keysar. 2004. "Perspective taking in children and adults: Equivalent egocentrism but differential correction", *Journal of Experimental Social Psychology* 40, 6: 760-768.

- Eriksen, Barbara A. and Charles W. Eriksen. 1974. "Effects of noise letters upon the identification of a target letter in a nonsearch task", *Perception and Psychophysics* 16, 1: 143-149.
- Evans, Denis A., Liesi E. Herbert, Laurel A. Beckett, Paul A. Scherr, Marilyn S. Albert, Marilyn J. Chown, David M. Pilgrim and James O. Taylor. 1997. "Education and other measures of socioeconomic status and risk of incident Alzheimer disease in a defined population of older persons", *Archives of Neurology* 54, 11: 1399-1405.
- Eviatar, Zohar and Marcel Adam Just. 2006. "Brain correlates of discourse processing: An fMRI investigation of irony and conventional metaphor comprehension", *Neuropsychologia* 44, 12: 2348-2359.
- Fan, Jin, Bruce D. McCandliss, Tobias Sommer, Amir Raz and Michael I. Posner. 2002. "Testing the efficiency and independence of attentional networks", *Journal of Cognitive Neuroscience* 14, 3: 340-347.
- Fan, Samantha P., Zoe Liberman, Boaz Keysar and Katherine D. Kinzler. 2015. "The exposure advantage: Early exposure to a multilingual environment promotes effective communication", *Psychological Science* 26, 7: 1090-1097.
- Farhadian, Mokhtar, Rohani Abdullah, Mariani Mansor, Ma'arof Redzuan, Neda Gazanizadand and Vijay Kumar. 2010. "Theory of Mind in Bilingual and Monolingual Preschool Children", *Journal of Psychology* 1, 1: 39-46.
- Federmeier, Kara D., Heinke Mai and Marta Kutas. 2005. "Both sides get the point: Hemispheric sensitivities to sentential constraint", *Memory and Cognition* 33, 5: 871-886.
- Ferguson, Melissa J. and Vivian Zayas. 2009. "Automatic evaluation", *Current Directions in Psychological Science* 18, 6: 362-366.
- Filippova, Eva. 2014. "Irony production and comprehension", in: Danielle Matthews (ed.), *Pragmatic development in first language acquisition*. Amsterdam: John Benjamins, 261-278.
- Filippova, Eva and Janet Wilde Astington. 2008. "Further development in social reasoning revealed in discourse irony understanding", *Child Development* 79, 1: 126-138.

- Filippova, Eva and Janet Wilde Astington. 2010. "Children's understanding of social-cognitive and social-communicative aspects of discourse irony", *Child Development* 81, 3: 913-928.
- Fishman, Joshua A. [1965] 1972. "Varieties of ethnicity and varieties of language consciousness", in: Anwar S. Dil (ed.), *Language in sociocultural change: Essays by Joshua A. Fishman*. Stanford: Stanford University Press, 179-191.
- Fishman, Joshua A. [1968] 1972. "Language maintenance and language shift as a field of inquiry: Revisited", in: Anwar S. Dil (ed.), *Language in sociocultural change: Essays by Joshua A. Fishman*. Stanford: Stanford University Press, 76-134.
- Fishman, Joshua A. 1977. "The social science perspective", in: Joshua A. Fishman (ed.), *Bilingual education: Current perspectives*. Vol. 1: *Social science*. Airlington: Center for Applied Linguistics, 1-49.
- Fitch, Kristine. 2008. "Directives", in: Wolfgang Donsbach (ed.), *The international encyclopedia of communication*. Malden: Blackwell Publishing, 1326-1329.
- Fitzgerald, Jill. 1993. "Views on bilingualism in the United States: A selective historical review", *Bilingual Research Journal* 17, 1-2: 35-56.
- Flavell, John H., Barbara A. Everett, Karen Croft and Eleanor R. Flavell. 1981. "Young children's knowledge about visual perception: Further evidence for the Level 1 – Level 2 distinction", *Developmental Psychology* 17, 1: 99-103.
- Flavell, John H., Eleanor R. Flavell and Frances L. Green. 1983. "Development of the appearance – reality distinction", *Cognitive Psychology* 15: 95-120.
- Flege, James Emil. 1991. "Age of learning affects the authenticity of voice-onset time (VOT) in stop consonants produced in a second language", *Journal of the Acoustical Society of America* 89, 1: 395-411.
- Flege, James Emil and Kathryn L. Fletcher. 1992. "Talker and listener effects on degree of perceived accent", *Journal of Acoustical Society of America* 91, 1: 370-389.
- Fogelin, Robert R. 1988. *Figuratively speaking*. New York: Oxford University Press.
- Folstein, Jonathan R. and Cyma Van Petten. 2008. "Influence of cognitive control and mismatch on the N2 component of the ERP: A review", *Psychophysiology* 45, 1: 152-170.
- Fowler, Henry Watson. 1965. *A dictionary of modern English usage*. (2nd edition.) Oxford: Oxford University Press.

- Fox, Killian. 2011. "Ellen Bialystok: Bilingual brains are more healthy", *The Guardian*, 12 June 2011. (<http://www.theguardian.com/technology/2011/jun/12/ellen-bialystok-bilingual-brains-more-healthy>) (date of access: 6 Feb. 2017).
- Franco, Annie, Neil Malhotra and Gabor Simonovits. 2014. "Publication bias in the social sciences: Unlocking the file drawer", *Science* 345, 6203: 1502-1505.
- Frank, Michael C. and Rebecca Saxe. 2012. "Teaching replication", *Perspectives on Psychological Science* 7, 6: 600-604.
- Friederici, Angela D., Jens Brauer and Gabriele Lohmann. 2011. "Maturation of the language network: from inter-to intrahemispheric connectivities", *PLoS ONE* 6, 6: e20726. (doi:10.1371/journal.pone.0020726).
- Fusté-Herrmann, Belinda. 2008. Idiom comprehension in bilingual and monolingual adolescents. [Unpublished Ph.D. dissertation, University of South Florida, Tampa.].
- Galambos, Sylvia Joseph and Susan Goldin-Meadow. 1983. "Learning a second language and metalinguistic awareness", in: Amy Chukerman, Mitchell Marks and John F. Richardson (eds.), *Papers from the 19th Regional Meeting of the Chicago Linguistic Society*. Chicago: Chicago Linguistic Society, 117-133.
- Galambos, Sylvia Joseph and Susan Goldin-Meadow. 1990. "The effects of learning two languages on levels of metalinguistic awareness", *Cognition* 34, 1: 1-56.
- Galambos, Sylvia Joseph and Kenji Hakuta. 1988. "Subject-specific and task-specific characteristics of metalinguistic awareness in bilingual children", *Applied Psycholinguistics* 9, 2: 141-162.
- García, Omar, Anna B. Cieślicka and Roberto R. Heredia. 2015. "Nonliteral language Processing and methodological considerations", in: Roberto R. Heredia and Anna B. Cieślicka (eds.), *Bilingual figurative language processing*. New York: Cambridge University Press, 117-168.
- Gardner, Howard and Hiram H. Brownell. 1986. *Right hemisphere communication battery*. Boston: Psychology Service.
- Gardner, Robert C. 2001. "Integrative motivation and second language acquisition", in: Zoltán Dörnyei and Richard Schmidt (eds.), *Motivation and second language acquisition*. Honolulu: University of Hawaii, 1-19.
- Garmendia, Joana. 2010. "Irony is critical", *Pragmatics and Cognition* 18, 2: 397-421.

- Garmendia, Joana. 2014. "The clash: Humor and critical attitude in verbal irony", *Humor* 27, 4: 641-659.
- Garon, Nancy, Susan E. Bryson and Isabel M. Smith. 2008. "Executive function in preschoolers: A review using an integrative framework", *Psychological Bulletin* 134, 1: 31-60.
- Gasser, Michael and Linda B. Smith. 1998. "Learning nouns and adjectives: A connectionist account", *Language and Cognitive Processes* 13, 2-3: 269-306.
- Gentner, Dedre and Brian F. Bowdle. 2001. "Convention, form, and figurative language processing", *Metaphor and Symbol* 16, 3-4: 223-247.
- Gentner, Dedre, Brian F. Bowdle, Phillip Wolff and Consuelo Boronat. 2001. "Metaphor is like analogy", in: Dedre Gentner, Keith J. Holyoak and Boicho K. Kohnov (eds.), *The analogical mind: Perspectives from cognitive science*. Cambridge: The MIT Press, 199-254.
- Gerard, Jean-Aubry. 1967. *Sea-dreamer: A definitive biography of Joseph Conrad*. Hamden: Archon Books.
- Gernsbacher, Morton Ann and Sarah R. Pripas-Kapit. 2012. "Who's missing the point? A commentary on claims that autistic persons have a specific deficit in figurative language comprehension", *Metaphor and Symbol* 27, 1: 93-105.
- Gibbs Jr, Raymond W. 1980. "Spilling the bean on understanding and memory for idioms in conversation", *Memory and Cognition* 8: 449-456.
- Gibbs Jr, Raymond W. [1986] 2007. "On the psycholinguistics of sarcasm", in: Raymond W. Gibbs Jr. and Herbert L. Colston (eds.), *Irony in language and thought*. New York: Lawrence Erlbaum Associates, 173-200.
- Gibbs Jr, Raymond W. 1993. "Why idioms are not dead metaphors", in: Cristina Cacciari and Patrizia Tabossi (eds.), *Idioms: Processing, structure, and interpretation*. Hillsdale: Lawrence Erlbaum Associates, 57-77.
- Gibbs Jr, Raymond W. 1994a. "Figurative thought and figurative language", in: Morton Ann Gernsbacher (ed.), *Handbook of psycholinguistics*. San Diego: Academic Press, 410-446.
- Gibbs Jr, Raymond W. 1994b. *The poetics of mind: Figurative thought, language, and understanding*. New York: Cambridge University Press.

- Gibbs Jr, Raymond W. 1999. "Researching metaphor", in: Lynne Cameron and Graham Low (eds.), *Researching and applying metaphor*. Cambridge: Cambridge University Press, 29-47.
- Gibbs Jr, Raymond W. 2000. "Irony in talk among friends", *Metaphor and Symbol* 15, 1-2: 5-27.
- Gibbs Jr, Raymond W., Gregory A. Bryant and Herbert L. Colston. 2014. "Where is the humor in verbal irony?", *Humor* 27, 4: 575-595.
- Gibbs Jr, Raymond W. and Herbert L. Colston. 2006. "Figurative language", in: Matthew J. Traxler and Morton Ann Gernsbacher (eds.), *Handbook of psycholinguistics*. (2nd edition.) London: Elsevier, 835-861.
- Gibbs Jr, Raymond W. and Herbert L. Colston (eds.). 2007. *Irony in language and thought*. New York: Lawrence Erlbaum Associates.
- Gibbs Jr, Raymond W. and Jennifer O'Brien. 1991. "Psychological aspects of irony understanding", *Journal of Pragmatics* 16, 6: 523-530.
- Gibbs Jr, Raymond W., Jennifer O'Brien and Shelley Doolittle. 1995. "Inferring meanings that are not intended: Speakers' intentions and irony comprehension", *Discourse Processes* 20, 2: 187-203.
- Gibbs Jr, Raymond W. and Jennifer E. O'Brien. 1990. "Idioms and mental imagery: The metaphorical motivation for idiomatic meaning", *Cognition* 36, 1: 35-68.
- Gibbs Jr, Raymond W., Lise K. Strom and Michael J. Spivey-Knowlton. 1997. "Conceptual metaphors in mental imagery for proverbs", *Journal of Mental Imagery* 21, 3-4: 83-110.
- Ginsberg, Esther S. 1996. Bilingual language acquisition: A case study. [Unpublished MA thesis, La Trobe University, Melbourne.].
- Giora, Rachel. 1995. "On irony and negation", *Discourse Processes* 19, 2: 239-264.
- Giora, Rachel. 1997. "Understanding figurative and literal language: The graded salience hypothesis", *Cognitive Linguistics* 8, 3: 183-206.
- Giora, Rachel. 1999. "On the priority of salient meanings: Studies of literal and figurative language", *Journal of Pragmatics* 31, 7: 919-929.
- Giora, Rachel. 2002. "Literal vs. figurative language: Different or equal?", *Journal of Pragmatics* 34, 4: 487-506.
- Giora, Rachel. 2003. *On our mind: Salience, context, and figurative language*. Oxford: Oxford University Press.

- Giora, Rachel and Ofer Fein. 1999a. "Irony: Context and salience", *Metaphor and Symbol* 14, 4: 241-257.
- Giora, Rachel and Ofer Fein. 1999b. "On understanding familiar and less-familiar figurative language", *Journal of Pragmatics* 31, 12: 1601-1618.
- Giora, Rachel, Ofer Fein and Tamir Schwartz. 1998. "Irony: Graded salience and indirect negation", *Metaphor and Symbol* 13, 2: 83-101.
- Giora, Rachel, Eran Zaidel, Nachum Soroker, Gila Batori and Asa Kasher. 2000. "Differential effects of right-and left-hemisphere damage on understanding sarcasm and metaphor", *Metaphor and Symbol* 15, 1-2: 63-83.
- Girden, Ellen R. 1992. *ANOVA: repeated measures*. Newbury Park: Sage.
- Glass, Gene V., Percy D. Peckham, and James R. Sanders. 1972. "Consequences of failure to meet assumptions underlying the fixed effects analysis of variance and covariance", *Review of Educational Research* 42, 3: 237-288.
- Gleitman, Lila R., Henry Gleitman and Elizabeth F. Shipley. 1972. "The emergence of the child as grammarian", *Cognition* 1, 2-3: 137-164.
- Glenwright, Melanie, Brent Tapley, Jacqueline K. S. Rano, and Penny M. Pexman. 2017. "Developing appreciation for sarcasm and sarcastic gossip: It depends on perspective", *Journal of Speech, Language, and Hearing Research* 60, 11: 3295-3309.
- Glenwright, Melanie, Jayanthi M. Parackel, Kristene R. J. Cheung and Elizabeth S. Nilssen. 2014. "Intonation influences how children and adults interpret sarcasm", *Journal of Child language* 41, 2: 472-484.
- Glenwright, Melanie and Penny M. Pexman. 2010. "Development of children's ability to distinguish sarcasm and verbal irony", *Journal of Child Language* 37, 2: 429-451.
- Glucksberg, Sam. 2001. *Understanding figurative language: From metaphor to idioms*. New York: Oxford University Press.
- Glucksberg, Sam. 2003. "The psycholinguistics of metaphor", *Trends in Cognitive Sciences* 7, 2: 92-96.
- Glucksberg, Sam and Catrinel Haught. 2006. "On the relation between metaphor and simile: When comparison fails", *Mind and Language* 21, 3: 360-378.
- Glucksberg, Sam and Boaz Keysar. 1990. "Understanding metaphorical comparisons: Beyond similarity", *Psychological Review* 97, 1: 3-18.

- Godbee, Kali and Melanie Porter. 2013. "Comprehension of sarcasm, metaphor and simile in Williams syndrome", *International Journal of Language and Communication Disorders* 48, 6: 651-665.
- Goethe, Johann Wolfgang von. [1893] 1906. *Maxims and reflections: Prose Maxims*. (Translated by Bailey Saunders.) London: Macmillan and Company.
- Goetz, Peggy J. 2003. "The effects of bilingualism on theory of mind development", *Bilingualism: Language and Cognition* 6, 1: 1-15.
- Gold, Brian T., Nathan F. Johnson and David K. Powell. 2013. "Lifelong bilingualism contributes to cognitive reserve against white matter integrity declines in aging", *Neuropsychologia* 51, 13: 2841-2846.
- Goldin-Meadow, Susan and Sylvia Joseph Galambos. 1990. "The effects of learning two languages on levels of metalinguistic awareness", *Cognition* 34, 1: 1-56.
- Gollan, Tamar H. and Lori-Ann R. Acenas. 2004. "What is a TOT? Cognate and translation effects on tip-of-the-tongue states in Spanish-English and Tagalog-English bilinguals", *Journal of Experimental Psychology: Learning, Memory, and Cognition* 30, 1: 246-269.
- Gollan, Tamar H., Rosa I. Montoya and Grace A. Werner. 2002. "Semantic and letter fluency in Spanish-English bilinguals", *Neuropsychology* 16, 4: 562-576.
- Gollan, Tamar H., David P. Salmon, Rosa I. Montoya and Douglas R. Galasko. 2011. "Degree of bilingualism predicts age of diagnosis of Alzheimer's disease in low-education but not in highly educated Hispanics", *Neuropsychologia* 49, 14: 3826-3830.
- Gollan, Tamar H. and Nina B. Silverberg. 2001. "Tip-of-the-tongue states in Hebrew-English bilinguals", *Bilingualism: Language and Cognition* 4, 1: 63-83.
- Gollan, Tamar H., Rosa I. Montoya, Christine Fennema-Notestine and Shaunna K. Morris. 2005. "Bilingualism affects picture naming but not picture classification", *Memory and Cognition* 33, 7: 1220-1234.
- Göncz, Lajos and Jasmina Kodžopeljić. 1991. "Exposure to two languages in the pre-school period: Metalinguistic development and the acquisition of reading", *Journal of Multilingual and Multicultural Development* 12, 3: 137-163.
- Goodenough, Florence Laura. 1926. "Racial differences in the intelligence of school children", *Journal of Experimental Psychology* 9, 5: 388-397.

- Gopnik, Alison and Janet W. Astington. 1988. "Children's understanding of representational change and its relation to the understanding of false belief and the appearance-reality distinction", *Child Development* 59, 1: 26-37.
- Gordon, Jacki and Gillian Grant. 1997. *How we feel: An insight into the emotional world of teenagers*. London: Jessica Kingsley Publishers.
- Gordon, Katherine R. 2016. "High proficiency across two languages is related to better mental state reasoning for bilingual children", *Journal of Child Language* 43, 2: 407-424.
- Green, David W. and Jubin Abutalebi. 2016. "Language control and the neuroanatomy of bilingualism: In praise of variety", *Language, Cognition and Neuroscience* 31, 3: 340-344.
- Gress, Todd W., James Denvir, and Joseph I. Shapiro. 2018. "Effect of removing outliers on statistical inference: Implications to interpretation of experimental data in medical research", *Marshall Journal of Medicine* 4, 2: 9.
- Grice, Herbert Paul. 1975. "Logic and conversation", in: Peter Cole and Jerry L. Morgan (eds.), *Syntax and semantics*. Vol. 3: *Speech acts*. New York: Academic Press, 41-58.
- Grice, Herbert Paul. [1978] 1989. "Further notes on logic and conversation", in: Herbert Paul Grice, *Studies in the way of words*. Cambridge: Harvard University Press, 41-57.
- Groot, André de, Joan Kaplan, Elisabeth Rosenblatt, Shelly Dews and Ellen Winner. 1995. "Understanding versus discriminating nonliteral utterances: Evidence for a dissociation", *Metaphor and Symbolic Activity* 10, 4: 255-273.
- Grosjean, François. 2008. *Studying bilinguals*. Norfolk: Oxford University Press.
- Grosjean, François. 2010. *Bilingual: Life and reality*. Cambridge: Harvard University Press.
- GUS Główny Urząd Statystyczny [Central Statistical Office]. 2021. *Narodowy Spis Ludności i Mieszkań* [National Population and Housing Census]. (<https://spis.gov.pl>) (date of access: 22 April 2023).
- Haiman, John. 1998. *Talk is cheap: Sarcasm, alienation, and the evolution of language*. Oxford: Oxford University Press.

- Hakuta, Kenji, Ellen Bialystok and Edward W. Wiley. 2003. "Critical evidence: A test of the critical-period hypothesis for second-language acquisition", *Psychological Science* 14, 1: 31-38.
- Halliday, Michael Alexander Kirkwood, Angus McIntosh and Peter Strevens. 1970. *The linguistic sciences and language teaching*. London: Longman.
- Haman, Ewa, Magdalena Łuniewska and Barbara Pomiechowska. 2015. "Designing Cross-linguistic Lexical Tasks (CLTs) for bilingual preschool children", in: Sharon Armon-Lotem, Jan de Jong and Natalia Meir (eds.), *Assessing multilingual children: Disentangling bilingualism from language impairment*. Bristol: Multilingual Matters, 196-240.
- Haman, Ewa, Zofia Wodniecka, Marta Białecka-Pikul, Dorota Kiebzak-Mandera, Jakub Szewczyk, Aneta Mięgisz, Anna Marzecova, Agnieszka Otwinowska-Kasztelanic, Natalia Banasik, Katarzyna Kuś, Magdalena Łuniewska, Joanna Kołak and Paweł Mandera. 2012. A new set of tools for assessing language and cognitive development in Polish children. (Paper presented at SLI – Specific Language Impairment: Diagnosis, Prognosis, Intervention, Warsaw, 5 July 2012.).
- Hammill, Donald D., Nils A. Pearson and J. Lee Wiederholt. 1997. *Comprehensive test of nonverbal intelligence (CTONI)*. Austin: Pro-Ed.
- Hammill, Donald D., Nils A. Pearson and J. Lee Wiederholt. 2009. *Comprehensive Test of Nonverbal Intelligence-Second Edition (CTONI-2)*. Austin: Pro-Ed.
- Hancock, Jeffrey T., Philip J. Dunham and Kelly Purdy. 2000. "Children's comprehension of critical and complimentary forms of verbal irony", *Journal of Cognition and Development* 1, 2: 227-248.
- Happé, Francesca. 1993. "Communicative competence and theory of mind in autism: A test of relevance theory", *Cognition* 48, 2: 101-119.
- Happé, Francesca G. E. 1994. "An advanced test of theory of mind: Understanding of story characters' thoughts and feelings by able autistic, mentally handicapped, and normal children and adults", *Journal of Autism and Developmental Disorders* 24, 2: 129-154.
- Happé, Francesca G. E. 1995. "Understanding minds and metaphors: Insights from the study of figurative language in autism", *Metaphor and Symbolic Activity* 10, 4: 275-295.

- Harris, Melanie and Penny M. Pexman. 2003. "Children's perceptions of the social functions of verbal irony", *Discourse Processes* 36, 3: 147-165.
- Harris, Richard Jackson, Michael R. Tebbe, Garry L. Leka, Reina Coral Garcia and Raquel Erramouspe. 1999. "Monolingual and bilingual memory for English and Spanish metaphors and similes", *Metaphor and Symbol* 14, 1: 1-16.
- Haugen, Einar. 1953. *The Norwegian language in America: A study in bilingual behavior*. Philadelphia: University of Pennsylvania Press.
- Haugen, Einar. 1956. *Bilingualism in the Americas: A bibliography and research guide*. Alabama: University of Alabama Press.
- Haverkate, Henk. 1990. "A speech act analysis of irony", *Journal of Pragmatics* 14, 1: 77-109.
- Hayakawa, Sayuri L., Albert Costa, Alice Foucart and Boaz Keysar. 2016. "Using a foreign language changes our choices", *Trends in Cognitive Sciences* 20, 11: 791-793.
- Heidlmayr, Karin, Barbara Hemforth, Sylvain Moutier and Frédéric Isel. 2015. "Neurodynamics of executive control processes in bilinguals: Evidence from ERP and source reconstruction analyses", *Frontiers in Psychology* 6, 821: 1-18.
- Heine, Marilyn K., Beth A. Ober and Greg Shenaut. 1999. "Naturally occurring and experimentally induced tip-of-the-tongue experiences in three adult age groups", *Psychology and Aging* 14, 3: 445-457.
- Heredia, Roberto R., Angélique M. Blackburn and Luis A. Vega. 2020. "Moderation-mediation effects in bilingualism and cognitive reserve", *Frontiers in Psychology* 11, 572555: 1-10.
- Heredia, Roberto R. and Anna B. Cieślicka (eds.). 2015. *Bilingual figurative language processing*. New York: Cambridge University Press.
- Heredia, Roberto R. and Anna B. Cieślicka. 2016. "Metaphoric reference: An eye movement analysis of Spanish-English and English-Spanish bilingual readers", *Frontiers in Psychology* 7, 439: 1-10.
- Heredia, Roberto R. and Mónica E. Muñoz. 2015. "Metaphoric reference: A real-time analysis", in: Roberto R. Heredia and Anna B. Cieślicka (eds.), *Bilingual figurative language processing*. New York: Cambridge University Press, 89-116.

- Hilchey, Matthew D. and Raymond M. Klein. 2011. "Are there bilingual advantages on nonlinguistic interference tasks? Implications for the plasticity of executive control processes", *Psychonomic Bulletin and Review* 18, 4: 625-658.
- Hirsch, Galia. 2011. "Redundancy, irony and humor", *Language Sciences* 33, 2: 316-329.
- Hoff, Erika. 2003. "The specificity of environmental influence: Socioeconomic status affects early vocabulary development via maternal speech", *Child Development* 74, 5: 1368-1378.
- Hoffmann, Charlotte. 2014. *An introduction to bilingualism*. New York: Routledge.
- Hogrefe, G.-Juergen, Heinz Wimmer and Josef Perner. 1986. "Ignorance versus false belief: A developmental lag in attribution of epistemic states", *Child Development* 57, 3: 567-582.
- Honeck, Richard P. 1980. "Historical notes on figurative language", in: Richard P. Honeck and Robert R. Hoffman (eds.), *Cognition and figurative language*. Hillsdale: Lawrence Erlbaum Associates, 25-46.
- Hongwanishkul, Donaya, Keith R. Happaney, Wendy S. C. Lee and Philip David Zelazo. 2005. "Assessment of hot and cool executive function in young children: Age-related changes and individual differences", *Developmental Neuropsychology* 28, 2: 617-644.
- Houston, Keith. 2013. *Shady characters: The secret life of punctuation, symbols, and other typographical marks*. New York: W. W. Norton and Company.
- Hughes, Claire. 1998. "Finding your marbles: Does preschoolers' strategic behavior predict later understanding of mind?", *Developmental Psychology* 34, 6: 1326-1339.
- Hughes, Claire, Judy Dunn and Adele White. 1998. "Trick or treat?: Uneven understanding of mind and emotion and executive dysfunction in 'hard-to-manage' preschoolers", *Journal of child psychology and psychiatry* 39, 7: 981-994.
- Hughes, Claire and Rosie Ensor. 2005. "Executive function and theory of mind in 2 year olds: A family affair?", *Developmental Neuropsychology* 28, 2: 645-668.
- Humboldt, Wilhelm von. [1836] 1999. *On language: On the diversity of human language construction and its influence on the mental development of the human species*. Cambridge: Cambridge University Press.

- Hurford, James R. 1991. "The evolution of the critical period for language acquisition", *Cognition* 40, 3: 159-201.
- Hutcheon, Linda. 1992. "The complex functions of irony", *Revista Canadiense de Estudios Hispánicos* 16, 2: 219-234.
- Hutcheon, Linda. 1994. *Irony's edge. The theory and politics of irony*. London: Routledge.
- Huttenlocher, Johanna, Wendy Haight, Anthony Bryk, Michael Seltzer and Timothy Lyons. 1991. "Early vocabulary growth: Relation to language input and gender", *Developmental Psychology* 27, 2: 236-248.
- Ianco-Worrall, Anita D. 1972. "Bilingualism and cognitive development", *Child Development* 43, 4: 1390-1400.
- Inhoff, Albrecht Werner, Susan D. Lima and Patrick J. Carroll. 1984. "Contextual effects on metaphor comprehension in reading", *Memory and Cognition* 12, 6: 558-567.
- Ioannidis, John P. A. 2005. "Why most published research findings are false", *PLoS Medicine* 2, 8: e124. (doi:10.1371/journal.pmed.0020124).
- Ioannidis, John P. A. 2012. "Why science is not necessarily self-correcting", *Perspectives on Psychological Science* 7, 6: 645-654.
- Irujo, Suzanne. 1986. "Don't put your leg in your mouth: Transfer in the acquisition of idioms in a second language", *TESOL Quarterly* 20, 2: 287-304.
- Ivanko, Stacey L. and Penny M. Pexman. 2003. "Context incongruity and irony processing", *Discourse Processes* 35, 3: 241-279.
- Ivanko, Stacey L., Penny M. Pexman and Kara M. Olineck. 2004. "How sarcastic are you? Individual differences and verbal irony", *Journal of Language and Social Psychology* 23, 3: 244-271.
- Ivanova, Iva and Albert Costa. 2008. "Does bilingualism hamper lexical access in speech production?", *Acta Psychologica* 127, 2: 277-288.
- James, Cyril B. E. 1960. "Bilingualism in Wales: An aspect of semantic organisation", *Educational Research* 2, 2: 123-136.
- James, Lori E. and Deborah M. Burke. 2000. "Phonological priming effects on word retrieval and tip-of-the-tongue experiences in young and older adults", *Journal of Experimental Psychology: Learning, Memory, and Cognition* 26, 6: 1378-1391.

- Jankowiak, Katarzyna, Karolina Rataj and Ryszard Naskręcki. 2017. "To electrify bilingualism: Electrophysiological insights into bilingual metaphor comprehension", *PLoS ONE* 12, 4: e0175578. (doi:10.1371/journal.pone.0175578).
- Javan, Sara Shoghi, and Behzad Ghonsooly. 2018. "Learning a foreign language: A new path to enhancement of cognitive functions", *Journal of Psycholinguistic Research* 47, 1: 125-138.
- Jobert, Manuel and Sandrine Sorlin (eds). 2018. *The pragmatics of irony and banter*. Amsterdam: John Benjamins Publishing Company.
- Johnson, Jacqueline S. 1992. "Critical period effects in second language acquisition: The effect of written versus auditory materials in the assessment of grammatical competence", *Language Learning* 42, 2: 217-248.
- Johnson, Jacqueline S. and Elissa L. Newport. 1989. "Critical period effects in second language learning: The influence of maturational state on the acquisition of English as a second language", *Cognitive Psychology* 21, 1: 60-99.
- Johnson, Janice. 1987. "The developmental growth of metaphor comprehension in children's first and second language", in: Birgit Harley, Patrick Allen, Jim Cummins and Merrill Swain (eds.), *The development of bilingual proficiency: Final report*. Vol. 1: *The nature of language proficiency*. Toronto: Ontario Institute for Studies in Education, 67-113.
- Johnson, Janice. 1989. "Factors related to cross-language transfer and metaphor interpretation in bilingual children", *Applied Psycholinguistics* 10, 2: 157-177.
- Johnson, Janice. 1996. "Metaphor interpretations by second language learners: Children and adults", *Canadian Modern Language Review* 53, 1: 219-241.
- Johnson, Janice and Teresa Rosano. 1993. "Relation of cognitive style to metaphor interpretation and second language proficiency", *Applied Psycholinguistics* 14, 2: 159-175.
- Jones, W. R. 1960. "A critical study of bilingualism and non-verbal intelligence", *British Journal of Educational Psychology* 30, 1: 71-77.
- Jończyk, Rafał, Bastien Boutonnet, Kamil Musiał, Katie Hoemann, and Guillaume Thierry. 2016. "The bilingual brain turns a blind eye to negative statements in the second language," *Cognitive, Affective, and Behavioral Neuroscience* 16, 3: 527-540.

- Jończyk, Rafał, Inga Korolczuk, Evangelia Balatsou, and Guillaume Thierry. 2019. "Keep calm and carry on: Electrophysiological evaluation of emotional anticipation in the second language", *Social Cognitive and Affective Neuroscience* 14, 8: 885-898.
- Jooper, Ridha, Norbert Schmitz, Lawrence Annable and Patricia Boksa. 2012. "Publication bias: What are the challenges and can they be overcome?", *Journal of Psychiatry and Neuroscience* 37, 3: 149-152.
- Jorgensen, Julia. 1996. "The functions of sarcastic irony in speech", *Journal of Pragmatics* 26, 5: 613-634.
- Jorgensen, Julia, George A. Miller and Dan Sperber. 1984. "Test of the mention theory of irony", *Journal of Experimental Psychology: General* 113, 1: 112-120.
- "Joseph Conrad". 2015. In: *Encyclopædia Britannica*.
(<http://www.britannica.com/biography/Joseph-Conrad>) (date of access: 18 Nov. 2015).
- Kachru, Braj B. 1987. "The spread of English and sacred linguistic cows", in: Peter H. Lowenberg (ed.), *Language spread and language policy: Issues, implications, and case studies*. Washington: Georgetown University Press, 207-228.
- Kaland, Nils, Annette Møller-Nielsen, Kirsten Callesen, Erik Lykke Mortensen, Dorte Gottlieb and Lars Smith. 2002. "A new 'advanced' test of Theory of Mind: evidence from children and adolescents with Asperger syndrome", *Journal of Child Psychology and Psychiatry* 43, 4: 517-528.
- Kang, Jennifer Yusun. 2012. "Do bilingual children possess better phonological awareness? Investigation of Korean monolingual and Korean-English bilingual children", *Reading and Writing* 25, 2: 411-431.
- Kapogianni, Eleni. 2014. "Differences in use and function of verbal irony between real and fictional discourse:(mis) interpretation and irony blindness", *Humor* 27, 4: 597-618.
- Karmiloff-Smith, Annette. 1986. "From meta-processes to conscious access: Evidence from children's metalinguistic and repair data", *Cognition* 23, 2: 95-147.
- Karseter, Allan B. 1964. "Toward a theory of rhetorical irony", *Speech Monographs* 31, 2: 162-178.

- Katz, Albert N., Dawn G. Blasko and Victoria A. Kazmerski. 2004. "Saying what you don't mean: Social influences on sarcastic language processing", *Current Directions in Psychological Science* 13, 5: 186-189.
- Katz, Albert N. and Penny M. Pexman. 1997. "Interpreting figurative statements: Speaker occupation can change metaphor to irony", *Metaphor and Symbol* 12, 1: 19-41.
- Katz, Albert N., Isabela Piasecka and Maggie Toplak. 2001. Comprehending the sarcastic comments of males and females. (Paper presented at the 42nd Annual Meeting of the Psychonomic Society, Orlando, 15-18 Nov. 2001.).
- Kaufer, David. 1977. "Irony and Rhetorical Strategy", *Philosophy and Rhetoric* 10, 2: 90-110.
- Kaul, Subhash, Shailaja Mekala, Thomas H. Bak, Jaydip Ray Chaudhuri, Eneida Mioshi, Bapiraju Surampudi, Vasanta Duggirala, Amulya Rajan and Suvarna Aladi. 2015. "Post-stroke cognitive impairment and bilingualism: A study from the Hyderabad stroke registry", *European Journal of Neurology* 22, S1: 769.
- Kaushanskaya, Margarita and Viorica Marian. 2007. "Bilingual language processing and interference in bilinguals: Evidence from eye tracking and picture naming", *Language Learning* 57, 1: 119-163.
- Keenan, Thomas R. and Kathleen Quigley. 1999. "Do young children use echoic information in their comprehension of sarcastic speech? A test of echoic mention theory", *British Journal of Developmental Psychology* 17, 1: 83-96.
- Keltner, Dacher, Lisa Capps, Ann M. Kring, Randall C. Young and Erin A. Heerey. 2001. "Just teasing: A conceptual analysis and empirical review", *Psychological Bulletin* 127, 2: 229-248.
- Keltner, Dacher, Randall C. Young, Erin A. Heerey, Carmen Oemig and Natalie D. Monarch. 1998. "Teasing in hierarchical and intimate relations", *Journal of Personality and Social Psychology* 75, 5: 1231-1247.
- Kendall, Joe. 2022. "The fear and the irony or the waning virtue of earnestness", *The Smart Set*, 10 March 2022. (<http://www.thesmartset.com/the-fear-and-the-irony/>) (date of access: 21 April 2023).
- Kent, Alexandra. 2012. "Responding to directives: What can children do when a parent tells them what to do?", in: Susan Danby and Maryanne Theo-

- bald (eds.), *Disputes in everyday life: Social and moral orders of children and young people*. Bingley: Emerald Group Publishing Limited, 57-84.
- Keysar, Boaz, Sayuri L. Hayakawa and Sun Gyu An. 2012. "The Foreign-Language Effect: Thinking in a foreign tongue reduces decision biases", *Psychological Science* 23, 6: 661-668.
- Kierkegaard, Soren. 1965. *The concept of irony*. Bloomington: Indiana University Press.
- Kohlberg, Lawrence. 1969. "Stage and sequence: The cognitive-developmental approach to socialization", in: David A. Goslin (ed.), *Handbook of socialization theory and research*. New York: Rand McNally and Company, 347-480.
- Korkman, Marit, Ursula Kirk and Sally Kemp. 1998. *NEPSY: A Developmental Neuropsychological Assessment*. San Antonio: The Psychological Corporation.
- Korkman, Marit, Ursula Kirk and Sally Kemp. 2007a. *NEPSY-II: Administration manual*. San Antonio: Psychological Corporation.
- Korkman, Marit, Ursula Kirk and Sally Kemp. 2007b. *NEPSY-II: Clinical and interpretive manual*. San Antonio: Psychological Corporation.
- Kostiuk, Katherine. 2016. "Want a healthy lifestyle? Reap these benefits of being bilingual!", *FluentU*. (<http://www.fluentu.com/blog/benefits-of-being-bilingual/?lang=en>) (date of access: 6 Feb. 2017).
- Kotthoff, Helga. 1996. "Impoliteness and conversational joking: On relational politics", *Folia Linguistica* 30: 299-326.
- Kotthoff, Helga. 2007. "Oral genres of humor: On the dialectic of genre knowledge and creative authoring", *Pragmatics* 17, 2: 263-296.
- Kotthoff, Helga. 2009. "An interactional approach to irony development", in: Neal N. Norrick and Delia Chiaro (eds.), *Humor in interaction*. Amsterdam: John Benjamins Publishing Company, 49-77.
- Kovács, Ágnes Melinda. 2009. "Early bilingualism enhances mechanisms of false-belief reasoning", *Developmental Science* 12, 1: 48-54.
- Kovács, Ágnes Melinda and Jacques Mehler. 2009. "Cognitive gains in 7-month-old bilingual infants", *Proceedings of the National Academy of Sciences* 106, 16: 6556-6560.
- Köder, Franziska and Ingrid Lossius Falkum. 2021. "Irony and perspective-taking in children: The roles of norm violations and tone of voice", *Frontiers in Psychology* 12, 624604: 1-13.

- Kreuz, Roger. 2020. *Irony and sarcasm*. Cambridge, MA: MIT Press.
- Kreuz, Roger J. and Sam Glucksberg. 1989. "How to be sarcastic: The echoic reminder theory of verbal irony", *Journal of Experimental Psychology: General* 118, 4: 374-386.
- Kreuz, Roger J. and Debra L. Long. 1991. New approaches to the study of verbal irony. (Paper presented at the 71st Annual Convention of the Western Psychological Association, San Francisco, April 1991.).
- Kreuz, Roger J. and Richard M. Roberts. 1995. "Two cues for verbal irony: Hyperbole and the ironic tone of voice", *Metaphor and Symbolic Activity* 10, 1: 21-31.
- Kreuz, Roger J., Richard M. Roberts, Brenda K. Johnson and Eugenie L. Bertus. 1996. "Figurative language occurrence and co-occurrence in contemporary literature", in: Roger J. Kreuz and Mary Sue MacNealy (eds.), *Empirical approaches to literature and aesthetics*. Norwood: Ablex, 83-97.
- Kroll, Judith F. and Ellen Bialystok. 2013. "Understanding the consequences of bilingualism for language processing and cognition", *Journal of Cognitive Psychology* 25, 5: 497-514.
- Kroll, Judith F., Paola E. Dussias, Cari A. Bogulski and Jorge R. Valdes Kroff. 2012. "Juggling two languages in one mind: What bilinguals tell us about language processing and its consequences for cognition", *Psychology of Learning and Motivation* 56: 229-262.
- Kumon-Nakamura, Sachi, Sam Glucksberg and Mary Brown. [1995] 2007. "How about another piece of pie: The allusional pretense theory of discourse irony", in: Raymond W. Gibbs Jr. and Herbert L. Colston (eds.), *Irony in language and thought*. New York: Lawrence Erlbaum Associates, 57-95.
- Kuo, Li-Jen and Richard C. Anderson. 2008. "Conceptual and methodological issues in comparing metalinguistic awareness across languages", in: Keiko Koda and Anette M. Zehler (eds.), *Learning to read across languages: Cross-linguistic relationships in first- and second-language literacy development*. New York: Routledge, 39-67.
- Kuo, Li-Jen and Richard C. Anderson. 2010. "Beyond cross-language transfer: Reconceptualizing the impact of early bilingualism on phonological awareness", *Scientific Studies of Reading* 14, 4: 365-385.

- Kutas, Marta, Cyma K. Van Petten and Robert Kluender. 2006. "Psycholinguistics electrified II (1994-2005)", in: Matthew J. Traxler and Morton Ann Gernsbacher (eds.), *Handbook of psycholinguistics*. (2nd edition.) London: Elsevier, 659-724.
- Laerd Statistics. 2015. *Two-way mixed ANOVA using SPSS Statistics. Statistical tutorials and software guides*. (<https://statistics.laerd.com>) (date of access: 3 Jan. 2023).
- Laing, Emma, George Butterworth, Daniel Ansari, Marisa K. Gsödl, Elena Longhi, Georgia Panagiotaki, Sarah J. Paterson and Annette Karmiloff-Smith. 2002. "Atypical development of language and social communication in toddlers with Williams syndrome", *Developmental Science* 5, 2: 233-246.
- Lambert, Wallace E. 1974. "Culture and language as factors in learning and education", in: Frances E. Aboud and Robert D. Meade (eds.), *Cultural factors in learning and education: Proceedings of The Fifth Western Symposium on Learning, Bellingham, Washington, November 1973*. Bellingham: Western Washington University, 99-122. (<http://files.eric.ed.gov/fulltext/ED096820.pdf>) (date of access: 3 Jan. 2019).
- Lambert, Wallace E., J. Havelka and Robert C. Gardner. 1959. "Linguistic manifestation of bilingualism", *The American Journal of Psychology* 72, 1: 77-82.
- Lampert, Martin D. and Susan M. Ervin-Tripp. 2006. "Risky laughter: Teasing and self-directed joking among male and female friends", *Journal of Pragmatics* 38, 1: 51-72.
- Langdon, Robyn and Max Coltheart. 2004. "Recognition of metaphor and irony in young adults: The impact of schizotypal personality traits", *Psychiatry Research* 125, 1: 9-20.
- Lanza, Elisabeth. 2004. *Language mixing in infant bilingualism: A sociolinguistic perspective*. New York: Oxford University Press.
- Laufer, Batia. 2000. "Avoidance of idioms in a second language: The effect of L1-L2 degree of similarity", *Studia Linguistica* 54, 2: 186-196.
- Lebreton, Maël, Soledad Jorge, Vincent Michel, Bertrand Thirion and Mathias Pessiglione. 2009. "An automatic valuation system in the human brain: evidence from functional neuroimaging", *Neuron* 64, 3: 431-439.
- Lee, Christopher J. and Albert N. Katz. 1998. "The differential role of ridicule in sarcasm and irony", *Metaphor and Symbol* 13, 1: 1-15.

- Leech, Geoffrey. 1983. *Principles of pragmatics*. London: Longman.
- Leekam, Susan R. 1991. "Jokes and lies: Children's understanding of intentional falsehood", in: Andrew Whiten (ed.), *Natural theories of mind: Evolution, development and simulation of everyday mindreading*. Cambridge: Blackwell, 159-174.
- Leggitt, John S. and Raymond W. Gibbs Jr. 2000. "Emotional reactions to verbal irony", *Discourse processes* 29, 1: 1-24.
- Leivada, Evelina, Marit Westergaard, Jon Andoni Duñabeitia, and Jason Rothman. 2020. "On the phantom-like appearance of bilingualism effects on neurocognition: (How) should we proceed?", *Bilingualism: Language and Cognition* 24, 1: 197-210.
- Lenneberg, Eric H. 1967. *Biological foundations of language*. New York: Wiley.
- Leopold, Werner F. 1939. *Speech development of a bilingual child: A linguist's record*. Vol. 1: *Vocabulary growth in the first two years*. Evanston: Northwestern University Press.
- Leopold, Werner F. 1947. *Speech development of a bilingual child: A linguist's record*. Vol. 2: *Sound learning in the first two years*. Evanston: Northwestern University Press.
- Leopold, Werner F. 1949a. *Speech development of a bilingual child: A linguist's record*. Vol. 3: *Grammar and general problems*. Evanston: Northwestern University Press.
- Leopold, Werner F. 1949b. *Speech development of a bilingual child: A linguist's record*. Vol. 4: *Diary from age 2*. Evanston: Northwestern University Press.
- Leopold, Werner F. 1952. *Bibliography of child language*. Evanston: Northwestern University Press.
- Lewis, Charlie, Masuo Koyasu, Seungmi Oh, Ayako Ogawa, Benjamin Short and Zhao Huang. 2009. "Culture, executive function, and social understanding", *New Directions in Child and Adolescent Development* 2009, 123: 69-85.
- Libben, Maya R. and Debra A. Titone. 2008. "The multidetermined nature of idiom processing", *Memory and Cognition* 36, 6: 1103-1121.
- Liberman, Zoe, Amanda L. Woodward, Boaz Keysar and Katherine D. Kinzler. 2017. "Exposure to multiple languages enhances communication skills in infancy", *Developmental Science* 20, 1: 1-21.

- Liddle, Bethany and Daniel Nettle. 2006. "Higher-order theory of mind and social competence in school-age children", *Journal of Cultural and Evolutionary Psychology* 4, 3: 231-244.
- Lindell, Annukka K. 2006. "In your right mind: Right hemisphere contributions to language processing and production", *Neuropsychology Review* 16, 3: 131-148.
- Liontas, John. 2002. "Context and idiom understanding in second languages", *EU-ROSLA Yearbook* 2, 1: 155-185.
- Liontas, John. 2015. "Straight from the horse's mouth: Idiomaticity revisited", in: Roberto R. Heredia and Anna B. Cieslicka (eds.), *Bilingual figurative language processing*. New York: Cambridge University Press, 301-340.
- Littlemore, Jeannette. 2010. "Metaphoric competence in the first and second language: Similarities and differences", in: Martin Pütz and Laura Sicola (eds.), *Cognitive processing in second language acquisition: Inside the learner's mind*. Amsterdam: John Benjamins Publishing Company, 293-315.
- Littlemore, Jeannette and Graham Low. 2006a. *Figurative thinking and foreign language learning*. Basingstoke: Palgrave Macmillan.
- Littlemore, Jeannette and Graham Low. 2006b. "Metaphoric competence, second language learning, and communicative language ability", *Applied Linguistics* 27, 2: 268-294.
- Littman, David C. and Jacob L. Mey. 1991. "The nature of irony: Toward a computational model of irony", *Journal of Pragmatics* 15, 2: 131-151.
- Long, Debra L. and Roger J. Kreuz. 1991. The influence of discourse function on perceived verbal irony. (Paper presented at the 99th Annual Convention of the American Psychological Association, San Francisco, 16-20 Aug. 1991.).
- Long, Michael H. 1990. "Maturational constraints on language development", *Studies in Second Language Acquisition* 12, 3: 251-285.
- López, Belem G. and Jyotsna Vaid. 2018. "Fácil or A piece of cake: Does variability in bilingual language brokering experience affect idiom comprehension?", *Bilingualism: Language and Cognition* 21, 2: 340-354.
- López-Serena, Araceli. 2009. "Intuition, acceptability and grammaticality: A reply to Riemer", *Language Sciences* 31, 5: 634-648.

- Lott, Tim. 2013. "Are sarcasm and irony good for family life?", *The Guardian*, 9 Aug. 2013. (<http://www.theguardian.com/lifeandstyle/2013/aug/09/sarcasm-irony-children-teenagers-daughters>) (date of access: 1 May 2014).
- Loukusa, Soile and Eeva Leinonen. 2008. "Development of comprehension of ironic utterances in 3-to 9-year-old Finnish-speaking children", *Psychology of Language and Communication* 12, 1: 55-69.
- Loukusa, Soile, Eeva Leinonen and Nuala Ryder. 2007. "Development of pragmatic language comprehension in Finnish-speaking children", *First Language* 27, 3: 279-296.
- Lu, Chen-hui and Robert W. Proctor. 1995. "The influence of irrelevant location information on performance: A review of the Simon and spatial Stroop effects", *Psychonomic Bulletin and Review* 2, 2: 174-207.
- Lucariello, Joan and Catherine Mindolovich. 1995. "The development of complex metarepresentational reasoning: The case of situational irony", *Cognitive Development* 10, 4: 551-576.
- Luk, Gigi, Ellen Bialystok, Fergus I. M. Craik and Cheryl L. Grady. 2011. "Lifelong bilingualism maintains white matter integrity in older adults", *The Journal of Neuroscience* 31, 46: 16808-16813.
- MacArthur, Fiona. 2010. "Metaphorical competence in EFL: Where are we and where should we be going? A view from the language classroom", *AILA Review* 23, 1: 155-173.
- Mackey, William Francis. 1962. "The description of bilingualism", *Canadian Journal of Linguistics* 7, 2: 51-85.
- MacLeod, Colin M. 1991. "Half a century of research on the Stroop effect: An integrative review", *Psychological Bulletin* 109, 2: 163-203.
- MacNab, G. L. 1979. "Cognition and bilingualism: A reanalysis of studies", *Linguistics* 17, 3-4: 231-255.
- MacNamara, John. 1966. *Bilingualism and primary education*. Edinburgh: Edinburgh University Press.
- McDonald, Skye and Samantha Pearce. 1996. "Clinical insights into pragmatic theory: Frontal lobe deficits and sarcasm", *Brain and Language* 53, 1: 81-104.

- Mahon, Merle and Alison Crutchley. 2006. "Performance of typically-developing school-age children with English as an additional language on the British Picture Vocabulary Scales II", *Child Language Teaching and Therapy* 22, 3: 333-351.
- Makel, Matthew C. 2014. "The empirical march: Making science better at self-correction", *Psychology of Aesthetics, Creativity, and the Arts* 8, 1: 2-7.
- Maki, Yohko, Tomoharu Yamaguchi, Tatsuya Koeda and Haruyasu Yamaguchi. 2013. "Communicative competence in Alzheimer's disease: Metaphor and sarcasm comprehension", *American Journal of Alzheimer's Disease and Other Dementias* 28, 1: 69-74.
- Marian, Viorica, Henrike K. Blumenfeld, and Margarita Kaushanskaya. 2007. "The Language Experience and Proficiency Questionnaire (LEAP-Q): Assessing language profiles in bilinguals and multilinguals", *Journal of Speech Language and Hearing Research* 50, 4: 940-967.
- Martens, Marilee A., Sarah J. Wilson and David C. Reutens. 2008. "Research review: Williams syndrome: A critical review of the cognitive, behavioral, and neuroanatomical phenotype", *Journal of Child Psychology and Psychiatry* 49, 6: 576-608.
- Martin, Ingerith and Skye McDonald. 2005. "Evaluating the causes of impaired irony comprehension following traumatic brain injury", *Aphasiology* 19, 8: 712-730.
- Martin-Rhee, Michelle M. and Ellen Bialystok. 2008. "The development of two types of inhibitory control in monolingual and bilingual children", *Bilingualism: Language and Cognition* 11, 1: 81-93.
- Masgoret, Anne-Marie and Robert C. Gardner. 2003. "Attitudes, motivation, and second language learning: A meta-analysis of studies conducted by Gardner and associates", *Language learning* 53, 1: 123-163.
- Mason, Marie K. 1942. "Learning to speak after six and one-half years of silence", *Journal of speech disorders* 7, 4: 295-304.
- Massaro, Davide, Annalisa Valle and Antonella Marchetti. 2013. "Irony and second-order false belief in children: What changes when mothers rather than siblings speak?", *European Journal of Developmental Psychology* 10, 3: 301-317.
- Massaro, Davide, Annalisa Valle and Antonella Marchetti. 2014. "Do social norms, false belief understanding, and metacognitive vocabulary influence irony com-

- prehension? A study of five- and seven-year-old children”, *European Journal of Developmental Psychology* 11, 3: 292-304.
- Matlock, Teenie and Roberto R. Heredia. 2002. “Understanding phrasal verbs in monolinguals and bilinguals”, in: Roberto R. Heredia and Jeanette Altarriba (eds.), *Bilingual sentence processing*. Amsterdam: Elsevier, 251-274.
- Matsumoto, David. 2009. *The Cambridge dictionary of psychology*. Cambridge: Cambridge University Press.
- McCarthy, Dorothea. 1930. *The language development of the preschool child*. Minneapolis: University of Minnesota Press.
- McLaughlin, Barry. 1978. *Second-language acquisition in childhood*. Hillsdale: Lawrence Erlbaum Associates.
- Mervis, Jeffrey. 2014. “Why null results rarely see the light of day”, *Science* 345, 6200: 992.
- Mezzacappa, Enrico. 2004. “Alerting, orienting, and executive attention: Developmental properties and sociodemographic correlates in an epidemiological sample of young, urban children”, *Child development* 75, 5: 1373-1386.
- Miron-Spektor, Ella, Dorit Efrat-Treister, Anat Rafaeli and Orit Schwarz-Cohen. 2011. “Others’ anger makes people work harder not smarter: The effect of observing anger and sarcasm on creative and analytic thinking”, *Journal of Applied Psychology* 96, 5: 1065-1075.
- Mischel, Walter, Yuichi Shoda and Monica L. Rodriguez. 1989. “Delay of gratification in children”, *Science* 244, 4907: 933-938.
- Mizzau, Marina. 1984. *L’ironia: La contraddizione consentita* [Irony: Contradiction allowed]. Milan: Feltrinelli.
- Mo, Shuliang, Yanjie Su, Raymond CK Chan and Jianxin Liu. 2008. “Comprehension of metaphor and irony in schizophrenia during remission: the role of theory of mind and IQ”, *Psychiatry Research* 157, 1: 21-29.
- Moein, Behnaz, Robab Khosravi and Hooshang Yazdani. 2014. “The role of cross-linguistic experience on English idiom and proverb comprehension: A case of Iranian Turkish learners of English as a foreign and third language”, *Theory and Practice in Language Studies* 4, 5: 1017-1025.

- Monetta, Laura, Christopher M. Grindrod and Marc D. Pell. 2009. "Irony comprehension and theory of mind deficits in patients with Parkinson's disease", *Cortex* 45, 8: 972-981.
- Montrul, Silvina A. 2008. *Incomplete acquisition in bilingualism: Re-examining the age factor*. Amsterdam: John Benjamins Publishing Company.
- Moore, Matthew. 2010a. "Sarcasm punctuation mark aims to put an end to email confusion", *The Telegraph*, 15 Jan. 2010.
(<http://www.telegraph.co.uk/technology/news/6995354/Sarcasm-punctuation-mark-aims-to-put-an-end-to-email-confusion.html>) (date of access: 8 May 2014).
- Moore, Matthew. 2010b. "Sarcasm punctuation mark? Who needs it ;-)", *The Telegraph*, 15 Jan. 2010.
(<http://blogs.telegraph.co.uk/news/matthewmoore/100022414/sarcasm-punctuation-mark-who-needs-it/>) (date of access: 8 May 2014).
- Morrisson, Cassandra and Vanessa Taler. 2020. "ERP measures of the effects of age and bilingualism on working memory performance", *Neuropsychologia* 143: 1-10.
- Morton, J. Bruce and Sandra E. Trehub. 2001. "Children's understanding of emotion in speech", *Child development* 72, 3: 834-843.
- Muecke, Douglas C. 1969. *The compass of irony*. London: Methuen.
- Muecke, Douglas C. 1970. *Irony and the ironic*. London: Methuen.
- Muecke, Douglas C. 1978. "Irony markers", *Poetics* 7, 4: 363-375.
- Myers, Greg. 1990. "The rhetoric of irony in academic writing", *Written Communication* 7, 4: 419-455.
- Nagy, Zoltan, Helena Westerberg and Torkel Klingberg. 2006. "Maturation of white matter is associated with the development of cognitive functions during childhood", *Journal of Cognitive Neuroscience* 16, 7: 1227-1233.
- Nakassis, Constantine and Jesse Snedeker. 2002. "Beyond sarcasm: Intonation and context as relational cues in children's recognition of irony", in: Barbora Skarabela, Sarah Fish and Anna H.-J. Do (eds.), *Proceedings of the Twenty-sixth Boston University Conference on Language Development, Boston, 2-4 Nov. 2001*. Boston: Cascadilla Press.

(http://www.wjh.harvard.edu/~lds/pdfs/Nakassis%26Snedeker_2002.pdf) (date of access: 6 Jan. 2013).

- Naranowicz, Marcin, Katarzyna Jankowiak and Katarzyna Bromberek-Dyzman. 2023. "Mood and gender effects in emotional word processing in unbalanced bilinguals", *International Journal of Bilingualism* 27, 1: 39-60.
- Nazzi, Thierry, Alison Gopnik and Annette Karmiloff-Smith. 2005. "Asynchrony in the cognitive and lexical development of young children with Williams syndrome", *Journal of Child Language* 32, 2: 427-438.
- Nazzi, Thierry, Sarah J. Paterson and Annette Karmiloff-Smith. 2003. "Early word segmentation by infants and toddlers with Williams syndrome", *Infancy* 4, 2: 251-271.
- Nelson, Elizabeth Marie McGhee. 1992. "Memory for metaphor by nonfluent bilinguals", *Journal of Psycholinguistic Research* 21, 2: 111-125.
- Nelson, Katherine. 1973. "Structure and strategy in learning to talk", *Monographs of the Society for Research in Child Development* 38, (1-2): 1-135.
- Newport, Elissa L. 1990. "Maturational constraints on language learning", *Cognitive Science* 14, 1: 11-28.
- Nguyen, Thien-Kim and Janet Wilde Astington. 2014. "Reassessing the bilingual advantage in theory of mind and its cognitive underpinnings", *Bilingualism: Language and Cognition* 17, 2: 396-409.
- Nicholson, Andrew, Juanita M. Whalen and Penny M. Pexman. 2013. "Children's processing of emotion in ironic language", *Frontiers in Psychology* 4, 691: 1-10.
- Nilsen, Elisabeth S., Melanie Glenwright and Vanessa Huyder. 2011. "Children and adults understand that verbal irony interpretation depends on listener knowledge", *Journal of Cognition and Development* 12, 3: 374-409.
- Norricks, Neal R. 1993. *Conversational joking: Humor in everyday talk*. Bloomington: Indiana University Press.
- Nurmsoo, Erika and Paul Bloom. 2008. "Preschoolers' perspective taking in word learning: Do they blindly follow eye gaze?", *Psychological Science* 19, 3: 211-215.
- Okanda, Mako, Yusuke Moriguchi and Shoji Itakura. 2010. "Language and cognitive shifting: Evidence from young monolingual and bilingual children", *Psychological Reports* 107, 1: 68-78.

- O'Leary, Mike J. and Paul J. Barber. 1993. "Interference effects in the Stroop and Simon paradigms", *Journal of Experimental Psychology: Human Perception and Performance* 19, 4: 830-844.
- Ortony, Andrew, Diane L. Schallert, Ralph E. Reynolds and Stephen J. Antos. 1978. "Interpreting metaphors and idioms: Some effects of context on comprehension", *Journal of Verbal Learning and Verbal Behavior* 17, 4: 465-477.
- Osherson, Daniel N. and Ellen M. Markman. 1975. "Language and the ability to evaluate contradictions and tautologies", *Cognition* 3, 3: 213-226.
- Ouellette, Gene P. 2006. "What's meaning got to do with it: The role of vocabulary in word reading and reading comprehension", *Journal of Educational Psychology* 98, 3: 554-566.
- Oyama, Susan. 1976. "A sensitive period for the acquisition of a nonnative phonological system", *Journal of Psycholinguistic Research* 5, 3: 261-283.
- Paap, Kenneth R. 2014. "The role of componential analysis, categorical hypothesising, replicability and confirmation bias in testing for bilingual advantages in executive functioning", *Journal of Cognitive Psychology* 26, 3: 242-255.
- Paap, Kenneth R. and Zachary I. Greenberg. 2013. "There is no coherent evidence for a bilingual advantage in executive processing", *Cognitive Psychology* 66, 2: 232-258.
- Paap, Kenneth R., Hunter A. Johnson and Oliver Sawi. 2015. "Bilingual advantages in executive functioning either do not exist or are restricted to very specific and undetermined circumstances", *Cortex* 69: 265-278.
- Paap, Kenneth R., Hunter A. Myuz, Regina T. Anders, Morgan F. Bockelman, Roman Mikulinsky and Oliver M. Sawi. 2017. "No compelling evidence for a bilingual advantage in switching or that frequent language switching reduces switch cost", *Journal of Cognitive Psychology* 29, 2: 89-112.
- Paap, Kenneth R. and Oliver M. Sawi. 2014. "Bilingual advantages in executive functioning: problems in convergent validity, discriminant validity, and the identification of the theoretical constructs", *Frontiers in Psychology* 5, 962: 1-16.
- Paap, Kenneth R., Oliver M. Sawi, Chirag Dalibar, Jack Darrow and Hunter A. Johnson. 2014. "The brain mechanisms underlying the cognitive benefits of bilingualism may be extraordinarily difficult to discover", *AIMS Neuroscience* 1, 3: 245-256.

- Padilla García, Xosé A. and Maria B. Alvarado Ortega. 2010. "Being polite through irony", in: Dale April Koike and Lidia Rogríguez (eds.), *Dialogue in Spanish. Studies in functions and contexts*. Amsterdam: John Benjamins Publishing Company, 55-68.
- Paikeday, Thomas M. 1985. *The native speaker is dead: An informal discussion of a linguistic myth with Noam Chomsky and other linguists, philosophers, psychologists, and lexicographers*. Toronto: Paikeday Publishing Inc.
- Papagno, Costanza and Leonor J. Romero-Lauro. 2010. "The neural basis of idiom processing: Neuropsychological, neurophysiological and neuroimaging evidence", *Italian Journal of Linguistics* 22, 1: 21-40.
- Park, Myung-Kwan and Wonil Chang. 2013. "Processing of conventional and novel conceptual metaphors by Korean L2 learners of English: An ERP study", *Korean Journal of Linguistics* 38, 3: 605-627.
- Parke, Ross D. 2002. "Fathers and families", in: Marc H. Bornstein (ed.), *Handbook of parenting*. Vol. 3: *Being and becoming a parent*. Mahwah: Lawrence Erlbaum Associates, 27-73.
- Parker Jones, 'Ōiwi, David W. Green, Alice Grogan, Christos Pliatsikas, Konstantinos Filippopolitis, Nilufa Ali, Hwee Ling Lee, Sue Ramsden, Karine Gazarian, Susan Prejawa, Mohamed L. Seghier and Cathy J. Price. 2012. "Where, when and why brain activation differs for bilinguals and monolinguals during picture naming and reading aloud", *Cerebral Cortex* 22, 4: 892-902.
- Partington, Alan. 2007. "Irony and reversal of evaluation", *Journal of Pragmatics* 39, 9: 1547-1569.
- Pashler, Hal, Sean Kang, Bobbie Spellman and Alex Holcombe. 2012. *PsychFileDrawer: Archive of Replication Attempts in Experimental Psychology*. (<http://www.psychfiledrawer.org/>) (date of access: 1 Oct. 2017).
- Pashler, Harold and Christine R. Harris. 2012. "Is the replicability crisis overblown? Three arguments examined", *Perspectives on Psychological Science* 7, 6: 531-536.
- Pashler, Harold and Eric-Jan Wagenmakers. 2012. "Editors' introduction to the Special Section on Replicability in Psychological Science: A crisis of confidence?", *Perspectives on Psychological Science* 7, 6: 528-530.

- Paterson, Sarah J., Janice Brown, Marisa K. Gsödl, Mark H. Johnson and Annette Karmiloff-Smith. 1999. "Cognitive modularity and genetic disorders", *Science* 286, 5448: 2355–2358.
- Patkowski, Mark S. 1980. "The sensitive period for the acquisition of syntax in a second language", *Language learning* 30, 2: 449-468.
- Patkowski, Mark S. 1994. "The critical age hypothesis and interlanguage phonology", in: Mehmet S. Yavas (ed.), *First and second language phonology*. San Diego: Singular Publishing Group, 205-221.
- Paulmann, Silke, Zainab Ghareeb-Ali and Claudia Felser. 2015. "Neurophysiological markers of phrasal verb processing: Evidence from L1 and L2 speakers", in: Roberto R. Heredia and Anna B. Cieślicka (eds.), *Bilingual figurative language processing*. New York: Cambridge University Press, 245-267.
- Pavlenko, Aneta (ed.). 2006. *Bilingual minds: Emotional experience, expression, and representation*. Clevedon: Multilingual Matters.
- Peal, Elisabeth and Wallace E. Lambert. 1962. "The relation of bilingualism to intelligence", *Psychological Monographs* 76, 27: 1-23.
- Penfield, Wilder and Lamar Roberts. 1959. *Speech and brain mechanisms*. Princeton: Princeton University Press.
- Perani, Daniela, Jubin Abutalebi, Eraldo Paulesu, Simona Brambati, Paola Scifo, Stefano F. Cappa and Ferruccio Fazio. 2003. "The role of age of acquisition and language usage in early, high-proficient bilinguals: An fMRI study during verbal fluency", *Human Brain Mapping* 19, 3: 170-182.
- Perner, Josef, Winfried Kain and Petra Barchfeld. 2002. "Executive control and higher-order theory of mind in children at risk of ADHD", *Infant and Child Development* 11, 2: 141-158.
- Perner, Josef, Susan R. Leekam and Heinz Wimmer. 1987. "Three-year-olds' difficulty with false belief: The case for a conceptual deficit", *British Journal of Developmental Psychology* 5, 2: 125-137.
- Perner, Josef and Heinz Wimmer. 1985. "'John thinks that Mary thinks that...': attribution of second-order false beliefs by 5- to 10-year old children", *Journal of Experimental Child Psychology* 39, 3: 437-471.

- Persicke, Angela, Jonathan Tarbox, Jennifer Ranick and Megan St Clair. 2013. "Teaching children with autism to detect and respond to sarcasm", *Research in Autism Spectrum Disorders* 7, 1: 193-198.
- Peters, Sara, Kathryn Wilson, Timothy W. Boiteau, Carlos Gelormini-Lezama and Amit Almor. 2016. "Do you hear it now? A native advantage for sarcasm processing", *Bilingualism: Language and Cognition* 19, 2: 400-414.
- Pexman, Penny M. 2008. "It's fascinating research: The cognition of verbal irony", *Current Directions in Psychological Science* 17, 4: 286-290.
- Pexman, Penny, Lorraine Reggin and Kate Lee. 2019. "Addressing the challenge of verbal irony: Getting serious about sarcasm training", *Languages* 4, 23: 1-15.
- Pexman, Penny M., Todd R. Ferretti and Albert N. Katz. 2000. "Discourse factors that influence online reading of metaphor and irony", *Discourse Processes* 29, 3: 201-222.
- Pexman, Penny M. and Melanie Glenwright. 2007. "How do typically developing children grasp the meaning of verbal irony?", *Journal of Neurolinguistics* 20, 2: 178-196.
- Pexman, Penny M., Melanie Glenwright, Suzanne Hala, Stacey L. Kowbel and Sara Jungen. 2006. "Children's use of trait information in understanding verbal irony", *Metaphor and symbol* 21, 1: 39-60.
- Pexman, Penny M., Melanie Glenwright, Andrea Krol and Tammy James. 2005. "An acquired taste: Children's perceptions of humor and teasing in verbal irony", *Discourse Processes* 40, 3: 259-288.
- Pexman, Penny M. and Juanita M. Whalen. 2010. "How do children respond to verbal irony in face-to-face communication? The development of mode adoption across middle childhood", *Discourse Processes* 47, 5: 363-387.
- Pexman, Penny M., Lenka Zdrzilova, Devon McConnachie, Kirby Deater-Deckard and Stephen A. Petrill. 2009. "'That was smooth, mom': Children's production of verbal and gestural irony", *Metaphor and Symbol* 24, 4: 237-248.
- Pfefferbaum, Adolf, Judith M. Ford, Barbara J. Weller and Bert S. Kopell. 1985. "ERPs to response production and inhibition", *Electroencephalography and Clinical Neurophysiology* 60, 5: 423-434.
- Piaget, Jean. 1929. *The child's conception of the world*. London: Routledge and Kegan Paul Ltd.

- Pintner, Rudolph and Ruth Keller. 1922. "Intelligence tests of foreign children", *Journal of Educational Psychology* 13, 4: 214-222.
- Pituch, Keenan A. and James P. Stevens. 2016. *Applied multivariate statistics for the social sciences*. (6th edition). New York: Routledge.
- Popa, Mihaela. 2010. "Ironic metaphor interpretation", *Toronto Working Papers in Linguistics* 33: 1-17.
- Popper, Karl. 1962. *Conjectures and refutations: The growth of scientific knowledge*. New York: Basic Books.
- Portocarrero, José S., Richard G. Burreight and Peter J. Donovan. 2007. "Vocabulary and verbal fluency of bilingual and monolingual college students", *Archives of Clinical Neuropsychology* 22, 3: 415-422.
- Premack, David and Guy Woodruff. 1978. "Does the chimpanzee have a theory of mind?", *Behavioral and Brain Sciences* 1, 4: 515-526.
- Pritchett, Lena K., Jyotsna Vaid and Sümeyra Tosun. 2016. "Of black sheep and white crows: Extending the bilingual dual coding theory to memory for idioms", *Cogent Psychology* 3, 1: 1-18.
- Proctor, C. Patrick, Rebecca D. Silverman, Jeffrey R. Harring and Christine Montecillo. 2012. "The role of vocabulary depth in predicting reading comprehension among English monolingual and Spanish-English bilingual children in elementary school", *Reading and Writing* 25, 7: 1635-1664.
- Proctor, C. Patrick, Paola Uccelli, Bridget Dalton and Catherine E. Snow. 2009. "Understanding depth of vocabulary online with bilingual and monolingual children", *Reading and Writing Quarterly* 25, 4: 311-333.
- Pujol, Jesús, Carles Soriano-Mas, Hector Ortiz, Núria Sebastian-Galles, Josep Maria Losilla and Juan Deus. 2006. "Myelination of language-related areas in the developing brain", *Neurology* 66, 3: 339-343.
- Puntoni, Stefano, Bart de Langhe and Stijn M. J. van Osselaer. 2009. "Bilingualism and the emotional intensity of advertising language", *Journal of Consumer Research* 35, 6: 1012-1025.
- Quintilian. [95] 2001. *Institutio Oratoria* [Institutes of oratory]. Cambridge: Harvard University Press.
- Ramírez-Esparza, Nairán, Samuel D. Gosling, Verónica Benet-Martínez, Jeffrey P. Potter, and James W. Pennebaker. 2006. "Do bilinguals have two personalities? A

- special case of cultural frame switching”, *Journal of Research in Personality* 40, 2: 99-120.
- Rampton, M. Ben H. 1990. “Displacing the ‘native speaker’: expertise, affiliation, and inheritance”, *ELT Journal* 44, 2: 97-101.
- Rankin, Katherine P., Andrea Salazar, Maria Luisa Gorno-Tempini, Marc Sollberger, Stephen M. Wilson, Danijela Pavlic, Christine M. Stanley, Shenly Glenn, Michael W. Weiner and Bruce L. Miller. 2009. “Detecting sarcasm from paralinguistic cues: anatomic and cognitive correlates in neurodegenerative disease”, *Neuroimage* 47, 4: 2005-2015.
- Ransdell, Sarah Ellen and Ira Fischler. 1987. “Memory in a monolingual mode: When are bilinguals at a disadvantage?”, *Journal of Memory and Language* 26, 4: 392-405.
- Rapp, Alexander M., Karin Langohr, Dorothee E. Mutschler, Stefan Klingberg, Barbara Wild and Michael Erb. 2013. “Isn’t it ironic? Neural correlates of irony comprehension in schizophrenia”, *PloS ONE* 8, 9: e74224. (doi:10.1371/journal.pone.0074224).
- Rapp, Alexander M., Dirk T. Leube, Michael Erb, Wolfgang Grodd and Tilo T. J. Kircher. 2007. “Laterality in metaphor processing: Lack of evidence from functional magnetic resonance imaging for the right hemisphere theory”, *Brain and Language* 100, 2: 142-149.
- Rapp, Alexander M., Dirk T. Leube, Michael Erb, Wolfgang Grodd and Tilo T..J. Kircher. 2004. “Neural correlates of metaphor processing”, *Cognitive Brain Research* 20, 3: 395-402.
- Rapp, Alexander M., Dorothee E. Mutschler, Barbara Wild, Michael Erb, I. Lengsfeld, R. Saur and W. Grodd. 2010. “Neural correlates of irony comprehension: The role of schizotypal personality traits”, *Brain and Language* 113, 1: 1-12.
- Reason, James T. and D. A. Lucas. 1983. “Using cognitive diaries to investigate naturally occurring memory blocks”, in: John E. Harris and Peter Edwin Morris (eds.), *Everyday memory: Actions and absent-mindedness*. London: Academic Press, 53-69.
- Recchia, Holly E., Nina Howe, Hildy S. Ross and Stephanie Alexander. 2010. “Children’s understanding and production of verbal irony in family conversations”, *British Journal of Developmental Psychology* 28, 2: 255-274.

- Regel, Stefanie, Seana Coulson and Thomas C. Gunter. 2010. "The communicative style of a speaker can affect language comprehension? ERP evidence from the comprehension of irony", *Brain Research* 1311: 121-135.
- Reyes, Antonio, Paolo Rosso and Davide Buscaldi. 2012. "From humor recognition to irony detection: The figurative language of social media", *Data and Knowledge Engineering* 74: 1-12.
- Ricciardelli, Lina A. 1992. "Bilingualism and cognitive development in relation to threshold theory", *Journal of Psycholinguistic Research* 21, 4: 301-316.
- Richards, Jennifer. 2008. *Rhetoric*. New York: Routledge.
- Riotta, Chris. 2015. "People who are bilingual are smart, creative and better lovers", *Elite Daily*, 27 April 2015. (<http://elitedaily.com/life/culture/bilingual-people-smart-creative-lovers/1012727/>) (date of access: 16 Dec. 2016).
- Roberts, Patricia M., Linda J. Garcia, Alain Desrochers and Denise Hernandez. 2002. "English performance of proficient bilingual adults on the Boston Naming Test", *Aphasiology* 16, 4-6: 635-645.
- Roberts, Richard M. and Roger J. Kreuz. 1994. "Why do people use figurative language?", *Psychological Science* 5, 3: 159-163.
- Rockwell, Patricia. 2000. "Lower, slower, louder: Vocal cues of sarcasm", *Journal of Psycholinguistic Research* 29, 5: 483-495.
- Rockwell, Patricia. 2001. "Facial expression and sarcasm", *Perceptual and Motor Skills* 93, 1: 47-50.
- Rockwell, Patricia. 2007. "Vocal features of conversational sarcasm: A comparison of methods", *Journal of Psycholinguistic Research* 36, 5: 361-369.
- Rogers, Catherine L., Jennifer J. Lister, Dashielle M. Febo, Joan M. Besing and Harvey B. Abrams. 2006. "Effects of bilingualism, noise, and reverberation on speech perception by listeners with normal hearing", *Applied Psycholinguistics* 27, 3: 465-485.
- Rosenthal, Robert. 1979. "The file drawer problem and tolerance for null results", *Psychological Bulletin* 86, 3: 638-641.
- Rosner, Jerome. 1972. *The development and validation of an individualized perceptual skills curriculum*. Pittsburgh: University of Pittsburgh Learning Research and Development Center.

- Rosselli, Mónica, Alfredo Ardila, Katia Araujo, Viviana A. Weekes, Virginia Caracciolo, Mabel Padilla and Feggy Ostrosky-Solís. 2000. "Verbal fluency and repetition skills in healthy older Spanish-English bilinguals", *Applied Neuropsychology* 7, 1: 17-24.
- Rubin, Hyla and Anne Turner. 1989. "Linguistic awareness skills in grade one children in a French immersion setting", *Reading and Writing: An Interdisciplinary Journal* 1, 1: 73-86.
- Rubio-Fernández, Paula. 2017. "Why are bilinguals better than monolinguals at false-belief tasks?", *Psychonomic Bulletin and Review* 24: 987-998.
- Rubio-Fernández, Paula and Sam Glucksberg. 2012. "Reasoning about other people's beliefs: Bilinguals have an advantage", *Journal of Experimental Psychology: Learning, Memory, and Cognition* 38, 1: 211-217.
- Rueda, M. Rosario, Jin Fan, Bruce D. McCandliss, Jessica D. Halparin, Dana B. Gruber, Lisha Pappert Lercari and Michael I. Posner. 2004. "Development of attentional networks in childhood", *Neuropsychologia* 42, 8: 1029-1040.
- Ruffman, Ted, Josef Perner, Mika Naito, Lindsay Parkin and Wendy A. Clements. 1998. "Older (but not younger) siblings facilitate false belief understanding", *Developmental Psychology* 34, 1: 161-174.
- Ryder, Nuala and Eeva Leinonen. 2003. "Use of context in question answering by 3-, 4- and 5-year-old children", *Journal of Psycholinguistic Research* 32, 4: 397-415.
- Ryle, Gilbert. 1950. "If, 'so,' and 'because'", in: Max Black (ed.), *Philosophical analysis*. Ithaca: Cornell University Press, 323-340.
- Sachs, Jacqueline, Barbara Bard and Marie L. Johnson. 1981. "Language learning with restricted input: Case studies of two hearing children of deaf parents", *Applied Psycholinguistics* 2, 1: 33-54.
- Sackett, David L. 1979. "Bias in analytic research", *Journal of Chronic Diseases* 32, 1-2: 51-63.
- Saer, D. J. 1923. "The effect of bilingualism on intelligence", *British Journal of Psychology* 14, 1: 25-38.
- Sandoval, Tiffany C., Tamar H. Gollan, Victor S. Ferreira and David P. Salmon. 2010. "What causes the bilingual disadvantage in verbal fluency? The dual-task analogy", *Bilingualism: Language and Cognition* 13, 2: 231-252.

- Sani, Fabio and John Todman. 2006. *Experimental design and statistics for psychology: A first course*. Malden: Blackwell Publishing.
- de los Santos, Isela. 2000. Proverb comprehension among bilingual preadolescents and adolescents. [Unpublished MA thesis, Texas Tech University, Lubbock.].
- Sawyer, Janet B. 1978. "Passive and covert bilinguals: A hidden asset for a pluralistic society", in: Harold H. Key, Gloria G. McCullough and Janet Beck Sawyer (eds.), *The bilingual in a pluralistic society: Proceedings of the Sixth Southwest Areal Language and Linguistics Workshop*. Long Beach: California State University.
- Sbisà, Marina. 2013. "Locution, illocution, perlocution", in: Marina Sbisà and Ken Turner (eds.), *Pragmatics of speech actions*. Berlin: De Gruyter Mouton, 25-75.
- Schmid, Monika S. and Barbara Köpke. 2007. "Bilingualism and attrition", in: Barbara Köpke, Monika S. Schmid, Merel Keijzer and Susan Dostert (eds.), *Language Attrition: Theoretical perspectives*. Amsterdam: John Benjamins, 1-7.
- Schmidt, Gwenda L. and Carol A. Seger. 2009. "Neural correlates of metaphor processing: The roles of figurativeness, familiarity and difficulty", *Brain and Cognition* 71, 3: 375-386.
- Schmithorst, Vincent J., Marko Wilke, Bernard J. Dardzinski and Scott K. Holland. 2002. "Correlation of white matter diffusivity and anisotropy with age during childhood and adolescence: A cross-sectional diffusion-tensor MR imaging study", *Radiology* 222, 1: 212-218.
- Schmithorst, Vincent J., Marko Wilke, Bernard J. Dardzinski and Scott K. Holland. 2005. "Cognitive functions correlate with white matter architecture in a normal pediatric population: a diffusion tensor MRI study", *Human Brain Mapping* 26, 2: 139-147.
- Schmitt, Norbert. 2014. "Size and depth of vocabulary knowledge: What the research shows", *Language Learning* 64, 4: 913-951.
- Schooler, Jonathan W. 2014. "Metascience could rescue the 'replication crisis'", *Nature* 515: 9.
- Schroeder, Scott R. 2018. "Do bilinguals have an advantage in Theory of Mind? A meta-analysis", *Frontiers in Communication* 3, 36: 1-8.
- Schwanberg, Jennifer Suzanne. 2010. "Does language of retrieval affect the remembering of trauma?", *Journal of Trauma and Dissociation* 11, 1: 44-56.

- Schwartz, Bennett L. 1999. "Sparkling at the end of the tongue: The etiology of tip-of-the-tongue phenomenology", *Psychonomic Bulletin and Review* 6, 3: 379-393.
- Schweizer, Tom A., Jenna Ware, Corinne E. Fischer, Fergus I. M. Craik and Ellen Bialystok. 2012. "Bilingualism as a contributor to cognitive reserve: Evidence from brain atrophy in Alzheimer's disease", *Cortex* 48, 8: 991-996.
- Schwoebel, John, Shelly Dews, Ellen Winner and Kavitha Srinivas. 2000. "Obligatory processing of the literal meaning of ironic utterances: Further evidence", *Metaphor and Symbol* 15, 1-2: 47-61.
- Scovel, Thomas. 1988. *A time to speak: A psycholinguistic inquiry into the critical period for human speech*. Cambridge: Newbury House.
- Searle, John R. 1969. *Speech acts: An essay in the philosophy of language*. Cambridge: Cambridge University Press.
- Searle, John R. 1975. "A taxonomy of illocutionary acts", in: Keith Gunderson (ed.), *Language, mind and knowledge*. Minneapolis: University of Minnesota Press, 344-369.
- Searle, John R. 1979. *Expression and meaning: Studies in the theory of speech acts*. Cambridge: Cambridge University Press.
- Sebastián-Gallés, Núria, Bàrbara Albareda-Castellot, Whitney M. Weikum and Janet F. Werker. 2012. "A bilingual advantage in visual language discrimination in infancy", *Psychological Science* 23, 9: 994-999.
- Sekerina, Irina A. and Lauren Spradlin. 2016. "Bilingualism and executive function: An interdisciplinary approach", *Linguistic Approaches to Bilingualism* 6, 5: 505-516.
- Seliger, Herbert W. 1978. "Implications of a multiple critical periods hypothesis for second language learning", in: William C. Ritchie (ed.), *Second language acquisition research: Issues and implications*. New York: Academic Press, 11-19.
- Shany-Ur, Tal, Pardis Poorzand, Scott N. Grossman, Matthew E. Growdon, Jung Y. Jang, Robin S. Ketelle, Bruce L. Miller and Katherine P. Rankin. 2012. "Comprehension of insincere communication in neurodegenerative disease: lies, sarcasm, and theory of mind", *Cortex* 48, 10: 1329-1341.
- Shapiro, Marianne. 1985. "The status of irony", *Stanford Literature Review* 2, 1: 5-26.
- Siegal, Michael, Laura Iozzi and Luca Surian. 2009. "Bilingualism and conversational understanding in young children", *Cognition* 110, 1: 115-122.

- Simon, J. Richard and Alan P. Rudell. 1967. "Auditory S-R compatibility: The effect of an irrelevant cue on information processing", *Journal of Applied Psychology* 51, 3: 300-304.
- Simon, J. Richard and James D. Wolf. 1963. "Choice reaction time as a function of angularstimulus-response correspondence and age", *Ergonomics* 6, 1: 99-105.
- Siyanova-Chanturia, Anna, Kathy Conklin and Norbert Schmitt. 2011. "Adding more fuel to the fire: An eye-tracking study of idiom processing by native and non-native speakers", *Second Language Research* 27, 2: 251-272.
- Skutnabb-Kangas, Tove. 1981. *Bilingualism or not: The education of minorities*. Clevedon: Multilingual Matters.
- Smith, Peter K. and Craig H. Hart (eds.). 2011. *The Wiley-Blackwell handbook of childhood social development*. Chichester: Wiley-Blackwell.
- Soares, Carlos and François Grosjean. 1984. "Bilinguals in a monolingual and a bilingual speech mode: The effect on lexical access", *Memory and Cognition* 12, 4: 380-386.
- Sodian, Beate and Suzanne Kristen. 2010. "Theory of Mind", in: Britt Glatzeder, Vinod Goel and Albrecht von Müller (eds.), *Towards a theory of thinking: Building blocks for a conceptual framework*. Heidelberg: Springer, 189-201.
- Spellman, Barbara A. 2012. "Introduction to the Special Section: Data, data, everywhere... Especially in my file drawer", *Perspectives on Psychological Science* 7, 1: 58-59.
- Sperber, Dan. 1984. "Verbal irony: Pretense or echoic mention?", *Journal of Experimental Psychology: General* 113, 1: 130-136.
- Sperber, Dan and Deirdre Wilson. 1981. "Irony and the use-mention distinction", in: Peter Cole (ed.), *Radical pragmatics*. New York: Academic Press, 295-318.
- Sperber, Dan and Deirdre Wilson. 1986. *Relevance: Communication and cognition*. Oxford: Blackwell Publishing.
- Spotorno, Nicola, Eric Koun, Jérôme Prado, Jean-Baptiste Van Der Henst and Ira A. Noveck. 2012. "Neural evidence that utterance-processing entails mentalizing: The case of irony", *NeuroImage* 63, 1: 25-39.
- Spyra, Katarzyna. 2011. Gender differences in irony on-line comprehension: Experimental study on male and female irony inferencing in English as a foreign language. [Unpublished MA thesis, Adam Mickiewicz University, Poznań.].

- Stark, W. A. 1940. "The effect of bilingualism on general intelligence: an investigation carried out in certain Dublin primary schools", *British Journal of Educational Psychology* 10, 1: 78-79.
- Steiner, George. 1998. *After Babel*. Oxford: Oxford University Press.
- Sterling, Theodore D. 1959. "Publication decisions and their possible effects on inferences drawn from tests of significance – or vice versa", *Journal of the American Statistical Association* 54, 285: 30–34.
- Stern, Yaakov, Barry Gurland, Thomas K. Tatemichi, Ming Xin Tang, David Wilder and Richard Mayeux. 1994. "Influence of education and occupation on the incidence of Alzheimer's disease", *Journal of the American Medical Association* 271, 13: 1004-1010.
- Stevens, James P. 2009. *Applied multivariate statistics for the social sciences*. (5th edition.) New York: Routledge.
- Stewart, Mark T. and Roberto R. Heredia. 2002. "Comprehending spoken metaphoric reference: A real-time analysis", *Experimental Psychology* 49, 1: 34-44.
- Stroebe, Wolfgang and Fritz Strack. 2014. "The alleged crisis and the illusion of exact replication", *Perspectives on Psychological Science* 9, 1: 59-71.
- Strommen, Ellen A. 1973. "Verbal self-regulation in a children's game: Impulsive errors on 'Simon Says'", *Child Development* 44, 4: 849-853.
- Stroop, J. Ridley. 1935. "Studies of interference in serial verbal reactions", *Journal of Experimental Psychology* 18, 6: 643-662.
- Sullivan, Kate, Ellen Winner and Natalie Hopfield. 1995. "How children tell a lie from a joke: The role of second-order mental state attributions", *British Journal of Developmental Psychology* 13, 2: 191-204.
- Swift, Jonathan. [1729] 2008. "A modest proposal for preventing the children of poor people from being a burthen to their parents, or the country, and for making them beneficial to the public", in: Jim Manis (ed.), *A Modest Proposal and other short pieces including A Tale of a Tub by Jonathan Swift*. Hazleton: Pennsylvania State University, 5-12.
- Tanenhaus, Michael K., Michael J. Spivey-Knowlton, Kathleen M. Eberhard and Julie C. Sedivy. 1995. "Integration of visual and linguistic information in spoken language comprehension", *Science* 268, 5217: 1632-1634.

- Thompson, Irene. 1991. "Foreign accents revisited: The English pronunciation of Russian immigrants", *Language Learning* 41, 2: 177-204.
- Ting-Toomey, Stella. 1999. *Communicating across cultures*. New York: The Guilford Press.
- Titone, Debra, Georgie Columbus, Veronica Whitford, Julie Mercier and Maya Libben. 2015. "Contrasting bilingual and monolingual idiom processing", in: Roberto R. Heredia and Anna B. Cieslicka (eds.), *Bilingual figurative language processing*. New York: Cambridge University Press, 171-207.
- Tomczak, Ewa and Dorota Jaworska-Pasterska. 2017. "Affective language processing and bilingualism: Complementary perspectives", *Poznan Studies in Contemporary Linguistics* 53, 1: 1-16.
- Toplak, Maggie and Albert N. Katz. 2000. "On the uses of sarcastic irony", *Journal of Pragmatics* 32, 10: 1467-1488.
- Treccani, Barbara, Efrosyni Argyri, Antonella Sorace and Sergio Della Sala. 2009. "Spatial negative priming in bilingualism", *Psychonomic Bulletin and Review* 16, 2: 320-327.
- Trosborg, Anna. 1985. "Metaphoric productions and preferences in second language learners", in: Wold Paprotté and René Dirven (eds.), *The ubiquity of metaphor: Metaphor in language and thought*. Amsterdam: John Benjamins Publishing Company, 525-557.
- Türker, Ebru. 2019. "Idiom acquisition by second language learners: The influence of cross-linguistic similarity and context", *The Language Learning Journal* 47, 2: 133-144.
- Uchiyama, Hitoshi T., Daisuke N. Saito, Hiroki C. Tanabe, Tokito Harada, Ayumi Seki, Kousaku Ohno, Tatsuya Koeda and Norihiro Sadato. 2012. "Distinction between the literal and intended meanings of sentences: A functional magnetic resonance imaging study of metaphor and sarcasm", *Cortex* 48, 5: 563-583.
- Utsumi, Akira. 1996. "A unified theory of irony and its computational formalization", in: Jun'ich Tsujii (ed.), *Proceedings of the 16th Conference on Computational Linguistics, Copenhagen, 5-9 Aug. 1996*. Stroudsburg: Association for Computational Linguistics, 962-967.

- Utsumi, Akira. 2000. "Verbal irony as implicit display of ironic environment: Distinguishing ironic utterances from nonirony", *Journal of Pragmatics* 32, 12: 1777-1806.
- Vaid, Jyotsna and Francisco Martínez. 2001. Figurative language and thought across languages: What transfers? (Paper presented at the Third International Symposium on Bilingualism, Bristol, 18 April 2001.).
- Valdés, Guadalupe and Richard A. Figueroa. 1994. *Bilingualism and testing: a special case of bias*. Norwood: Ablex.
- Verhoeven, Ludo. 2007. "Early bilingualism, language transfer, and phonological awareness", *Applied Psycholinguistics* 28, 3: 425-439.
- Vermeer, Anne. 2001. "Breadth and depth of vocabulary in relation to L1/L2 acquisition and frequency of input", *Applied Psycholinguistics* 22, 2: 217-234.
- Vince, Gaia. 2016a. "Why being bilingual helps keep your brain fit", *Mosaic*, 7 Aug. 2016. (<http://mosaicscience.com/bilingual-brains>) (date of access: 6 Feb. 2017).
- Vince, Gaia. 2016b. "Why being bilingual works wonders for your brain", *The Guardian*, 7 Aug. 2016. (<http://www.theguardian.com/science/2016/aug/07/being-bilingual-good-for-brain-mental-health>) (date of access: 6 Feb. 2017).
- Vuilleumier, Patrik, Jorge L. Armony, Jon Driver and Raymond J. Dolan. 2001. "Effects of attention and emotion on face processing in the human brain: An event-related fMRI study", *Neuron* 30, 3: 829-841.
- Vygotsky, Lev S. 1962. *Thought and language*. Boston: M.I.T. Press.
- Vygotsky, Lev S. 1986. *Thought and language*. Cambridge: MIT Press.
- Walsh, Terrence M. and Karl Conrad Diller. 1981. "Neurolinguistic considerations on the optimum age for second language learning", in: Karl Conrad Diller (ed.), *Individual differences and universals in language learning aptitude*. Rowley: Newbury House, 3-21.
- Wampole, Christy. 2012. "How to live without irony", *The New York Times*, 17 Nov. 2012. (http://opinionator.blogs.nytimes.com/2012/11/17/how-to-live-without-irony/?_php=true&_type=blogs&_r=0) (date of access: 1 May 2014).
- Wang, A. Ting, Susan S. Lee, Marian Sigman and Mirella Dapretto. 2006a. "Developmental changes in the neural basis of interpreting communicative intent", *Social Cognitive and Affective Neuroscience* 1, 2: 107-121.

- Wang, A. Ting, Susan S. Lee, Marian Sigman and Mirella Dapretto. 2006b. "Neural basis of irony comprehension in children with autism: The role of prosody and context", *Brain* 129, 4: 932-943.
- Wang, Xiao-lei and Raquel Plotka. 2018. "Lending a helping hand for English-Chinese bilingual children's idiom comprehension and retention: Implications for early childhood educators", *Early Years* 38, 3: 298-315.
- Wei, Li. 2000. "Dimensions of bilingualism", in: Li Wei (ed.), *The bilingualism reader*. New York: Routledge, 2-21.
- Weikum, Whitney M., Athena Vouloumanos, Jordi Navarra, Salvador Soto-Faraco, Núria Sebastián-Gallés and Janet F. Werker. 2007. "Visual language discrimination in infancy", *Science* 316, 5828: 1159.
- Weinreich, Uriel. 1953. *Languages in contact: Findings and problems*. The Hague: Mouton.
- Wellman, Henry M., David Cross and Julianne Watson. 2001. "Meta-analysis of Theory of Mind development: The truth about false belief", *Child Development* 72, 3: 655-684.
- Wellman, Henry M. and David Liu. 2004. "Scaling of Theory of Mind tasks", *Child Development* 75, 2: 523-541.
- Westby, Carol and Lee Robinson. 2014. "A developmental perspective for promoting theory of mind", *Topics in Language Disorders* 34, 4: 362-383.
- Whitson, Signe. 2011. "'Very funny!' Why sarcasm is no laughing matter for kids", *Psychology Today*, 24 Oct. 2011.
(<http://www.psychologytoday.com/blog/passive-aggressive-diaries/201110/very-funny-why-sarcasm-is-no-laughing-matter-kids>) (date of access: 3 May 2014).
- Wiederholt, J. Lee and Forest J. Rees. 1998. "A description of the Comprehensive Test of Nonverbal Intelligence", *Journal of Child Neurology* 13, 5: 224-228.
- Williams, Joanna P. 1984. "Does mention (or pretense) exhaust the concept of irony?", *Journal of Experimental Psychology: General* 113, 1: 127-129.
- Wilson, Deirdre. 2017. "Irony, hyperbole, jokes and banter", in: Joanna Blochowiak, Cristina Grisot, Stephanie Durrleman and Christopher Laenzlinger (eds.), *Formal models in the study of language: Applications in interdisciplinary contexts*. Cham: Springer, 201-220.
- Wilson, Deirdre and Dan Sperber. 1992. "On verbal irony", *Lingua* 87, 1-2: 53-76.

- Wilson, Deirdre and Dan Sperber. 2002. "Relevance theory", *UCL Working Papers in Linguistics* 14: 249-290.
- Wilson, Deirdre and Dan Sperber. 2012. "Explaining irony", in: Deirdre Wilson and Dan Sperber (eds.), *Meaning and relevance*. Cambridge: Cambridge University Press, 123-145.
- Wilson, Tracy V. 2005. "How swearing works", *How Stuff Works*, 30 Nov. 2005. (<http://people.howstuffworks.com/swearing.htm>) (date of access: 22 April 2023).
- Wimmer, Heinz and Josef Perner. 1983. "Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception", *Cognition* 13, 1: 103-128.
- Winner, Ellen. 1988. *The point of words: Children's understanding of metaphor and irony*. Cambridge: Harvard University Press.
- Winner, Ellen, Hiram H. Brownell, Francesca Happé, Ari Blum and Donna Pincus. 1998. "Distinguishing lies from jokes: Theory of mind deficits and discourse interpretation in right hemisphere brain-damaged patients", *Brain and Language* 62, 1: 89-106.
- Winner, Ellen and E. Gallagher. 1983. The role of behavioral and intonational cues in the understanding of irony [Unpublished manuscript.].
- Winner, Ellen and Howard Gardner. 1993. "Metaphor and irony: Two levels of understanding", in: Andrew Ortony (ed.), *Metaphor and thought*. New York: Cambridge University Press, 425-443.
- Winner, Ellen and Susan R. Leekam. 1991. "Distinguishing irony from deception: Understanding the speaker's second-order intention", *British Journal of Developmental Psychology* 9, 2: 257-270.
- Winner, Ellen, Jonathan Levy and Elisabeth Rosenblatt. 1988. "Children's understanding of nonliteral language", *Journal of Aesthetic Education* 22, 1: 51-63.
- Winner, Ellen, G. Windmueller, Elisabeth Rosenblatt, L. Bosco, E. Best and Howard Gardner. 1987. "Making sense of literal and nonliteral falsehood", *Metaphor and Symbolic Activity* 2, 1: 13-32.
- Wlotko, Edward W. and Kara D. Federmeier. 2007. "Finding the right word: Hemispheric asymmetries in the use of sentence context information", *Neuropsychologia* 45, 13: 3001-3014.

- Wojciulik, Ewa, Nancy Kanwisher and Jon Driver. 1998. "Covert visual attention modulates face-specific activity in the human fusiform gyrus: fMRI study", *Journal of Neurophysiology* 79, 3: 1574-1578.
- Wright, John C. 1972. *The Kansas reflection-impulsivity scale for preschoolers (KRISP)*. Lawrence: University of Kansas.
- Wundt, Wilhelm. 1907. *Outlines of psychology*. Leipzig: Wilhelm Engelmann.
- Yandell, Maurine Dunn and Miles V. Zintz. 1961. "Some difficulties which Indian children encounter with idioms in reading", *The Reading Teacher* 14, 4: 256-259.
- Yang, Fan-Pei Gloria, Kailyn Bradley, Madiha Huq, Dai-Lin Wu and Daniel C. Krawczyk. 2013. "Contextual effects on conceptual blending in metaphors: An event-related potential study", *Journal of Neurolinguistics* 26, 2: 312-326.
- Yang, Fan-Pei Gloria, Jennifer Edens, Claire Simpson and Daniel C. Krawczyk. 2009. "Differences in task demands influence the hemispheric lateralization and neural correlates of metaphor", *Brain and Language* 111, 2: 114-124.
- Yang, Jie. 2014. "The role of the right hemisphere in metaphor comprehension: A meta-analysis of functional magnetic resonance imaging studies", *Human Brain Mapping* 35, 1: 107-122.
- Yang, Sujin, Hwajin Yang and Barbara Lust. 2011. "Early childhood bilingualism leads to advances in executive attention: Dissociating culture and language", *Bilingualism: Language and Cognition* 14, 3: 412-422.
- Yelland, Gregory W., Jacinta Pollard and Anthony Mercuri. 1993. "The metalinguistic benefits of limited contact with a second language", *Applied Psycholinguistics* 14, 4: 423-444.
- Yepez, Pamela. 2013. Understanding of irony in typically developing monolingual and bilingual children. [Unpublished MSc thesis, William Paterson University of New Jersey, Wayne.].
- Yoshida, Hanako, Duc N. Tran, Viridiana Benitez and Megumi Kuwabara. 2011. "Inhibition and adjective learning in bilingual and monolingual children", *Frontiers in Psychology* 2, 210: 1-14.
- Yow, Wei Quin and Ellen M. Markman. 2011a. "Bilingualism and children's use of paralinguistic cues to interpret emotion in speech", *Bilingualism: Language and Cognition* 14, 4: 562-569.

- Yow, Wei Quin and Ellen M. Markman. 2011b. "Young bilingual children's heightened sensitivity to referential cues", *Journal of Cognition and Development* 12, 1: 12-31.
- Yow, Wei Quin and Ellen M. Markman. 2015. "A bilingual advantage in how children integrate multiple cues to understand a speaker's referential intent", *Bilingualism: Language and Cognition* 18, 3: 391-399.
- Zahodne, Laura B., Peter W. Schofield, Meagan T. Farrell, Yaakov Stern and Jennifer J. Manly. 2014. "Bilingualism does not alter cognitive decline or dementia risk among Spanish-speaking immigrants", *Neuropsychology* 28, 2: 238-246.
- Zaitchik, Deborah. 1990. "When representations conflict with reality: The preschoolers' problem with false beliefs and 'false' photographs", *Cognition* 35, 1: 41-68.
- Zajonc, Robert B. 1980. "Feeling and thinking. Preferences need no inferences", *American Psychologist* 35, 2: 151-175.
- Zajonc, Robert B. 1984. "On the primacy of affect", *American Psychologist* 39, 2: 117-123.
- Zelazo, Philip David, Douglas Frye and Tanja Rapus. 1996. "An age-related dissociation between knowing rules and using them", *Cognitive Development* 11, 1: 37-63.
- Zelazo, Philip David, Sophie Jacques, Jacob A. Burack and Douglas Frye. 2002. "The relation between Theory of Mind and rule use: Evidence from persons with autism-spectrum disorders", *Infant and Child Development* 11, 2: 171-195.
- Zurer Pearson, Barbara, Sylvia C. Fernández and D. Kimbrough Oller. 1993. "Lexical development in bilingual infants and toddlers: Comparison to monolingual norms", *Language Learning* 43, 1: 93-120.

Appendix A: The Sarcastic Irony Battery – Polish version

**JAK SIĘ
KOMUNIKUJEMY?**

Miasto:
Szkoła: Klasa:
Plec:
Data urodzenia: Wiek:

Jeżeli rozumiesz instrukcję, możemy zrobić pierwsze zadanie razem:

0

Janek mówił Agnieszce, że bardzo lubi późno chodzić spać. Kiedy pewnego wieczora zasnął tuż po kolacji, Agnieszka powiedziała:
– **Rzeczywiście lubisz chodzić spać bardzo późno.**

A. Czy Janek poszedł późno spać? TAK / NIE
B. Czy Agnieszka myśli, że Janek poszedł późno spać? TAK / NIE
C. Agnieszka w swoim komentarzu:
a) pomyliła się
b) chciała wprowadzić Janka w błąd
c) nie mówiła na poważnie
d) żadne z powyższych
D. Jaka była Twoim zdaniem Agnieszka dla Janka?

Teraz zaczynamy zabawę!

Drogi Uczestniku,

w naszym projekcie badamy to, jak ludzie rozmawiają ze sobą – czyli jak się ze sobą komunikują.

Za chwilę usłyszysz krótkie opisy różnych sytuacji. Możesz je też przeczytać w tym folderze. W każdej z sytuacji biorą udział dwie osoby. Pierwsza zawsze coś robi, a druga to komentuje.

Po każdej scenie będziemy zadawać Ci kilka prostych pytań dotyczących bohaterów. Prosimy, żebyś zaznaczył swoje odpowiedzi w ankiecie, obok odpowiedniego pytania.

Przy pytaniach **A** i **B** należy zakreślić odpowiednią odpowiedź: **TAK** lub **NIE**. W pytaniu **C** musisz wybrać jedną spośród czterech odpowiedzi: *a*, *b*, *c* lub *d*. W pytaniu **D** trzeba podać słowo, które według Ciebie najlepiej określa zachowanie danej osoby.

Nie stresuj się – nie ma dobrych ani złych odpowiedzi. Odpowiadaj samodzielnie, tak jak Ci się wydaje.

1

Ania i Kasia poszły na pizzę. Kiedy Kasia zjadła dwudziestą porcję i zabrała się za porcję Ani, Ania powiedziała:

– **Koniecznie zamów sobie jeszcze jakiś deser.**

A. Czy Kasia zjadła dużo? TAK / NIE

B. Czy Ania myśli, że Kasia zjadła dużo? TAK / NIE

C. Ania w swoim **komentarzu**:

- a) pomyliła się
- b) chciała wprowadzić Kasię w błąd
- c) nie mówiła na poważnie
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Ania dla Kasi?

2

Piotrek i Sebastian mieli iść do kina. Kiedy Sebastian grzebał się i nie mógł wyjść z domu na czas, Piotrek powiedział:

– **Ruszał się wreszcie bo się spóźniamy.**

A. Czy Sebastian był powolny? TAK / NIE

B. Czy Piotrek myśli, że Sebastian był powolny? TAK / NIE

C. Piotrek w swoim **komentarzu**:

- a) chciał wprowadzić Sebastiana w błąd
- b) nie mówił na poważnie
- c) pomylił się
- d) żadne z powyższych

D. Jaki był Twoim zdaniem Piotrek dla Sebastiana?

3

Zosia już pięć razy próbowała zdać egzamin na prawo jazdy. Kiedy nie udało jej się za szóstym razem, Gosia powiedziała:

– **Żle, że nadal nie umiesz jeździć.**

A. Czy Zosia była dobrą kierowcą? TAK / NIE

B. Czy Gosia myśli, że Zosia była dobrą kierowcą? TAK / NIE

C. Gosia w swoim **komentarzu**:

- a) nie mówiła na poważnie
- b) pomyliła się
- c) chciała wprowadzić Zosię w błąd
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Gosia dla Zosi?

4

Paweł często chwalił się, że świetnie gra w piłkę. Kiedy piąty raz nie trafił do bramki, Tomek powiedział:

– **Rzeczywiście świetny jest z Ciebie piłkarz.**

A. Czy Paweł źle grał w piłkę? TAK / NIE

B. Czy Tomek myśli, że Paweł źle grał w piłkę? TAK / NIE

C. Tomek w swoim **komentarzu**:

- a) chciał wprowadzić Pawła w błąd
- b) pomylił się
- c) nie mówił na poważnie
- d) żadne z powyższych

D. Jaki był Twoim zdaniem Tomek dla Pawła?

5

Julia często mówiła, że potrafi świetnie gotować. Kiedy poczęstowała Wojtka przypalonym i słonym obiadem, Wojtek powiedział:

– **Wiesz, ogłaszam Cię najgorszym kucharzem roku.**

A. Czy Julia ugotowała dobry obiad? TAK / NIE

B. Czy Wojtek myśli, że Julia ugotowała dobry obiad? TAK / NIE

C. Wojtek w swoim **komentarzu**:

- a) pomylił się
- b) nie mówił na poważnie
- c) chciał wprowadzić Julię w błąd
- d) żadne z powyższych

D. Jaki był Twoim zdaniem Wojtek dla Julii?

6

Romek twierdził, że wspaniale gra na pianinie. Kiedy miał zagrać Asi piosenkę i nie umiał zagrać nawet pierwszych dźwięków, Asia powiedziała:

– **Naprawdę kiepski jest z Ciebie pianista.**

A. Czy Romek źle grał na pianinie? TAK / NIE

B. Czy Asia myśli, że Romek źle grał na pianinie? TAK / NIE

C. Asia w swoim **komentarzu**:

- a) nie mówiła na poważnie
- b) chciała wprowadzić Romka w błąd
- c) pomyliła się
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Asia dla Romka?

7

Tadek chwalił się, że niczego się nie boi. Kiedy naszczekał na niego pudełek Zosi, Tadek uciekał aż się kurczyło, a Zosia powiedziała:

– **Niedobrze, że jesteś aż takim tchórzem.**

A. Czy Tadek wystraszył się pieska? TAK / NIE

B. Czy Zosia myśli, że Tadek wystraszył się pieska? TAK / NIE

C. Zosia w swoim **komentarzu**:

- a) pomyliła się
- b) chciała wprowadzić Tadeka w błąd
- c) nie mówiła na poważnie
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Zosia dla Tadeka?

8

Gosia chwaliła się, że bardzo pięknie i czysto śpiewa. Kiedy na lekcji muzyki zaczęła fałszować, Marta powiedziała:

– **Nauczę Cię śpiewać choć kilka piosenek.**

A. Czy Gosia ładnie śpiewała na lekcji? TAK / NIE

B. Czy Marta myśli, że Gosia ładnie śpiewała na lekcji? TAK / NIE

C. Marta w swoim **komentarzu**:

- a) chciała wprowadzić Gosię w błąd
- b) nie mówiła na poważnie
- c) pomyliła się
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Marta dla Gosi?

9

Tosia chwaliła się, że umie pięknie tańczyć. Kiedy na dyskotekę zrobiła zaledwie dwa niezdarne ruchy i się przewróciła, Kryśka powiedziała:

– **Też się nauczę tak pięknie tańczyć.**

A. Czy Tosia ładnie tańczyła na dyskotekę? TAK / NIE

B. Czy Kryśka myśli, że Tosia ładnie tańczyła na dyskotekę? TAK / NIE

C. Kryśka w swoim **komentarzu**:

- a) nie mówiła na poważnie
- b) pomyliła się
- c) chciała wprowadzić Tosię w błąd
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Kryśka dla Tosi?

10

Antek mówił, że świetnie pływa. Kiedy był z Kubą na basenie i okazało się, że boi się wejść nawet do brodzika, Kuba powiedział:

– **Wiesz co, ogłaszam Cię pływakiem roku.**

A. Czy Antek dobrze pływał na basenie? TAK / NIE

B. Czy Kuba myśli, że Antek dobrze pływał na basenie? TAK / NIE

C. Kuba w swoim **komentarzu**:

- a) chciał wprowadzić Antka w błąd
- b) pomylił się
- c) nie mówił na poważnie
- d) żadne z powyższych

D. Jaki był Twoim zdaniem Kuba dla Antka?

11

Janek mówił, że świetnie zna angielski. Kiedy pojechał z Witkiem do Anglii i na miejscu nie rozumiał ani słowa w tym języku, Witek powiedział:

– **Pouczę Cię chociaż trochę języka angielskiego.**

A. Czy Janek dobrze mówił po angielsku? TAK / NIE

B. Czy Witek myśli, że Janek dobrze mówił po angielsku? TAK / NIE

C. Witek w swoim **komentarzu**:

- a) pomylił się
- b) nie mówił na poważnie
- c) chciał wprowadzić Janka w błąd
- d) żadne z powyższych

D. Jaki był Twoim zdaniem Witek dla Janka?

12

Janek chwalił się, że potrafi pięknie malować. Kiedy trzeba było przygotować gazetkę szkolną i nie umiał namalować najprostszej rzeczy, Jurek powiedział:

– **Wiesz, ogłaszam Cię najgorszym malarzem roku.**

A. Czy Janek namalował coś do gazetki? TAK / NIE

B. Czy Jurek myśli, że Janek namalował coś do gazetki? TAK / NIE

C. Jurek w swoim **komentarzu**:

- a) nie mówił na poważnie
- b) chciał wprowadzić Janka w błąd
- c) pomylił się
- d) żadne z powyższych

D. Jaki był Twoim zdaniem Jurek dla Janka?

13

Piotrek popisował się, że jest wysportowany. Kiedy w szkole trzeba było biec w konkursie i Piotrek dostał zadyszki już po minucie, Kajtek powiedział:

– **Zrobię wszystko żeby mieć taką kondycję.**

A. Czy Piotrek był słabym biegaczem? TAK / NIE

B. Czy Kajtek myśli, że Piotrek był słabym biegaczem? TAK / NIE

C. Kajtek w swoim **komentarzu**:

- a) pomylił się
- b) chciał wprowadzić Piotra w błąd
- c) nie mówił na poważnie
- d) żadne z powyższych

D. Jaki był Twoim zdaniem Kajtek dla Piotra?

14

Marysia chwaliła się, że szybko się uczy i zapamiętuje nowe rzeczy. Kiedy po trzech godzinach nauki nadal nie umiała nauczyć się pierwszej zwrotki krótkiego wiersza, Zdzis powiedział:

– **Powiedz mi jak wyszkolić taką pamięć.**

A. Czy Marysia nauczyła się wiersza na pamięć? TAK / NIE

B. Czy Zdzis myśli, że Marysia nauczyła się wiersza na pamięć? TAK / NIE

C. Zdzis w swoim **komentarzu**:

- a) chciał wprowadzić Marysię w błąd
- b) nie mówił na poważnie
- c) pomylił się
- d) żadne z powyższych

D. Jaki był Twoim zdaniem Zdzis dla Marysi?

15

Marek mówił Kasi, że zawsze wie, gdzie jest i nigdy się nie gubi. Kiedy poszedł z Jurkiem do lasu i nie wiedział jak wrócić, Kasia powiedziała:

– **Mianuję Cię człowiekiem z najlepszą orientacją.**

A. Czy Marek zgubił się w lesie? TAK / NIE

B. Czy Kasia myśli, że Marek zgubił się w lesie? TAK / NIE

C. Kasia w swoim **komentarzu**:

- a) nie mówiła na poważnie
- b) pomyliła się
- c) chciała wprowadzić Marka w błąd
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Kasia dla Marka?

16

Mirek mówił Paulinie, że zawsze jest radosny i uśmiechnięty. Kiedy poszli na kawę i Mirek bez przerwy narzekał i opowiadał same smutne historie, Paulina powiedziała:

– **Prześnij wreszcie narzekać i psuć nastrój.**

A. Czy Mirek był wesoły na spotkaniu? TAK / NIE

B. Czy Paulina myśli, że Mirek był wesoły na spotkaniu? TAK / NIE

C. Paulina w swoim **komentarzu**:

- a) chciała wprowadzić Mirka w błąd
- b) pomyliła się
- c) nie mówiła na poważnie
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Paulina dla Mirka?

17

Karolina mówiła Zuzi, że jest bardzo pracowita. Kiedy dziewczyny spędziły razem cały dzień, a Karolina ani nie pomogła mamie, ani nie zajrzała do lekcji, Zuzia powiedziała:

– **Niedobrze, że wcale nie jesteś pracowita.**

A. Czy Karolina była leniwa? TAK / NIE

B. Czy Zuzia myśli, że Karolina była leniwa? TAK / NIE

C. Zuzia w swoim **komentarzu**:

- a) pomyliła się
- b) nie mówiła na poważnie
- c) chciała wprowadzić Karolinę w błąd
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Zuzia dla Karoliny?

18

Julian chwalił się Tomkowi, że jest bardzo posłuszny. Kiedy mama kazała mu odrobić lekcje, a Julian zaczął krzyknąć i tupać, Tomek powiedział:

– **Prześnij być taki posłuszny, bo przesadasz.**

A. Czy Julian był niegrzeczny? TAK / NIE

B. Czy Tomek myśli, że Julian był niegrzeczny? TAK / NIE

C. Tomek w swoim **komentarzu**:

- a) nie mówił na poważnie
- b) chciał wprowadzić Juliana w błąd
- c) pomylił się
- d) żadne z powyższych

D. Jaki był Twoim zdaniem Tomek dla Juliana?

19

Zenek chwalił się Zosi, że ma zawsze porządek w pokoju. Kiedy Zosia go odwiedziła i nie miała gdzie usiąść, bo wszędzie wałały się brudne ubrania i naczynia, Zosia powiedziała:

– **Rusz się i weź za sprzątnięcie.**

A. Czy Zenek miał bałagan w pokoju? TAK / NIE

B. Czy Zosia myśli, że Zenek miał bałagan w pokoju? TAK / NIE

C. Zosia w swoim **komentarzu**:

- a) pomyliła się
- b) chciała wprowadzić Zenka w błąd
- c) nie mówiła na poważnie
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Zosia dla Zenka?

20

Asia chwaliła się Romkowi, że ma świetny gust i bardzo elegancko się ubiera. Kiedy któregoś dnia Romek zobaczył Asię w teatrze ubraną w białe jakiegoś dres, powiedział:

– **Mianuję Cię najbardziej eleganckim człowiekiem roku.**

A. Czy Asia była ładnie ubrana w teatrze? TAK / NIE

B. Czy Romek myśli, że Asia była ładnie ubrana w teatrze? TAK / NIE

C. Romek w swoim **komentarzu**:

- a) chciał wprowadzić Asię w błąd
- b) nie mówił na poważnie
- c) pomylił się
- d) żadne z powyższych

D. Jaki był Twoim zdaniem Romek dla Asi?

21

Marek chwalił się Dorocie, że jest bardzo silny. Kiedy Dorota poprosiła go żeby odkręcił dla niej butelkę, a Marek nie dał rady tego zrobić, Dorota powiedziała:

– **Świetnie, że masz tak dużo siły.**

A. Czy Marek odkręcił butelkę? TAK / NIE

B. Czy Dorota myśli, że Marek odkręcił butelkę? TAK / NIE

C. Dorota w swoim **komentarzu**:

- a) nie mówiła na poważnie
- b) pomyliła się
- c) chciała wprowadzić Marka w błąd
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Dorota dla Marka?

22

Kuba chwalił się Gosi, że jest popularny i podoba się wielu dziewczynom. Kiedy poszli na dyskotekę, a Kuba bawił się sam i nikt nie chciał z nim tańczyć, Gosia powiedziała:

– **Rzeczywiście podobasz się bardzo wielu dziewczynom.**

A. Czy Kuba tańczył sam na dyskotekę? TAK / NIE

B. Czy Gosia myśli, że Kuba tańczył sam na dyskotekę? TAK / NIE

C. Gosia w swoim **komentarzu**:

- a) chciała wprowadzić Kubę w błąd
- b) pomyliła się
- c) nie mówiła na poważnie
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Gosia dla Kubę?

23

Kamil chwalił się, że świetnie jeździ na rowerze. Kiedy kolejny raz nie zdał na kartę rowerową, Krzysiek powiedział:

– **Dobrze, że tak świetnie umiesz jeździć.**

A. Czy Kamil zdał egzamin na kartę rowerową? TAK / NIE

B. Czy Krzysiek myśli, że Kamil zdał egzamin na kartę rowerową? TAK / NIE

C. Krzysiek w swoim **komentarzu**:

- a) pomylił się
- b) nie mówił na poważnie
- c) chciał wprowadzić Kamila w błąd
- d) żadne z powyższych

D. Jaki był Twoim zdaniem Krzysiek dla Kamila?

24

Wojtek chwalił się, że jest świetnie przygotowany do sprawdzianu z matematyki. Kiedy dostał dwójkę, Maks powiedział:

– **Pomogę Ci trochę w nauce matematyki.**

A. Czy Wojtek dostał złą ocenę ze sprawdzianu? TAK / NIE

B. Czy Maks myśli, że Wojtek dostał złą ocenę ze sprawdzianu? TAK / NIE

C. Maks w swoim **komentarzu**:

- a) nie mówił na poważnie
- b) chciał wprowadzić Wojtkę w błąd
- c) pomylił się
- d) żadne z powyższych

D. Jaki był Twoim zdaniem Maks dla Wojtkę?

25

Krystian chwalił się, że wygra na zawodach w ping ponga. Kiedy przegrał, Janek powiedział:
– **Rzeczywiście, świetny jest z Ciebie gracz.**

- A. Czy Krystian słabo zagrał w zawodach? TAK / NIE
 B. Czy Janek myśli, że Krystian słabo zagrał w zawodach? TAK / NIE
 C. Janek w swoim **komentarzu**:
 a) pomylił się
 b) chciał wprowadzić Krystiana w błąd
 c) nie mówił na poważnie
 d) żadne z powyższych
 D. Jaki był Twoim zdaniem Janek dla Krystiana?

26

Adam chwalił się, że poderwie Agnieszkę. Kiedy mu się nie udało, Wiktor powiedział:
– **Słuchaj, naucz mnie tak podrywać dziewczyny.**

- A. Czy Adam poderwał Agnieszkę? TAK / NIE
 B. Czy Wiktor myśli, że Adam poderwał Agnieszkę? TAK / NIE
 C. Wiktor w swoim **komentarzu**:
 a) chciał wprowadzić Adama w błąd
 b) nie mówił na poważnie
 c) pomylił się
 d) żadne z powyższych
 D. Jaki był Twoim zdaniem Wiktor dla Adama?

27

Zbigniew chwalił się, że świetnie czyta. Kiedy okazało się, że potrafi tylko dukać, Andrzej powiedział:
– **Dobrze, że potrafisz tak świetnie czytać.**

- A. Czy Zbigniew płynnie czytał? TAK / NIE
 B. Czy Andrzej myśli, że Zbigniew płynnie czytał? TAK / NIE
 C. Andrzej w swoim **komentarzu**:
 a) nie mówił na poważnie
 b) pomylił się
 c) chciał wprowadzić Zbigniewa w błąd
 d) żadne z powyższych
 D. Jaki był Twoim zdaniem Andrzej dla Zbigniewa?

28

Zenek chwalił się, że potrafi pięknie przemawiać. Kiedy zaczął się jękać, Tymek powiedział:
– **Wiesz, ogłaszam Cię najgorszym mówcą roku.**

- A. Czy Zenek dobrze przemawiał? TAK / NIE
 B. Czy Tymek myśli, że Zenek dobrze przemawiał? TAK / NIE
 C. Tymek w swoim **komentarzu**:
 a) chciał wprowadzić Zenka w błąd
 b) pomylił się
 c) nie mówił na poważnie
 d) żadne z powyższych
 D. Jaki był Twoim zdaniem Tymek dla Zenka?

29

Marcin chwalił się, że świetnie zna się na komputerach. Kiedy nie potrafił naprawić najprostszego rzeczy, Tymek powiedział:
– **Kiedyś też będę takim świetnym specjalistą.**

- A. Czy Marcin naprawił komputer? TAK / NIE
 B. Czy Tymek myśli, że Marcin naprawił komputer? TAK / NIE
 C. Tymek w swoim **komentarzu**:
 a) pomylił się
 b) nie mówił na poważnie
 c) chciał wprowadzić Marcina w błąd
 d) żadne z powyższych
 D. Jaki był Twoim zdaniem Tymek dla Marcina?

30

Grzegorz chwalił się, że świetnie jeździ na nartach. Kiedy wyrzucił się na małej górze, Jacek powiedział:
– **Żle, że tak kiepsko umiesz jeździć.**

- A. Czy Grzegorz słabo jeździł na nartach? TAK / NIE
 B. Czy Jacek myśli, że Grzegorz słabo jeździł na nartach? TAK / NIE
 C. Jacek w swoim **komentarzu**:
 a) nie mówił na poważnie
 b) chciał wprowadzić Grzegorza w błąd
 c) pomylił się
 d) żadne z powyższych
 D. Jaki był Twoim zdaniem Jacek dla Grzegorza?

31

Anatol chwalił się, że potrafi dobrze majsterkować. Kiedy zrobiony przez niego samolotik szybko się rozleciał, Filip powiedział:
– **Wiesz, ogłaszam Cię najgorszym majsterkowiczem roku.**

- A. Czy Anatol zrobił dobry model? TAK / NIE
 B. Czy Filip myśli, że Anatol zrobił dobry model? TAK / NIE
 C. Filip w swoim **komentarzu**:
 a) pomylił się
 b) chciał wprowadzić Anatola w błąd
 c) nie mówił na poważnie
 d) żadne z powyższych
 D. Jaki był Twoim zdaniem Filip dla Anatola?

32

Marceli chwalił się, że potrafi bardzo szybko biegać. Kiedy od razu po starcie dostał zadyszki, Irek powiedział:
– **Wiesz co, ogłaszam Cię biegaczem roku.**

- A. Czy Marceli słabo pobiegł w zawodach? TAK / NIE
 B. Czy Irek myśli, że Marceli słabo pobiegł w zawodach? TAK / NIE
 C. Irek w swoim **komentarzu**:
 a) chciał wprowadzić Marceliego w błąd
 b) nie mówił na poważnie
 c) pomylił się
 d) żadne z powyższych
 D. Jaki był Twoim zdaniem Irek dla Marceliego?

33

Michał chwalił się, że bardzo dużo pomaga innym. Kiedy znowu nie pomógł kolegom odrobić zadania domowego, Jakub powiedział:
– **Powinieneś być dla nas bardziej koleżeński.**

- A. Czy Michał był pomocny dla kolegów? TAK / NIE
 B. Czy Jakub myśli, że Michał był pomocny dla kolegów? TAK / NIE
 C. Jakub w swoim **komentarzu**:
 a) nie mówił na poważnie
 b) pomylił się
 c) chciał wprowadzić Michała w błąd
 d) żadne z powyższych
 D. Jaki był Twoim zdaniem Jakub dla Michała?

34

Marcin chwalił się, że dobrze łowi ryby. Kiedy pewnego dnia znów wrócił z połowu z pustymi rękoma, Andrzej powiedział:
– **W ogóle nie potrafisz łowić ryb.**

- A. Czy Marcin wrócił z połowu bez ryb? TAK / NIE
 B. Czy Andrzej myśli, że Marcin wrócił z połowu bez ryb? TAK / NIE
 C. Andrzej w swoim **komentarzu**:
 a) chciał wprowadzić Marcina w błąd
 b) pomylił się
 c) nie mówił na poważnie
 d) żadne z powyższych
 D. Jaki był Twoim zdaniem Andrzej dla Marcina?

35

Karol chwalił się, że bardzo dobrze strzela z pistoletu. Kiedy na strzelnicy nie trafił ani razu, Emilia powiedziała:
– **Chętnie pouczę Cię celować z pistoletu.**

- A. Czy Karol miał problemy ze strzelaniem? TAK / NIE
 B. Czy Emilia myśli, że Karol miał problemy ze strzelaniem? TAK / NIE
 C. Emilia w swoim **komentarzu**:
 a) pomyliła się
 b) nie mówiła na poważnie
 c) chciała wprowadzić Karola w błąd
 d) żadne z powyższych
 D. Jaka była Twoim zdaniem Emilia dla Karola?

36

Robert chwalił się, że jest dobrym organizatorem. Kiedy organizowane przez niego przyjęcie okazało się kompletną kląpą, Kacper powiedział:
– **Ty wcale nie potrafisz organizować przyjęć.**

- A. Czy przyjęcie Roberta się udało? TAK / NIE
 B. Czy Kacper myśli, że przyjęcie Roberta się udało? TAK / NIE
 C. Kacper w swoim **komentarzu**:
 a) nie mówił na poważnie
 b) chciał wprowadzić Roberta w błąd
 c) pomylił się
 d) żadne z powyższych
 D. Jaki był Twoim zdaniem Kacper dla Roberta?

37

Basia chwaliła się, że potrafi zajmować się ogrodem. Kiedy wyrosły jej same kikuty i chwasty, Monika powiedziała:

– **Kiedyś też będę miała taki ogród.**

A. Czy Basia wyhodowała brzydkie rośliny? TAK / NIE

B. Czy Monika myśli, że Basia wyhodowała brzydkie rośliny? TAK / NIE

C. Monika w swoim **komentarzu**:

- a) pomyliła się
- b) chciała wprowadzić Basię w błąd
- c) nie mówiła na poważnie
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Monika dla Basi?

38

Asia chwaliła się, że potrafi tworzyć piękne ozdoby i dekoracje. Kiedy jej dekoracja na szkolną dyskotekę nie spodobała się nikomu, Natalia powiedziała:

– **Ty przecież nie potrafisz robić dekoracji.**

A. Czy Asia zrobiła brzydką dekorację? TAK / NIE

B. Czy Natalia myśli, że Asia zrobiła brzydką dekorację? TAK / NIE

C. Natalia w swoim **komentarzu**:

- a) chciała wprowadzić Asię w błąd
- b) nie mówiła na poważnie
- c) pomyliła się
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Natalia dla Asi?

39

Olek chwalił się, że lubi zajmować się zwierzętami. Kiedy okazało się, że bardzo je zaniedbuje i nie karmi ich, Kamila powiedziała:

– **Rzeczywiście bardzo troskliwie opiekujesz się zwierzętami.**

A. Czy Olek dobrze zajmował się zwierzętami? TAK / NIE

B. Czy Kamila myśli, że Olek dobrze zajmował się zwierzętami? TAK / NIE

C. Kamila w swoim **komentarzu**:

- a) nie mówiła na poważnie
- b) pomyliła się
- c) chciała wprowadzić Olka w błąd
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Kamila dla Olka?

40

Tomasz chwalił się, że jest dobrym siatkarzem. Kiedy drużyna przegrała przez niego cały turniej, Hania powiedziała:

– **Dobrze, że potrafisz tak świetnie grać.**

A. Czy Tomasz słabo grał na meczu? TAK / NIE

B. Czy Hania myśli, że Tomasz słabo grał na meczu? TAK / NIE


C. Hania w swoim **komentarzu**:

- a) chciała wprowadzić Tomasza w błąd
- b) pomyliła się
- c) nie mówiła na poważnie
- d) żadne z powyższych

D. Jaka była Twoim zdaniem Hania dla Tomasza?

Dziękujemy za wzięcie udziału w badaniu!

Appendix B: The Sarcastic Irony Battery – English version



City:
 School: Class:
 Sex:
 Date of birth: Age:

Dear Participant,

our study looks at how people communicate.
 You will hear short stories about different situations. You can read them in this folder. There are two people in each situation. The first one does something, and the second comments on it.

After each scenario we will ask you a few simple questions about the people in the situation. Please write your answers in the folder, next to each question.

For questions **A** and **B**, you have to mark the correct answer: **YES** or **NO**. For question **C**, you have to choose the correct answer: *a, b, c, or d*. For question **D**, you have to write a word which, in your opinion, best describes the behaviour of a character from the scenario.

Don't worry – there are no wrong answers. Do the task by yourself and write what you think.

If you understand the instructions, let's do the first task together.

0

Janek told Agnieszka that he liked going to sleep late. When, one evening, he fell asleep right after supper, Agnieszka said:
– You really like going to bed late.

A. Did Janek go to bed late? YES / NO
 B. Does Agnieszka think that Janek went to bed late? YES / NO
 C. In her **comment**:

a) Agnieszka made a mistake
 b) Agnieszka wanted to deceive Janek
 c) Agnieszka wasn't speaking seriously
 d) none of the above

D. How do you think Agnieszka was behaving towards Janek?

Let's start the fun!

1

Ania and Kasia were eating pizza. Kasia ate twenty slices and started to eat Ania's pizza. Ania said to Kasia:
– You should order dessert too.

A. Did Kasia eat a lot? YES / NO
 B. Does Ania think that Kasia ate a lot? YES / NO
 C. In her **comment**:
 a) Kasia made a mistake
 b) Kasia wanted to deceive Ania
 c) Kasia wasn't speaking seriously
 d) none of the above
 D. How do you think Ania was behaving towards Kasia?

2

Piotrek and Sebastian were getting ready to go to the cinema. When Sebastian was slow and could not get out of the house in time, Piotrek said:
– Hurry up or we'll be late.

A. Was Sebastian slow? YES / NO
 B. Does Piotrek think that Sebastian was slow? YES / NO
 C. In his **comment**:
 a) Piotrek wanted to deceive Sebastian
 b) Piotrek wasn't speaking seriously
 c) Piotrek made a mistake
 d) none of the above
 D. How do you think Piotrek was behaving towards Sebastian?

3

Zosia had taken the driving license exam five times already. When she failed for the sixth time, Gosia said:
– Too bad you still can't drive.

A. Was Zosia a good driver? YES / NO
 B. Does Gosia think that Zosia was a good driver? YES / NO
 C. In her **comment**:
 a) Gosia wasn't speaking seriously
 b) Gosia made a mistake
 c) Gosia wanted to deceive Zosia
 d) none of the above
 D. How do you think Gosia was behaving towards Zosia?

4

Pawel often boasted that he played football very well. When she missed the goal for the fifth time, Tomek said:
– You really are a great player.

A. Was Pawel bad at football? YES / NO
 B. Does Tomek think that Pawel was bad at football? YES / NO
 C. In his **comment**:
 a) Tomek wanted to deceive Pawel
 b) Tomek made a mistake
 c) Tomek wasn't speaking seriously
 d) none of the above
 D. How do you think Tomek was behaving towards Pawel?

5

Julia often said that she cooked really well. When she gave Wojtek a burnt and salty dinner, Wojtek said:
– I declare you the worst cook of the year.

A. Did Julia cook a good dinner? YES / NO
 B. Does Wojtek think that Julia cooked a good dinner? YES / NO
 C. In his **comment**:
 a) Wojtek made a mistake
 b) Wojtek wasn't speaking seriously
 c) Wojtek wanted to deceive Julia
 d) none of the above
 D. How do you think Wojtek was behaving towards Julia?

6

Romek claimed that he played the piano really well. When he wanted to play a song for Asia and could not play even the first sounds, Asia said:
– You really are a bad pianist.

A. Was Romek bad at playing the piano? YES / NO
 B. Does Asia think that Romek was bad at playing the piano? YES / NO
 C. In her **comment**:
 a) Asia wasn't speaking seriously
 b) Asia wanted to deceive Romek
 c) Asia made a mistake
 d) none of the above
 D. How do you think Asia was behaving towards Romek?

7

Tadek boasted that he wasn't afraid of anything. When Zosia's poodle barked at him and Tadek ran away like crazy, Zosia said:
– Too bad you're such a coward.

A. Was Tadek afraid of the dog? YES / NO
 B. Does Zosia think that Tadek was afraid of the dog? YES / NO
 C. In her **comment**:
 a) Zosia made a mistake
 b) Zosia wanted to deceive Tadek
 c) Zosia wasn't speaking seriously
 d) none of the above
 D. How do you think Zosia was behaving towards Tadek?

8

Gosia boasted that she sang beautifully and clearly. When she started singing out of tune during her music lesson, Marta said:
– I'll teach you to sing some songs.

A. Did Gosia sing well during the lesson? YES / NO
 B. Does Marta think that Gosia sang well during the lesson? YES / NO
 C. In her **comment**:
 a) Marta wanted to deceive Gosia
 b) Marta wasn't speaking seriously
 c) Marta made a mistake
 d) none of the above
 D. How do you think Marta was behaving towards Gosia?

9

Tosia boasted that she could dance beautifully. At the disco, when she made just two clumsy moves and fell down, Kryisia said:
– I'll learn to dance so beautifully, too.

A. Did Tosia dance well at the disco? YES / NO
 B. Does Kryisia think that Tosia danced well at the disco? YES / NO
 C. In her **comment**:
 a) Kryisia wasn't speaking seriously
 b) Kryisia made a mistake
 c) Kryisia wanted to deceive Tosia
 d) none of the above
 D. How do you think Kryisia was behaving towards Tosia?

10

Antek said he could swim well. When he was at a swimming pool with Kuba and it turned out that he was too scared to go to the shallow end of the pool, Kuba said:
– I declare you the swimmer of the year.

A. Did Antek swim well at the pool? YES / NO
 B. Does Kuba think that Antek swam well at the pool? YES / NO
 C. In his **comment**:
 a) Kuba wanted to deceive Antek
 b) Kuba made a mistake
 c) Kuba wasn't speaking seriously
 d) none of the above
 D. How do you think Kuba was behaving towards Antek?

11

Janek said that he spoke English very well. When he went to England with Witek and could not understand anything, Witek said:
– I'll teach you at least some English.

A. Did Janek speak English well? YES / NO
 B. Does Witek think that Janek spoke English well? YES / NO
 C. In his **comment**:
 a) Witek made a mistake
 b) Witek wasn't speaking seriously
 c) Witek wanted to deceive Janek
 d) none of the above
 D. How do you think Witek was behaving towards Janek?

12

Janek boasted that he painted really beautifully. When students were preparing a school board bulletin and Janek could not even paint the simplest thing, Jurek said:
– I declare you the worst painter of the year.

A. Did Janek paint a picture for the bulletin board? YES / NO
 B. Does Jurek think that Janek painted a picture for the bulletin board? YES / NO
 C. In his **comment**:
 a) Jurek wasn't speaking seriously
 b) Jurek wanted to deceive Janek
 c) Jurek made a mistake
 d) none of the above
 D. How do you think Jurek was behaving towards Janek?

13

Piotrek showed off that he was fit. When he ran in a competition at school and was out of breath after the first minute, Kajtek said:
– *I'll do my best to be so fit.*

- A. Was Piotrek a bad runner? YES / NO
 B. Does Kajtek think that Piotrek was a bad runner? YES / NO
 C. In his **comment**:
 a) Kajtek made a mistake
 b) Kajtek wanted to deceive Piotrek
 c) Kajtek wasn't speaking seriously
 d) none of the above
 D. How do you think Kajtek was behaving towards Piotrek?

14

Marysia boasted that she was a quick learner and that she could remember new things easily. When, after 3 hours of learning, she still could not memorise the first part of a short poem, Zdziś said:

– *Tell me how to train memory skills.*

- A. Did Marysia memorise the poem? YES / NO
 B. Does Zdziś think that Marysia memorised the poem? YES / NO
 C. In his **comment**:
 a) Zdziś wanted to deceive Marysia
 b) Zdziś wasn't speaking seriously
 c) Zdziś made a mistake
 d) none of the above
 D. How do you think Zdziś was behaving towards Marysia?

15

Marek told Kasia that he never got lost. When he went to the forest with Jurek and did not know how to come back, Kasia said:

– *I declare you the man with the best sense of direction.*

- A. Did Marek get lost in the forest? YES / NO
 B. Does Kasia think that Marek got lost in the forest? YES / NO
 C. In her **comment**:
 a) Kasia wasn't speaking seriously
 b) Kasia made a mistake
 c) Kasia wanted to deceive Marek
 d) none of the above
 D. How do you think Kasia was behaving towards Marek?

16

Mirek told Paulina that he was always happy and smiling. When they went for a coffee and Mirek was moaning and only told sad stories, Paulina said:

– *Stop moaning and spoiling the fun.*

- A. Was Mirek joyful at the meeting? YES / NO
 B. Does Paulina think that Mirek was joyful at the meeting? YES / NO
 C. In her **comment**:
 a) Paulina wanted to deceive Mirek
 b) Paulina made a mistake
 c) Paulina wasn't speaking seriously
 d) none of the above
 D. How do you think Paulina was behaving towards Mirek?

17

Karolina told Zuzia that she was really hard-working. When the girls spent the whole day together and Karolina did not help her mum and did not do her homework, Zuzia said:

– *Too bad you're not hard-working.*

- A. Was Karolina lazy? YES / NO
 B. Does Zuzia think that Karolina was lazy? YES / NO
 C. In her **comment**:
 a) Zuzia made a mistake
 b) Zuzia wasn't speaking seriously
 c) Zuzia wanted to deceive Karolina
 d) none of the above
 D. How do you think Zuzia was behaving towards Karolina?

18

Julian boasted to Tomek about being very obedient. When mum told him to do his homework and Julian started screaming and stamping his feet, Tomek said:

– *Stop being so obedient because you're overdoing it.*

- A. Was Julian naughty? YES / NO
 B. Does Tomek think that Julian was naughty? YES / NO
 C. In his **comment**:
 a) Tomek wasn't speaking seriously
 b) Tomek wanted to deceive Julian
 c) Tomek made a mistake
 d) none of the above
 D. How do you think Tomek was behaving towards Julian?

19

Zenek boasted to Tosia that his room was always clean. When Tosia visited him and had nowhere to sit because dirty clothes and dishes were all over the place, Tosia said:

– *Get up and start cleaning.*

- A. Did Zenek have a mess in his room? YES / NO
 B. Does Tosia think that Zenek had a mess in his room? YES / NO
 C. In her **comment**:
 a) Tosia made a mistake
 b) Tosia wanted to deceive Zenek
 c) Tosia wasn't speaking seriously
 d) none of the above
 D. How do you think Tosia was behaving towards Zenek?

20

Asia boasted to Romek that she had good taste in clothes and dressed very elegantly. When one day Romek saw her in the theatre dressed in a dirty old tracksuit, Romek said:

– *I declare you the most elegant person of the year.*

- A. Was Asia nicely dressed in the theatre? YES / NO
 B. Does Romek think that Asia was nicely dressed in the theatre? YES / NO
 C. In his **comment**:
 a) Romek wanted to deceive Asia
 b) Romek wasn't speaking seriously
 c) Romek made a mistake
 d) none of the above
 D. How do you think Romek was behaving towards Asia?

21

Marek boasted to Dorota that he was very strong. When Dorota asked him to open a bottle and Marek could not do that, Dorota said:

– *It's great that you have so much strength.*

- A. Did Marek open the bottle? YES / NO
 B. Does Dorota think that Marek opened the bottle? YES / NO
 C. In her **comment**:
 a) Dorota wasn't speaking seriously
 b) Dorota made a mistake
 c) Dorota wanted to deceive Marek
 d) none of the above
 D. How do you think Dorota was behaving towards Marek?

22

Kuba boasted to Gosia that he was popular with girls and that they found him attractive. When they went to a disco and Kuba was partying alone and no one wanted to dance with him, Gosia said:

– *You really are very popular with the girls.*

- A. Did Kuba dance alone at the disco? YES / NO
 B. Does Gosia think that Kuba danced alone at the disco? YES / NO
 C. In her **comment**:
 a) Gosia wanted to deceive Kuba
 b) Gosia made a mistake
 c) Gosia wasn't speaking seriously
 d) none of the above
 D. How do you think Gosia was behaving towards Kuba?

23

Kamil boasted that he could ride a bike really well. When he failed the bike test again, Krzysiek said:

– *Good thing you can ride a bike so well.*

- A. Did Kamil pass the bike test? YES / NO
 B. Does Krzysiek think that Kamil passed the bike test? YES / NO
 C. In his **comment**:
 a) Krzysiek made a mistake
 b) Krzysiek wasn't speaking seriously
 c) Krzysiek wanted to deceive Kamil
 d) none of the above
 D. How do you think Krzysiek was behaving towards Kamil?

24

Wojtek boasted that he was really well prepared for his Maths test. When he failed, Maks said:

– *I'll help you with learning Maths.*

- A. Did Wojtek get a bad mark on the test? YES / NO
 B. Does Maks think that Wojtek got a bad mark on the test? YES / NO
 C. In his **comment**:
 a) Maks wasn't speaking seriously
 b) Maks wanted to deceive Wojtek
 c) Maks made a mistake
 d) none of the above
 D. How do you think Maks was behaving towards Wojtek?

25

Krystian boasted that he was going to win the ping-pong match. When he failed, Janek said:
– **You really are a great player.**

- A. Did Krystian play poorly in the match? YES / NO
 B. Does Janek think that Krystian played poorly in the match? YES / NO
 C. In his **comment**:
 a) Janek made a mistake
 b) Janek wanted to deceive Krystian
 c) Janek wasn't speaking seriously
 d) none of the above
 D. How do you think Janek was behaving towards Krystian?

26

Adam boasted that he would get Agnieszka to be his girlfriend. When he failed, Wiktor said:
– **Teach me to pick up girls this way.**

- A. Did Adam get Agnieszka to be his girlfriend? YES / NO
 B. Does Wiktor think that Adam got Agnieszka to be his girlfriend? YES / NO
 C. In his **comment**:
 a) Wiktor wanted to deceive Adam
 b) Wiktor wasn't speaking seriously
 c) Wiktor made a mistake
 d) none of the above
 D. How do you think Wiktor was behaving towards Adam?

27

Zbigniew boasted that he was good at reading. When it turned out that he could not read fluently and stammered, Andrzej said:
– **Good thing you can read so well.**

- A. Did Zbigniew read fluently? YES / NO
 B. Does Andrzej think that Zbigniew read fluently? YES / NO
 C. In his **comment**:
 a) Andrzej wasn't speaking seriously
 b) Andrzej made a mistake
 c) Andrzej wanted to deceive Zbigniew
 d) none of the above
 D. How do you think Andrzej was behaving towards Zbigniew?

28

Zenek boasted that he was a good public speaker. When he started stammering, Tymek said:
– **I declare you the worst speaker of the year.**

- A. Did Zenek speak well in public? YES / NO
 B. Does Tymek think that Zenek spoke well in public? YES / NO
 C. In his **comment**:
 a) Tymek wanted to deceive Zenek
 b) Tymek made a mistake
 c) Tymek wasn't speaking seriously
 d) none of the above
 D. How do you think Tymek was behaving towards Zenek?

29

Marcin boasted that he was really good with computers. When he could not fix a simplest thing, Tymek said:
– **One day I'll be such a specialist, too.**

- A. Did Marcin fix the computer? YES / NO
 B. Does Tymek think that Marcin fixed the computer? YES / NO
 C. In his **comment**:
 a) Tymek made a mistake
 b) Tymek wasn't speaking seriously
 c) Tymek wanted to deceive Marcin
 d) none of the above
 D. How do you think Tymek was behaving towards Marcin?

30

Grzegorz boasted that he was great at skiing. When he fell down on a small hill, Jacek said:
– **Too bad you are so poor at skiing.**

- A. Was Grzegorz bad at skiing? YES / NO
 B. Does Jacek think that Grzegorz was bad at skiing? YES / NO
 C. In his **comment**:
 a) Jacek wasn't speaking seriously
 b) Jacek wanted to deceive Grzegorz
 c) Jacek made a mistake
 d) none of the above
 D. How do you think Jacek was behaving towards Grzegorz?

31

Anatol boasted that he was good at DIY. When the little plane model that he constructed fell apart within minutes, Filip said:
– **I declare you the worst constructor of the year.**

- A. Did Anatol construct a good model? YES / NO
 B. Does Filip think that Anatol constructed a good model? YES / NO
 C. In his **comment**:
 a) Filip made a mistake
 b) Filip wanted to deceive Anatol
 c) Filip wasn't speaking seriously
 d) none of the above
 D. How do you think Filip was behaving towards Anatol?

32

Marceli boasted that he was a very quick runner. When he lost his breath right after the start of the run, Irek said:
– **I declare you the runner of the year.**

- A. Did Marceli run poorly in the competition? YES / NO
 B. Does Irek think that Marceli ran poorly in the competition? YES / NO
 C. In his **comment**:
 a) Irek wanted to deceive Marceli
 b) Irek wasn't speaking seriously
 c) Irek made a mistake
 d) none of the above
 D. How do you think Irek was behaving towards Marceli?

33

Michał boasted that he helped others a lot. When he again did not help his friends with homework, Jakub said:
– **You should be a better friend.**

- A. Was Michał helpful to his friends? YES / NO
 B. Does Jakub think that Michał was helpful to his friends? YES / NO
 C. In his **comment**:
 a) Jakub wasn't speaking seriously
 b) Jakub made a mistake
 c) Jakub wanted to deceive Michał
 d) none of the above
 D. How do you think Jakub was behaving towards Michał?

34

Marcin boasted that he was good at fishing. When one day he came back home from a fishing trip and did not bring any fish, Andrzej said:
– **You cannot fish at all.**

- A. Did Marcin come back with no fish? YES / NO
 B. Does Andrzej think that Marcin came back with no fish? YES / NO
 C. In his **comment**:
 a) Andrzej wanted to deceive Marcin
 b) Andrzej made a mistake
 c) Andrzej wasn't speaking seriously
 d) none of the above
 D. How do you think Andrzej was behaving towards Marcin?

35

Karol boasted that he was good at shooting. At a shooting range, after he missed every target, Emilia said:
– **I will teach you how to shoot a gun.**

- A. Did Karol have problems with shooting? YES / NO
 B. Does Emilia think that Karol had problems with shooting? YES / NO
 C. In her **comment**:
 a) Emilia made a mistake
 b) Emilia wasn't speaking seriously
 c) Emilia wanted to deceive Karol
 d) none of the above
 D. How do you think Emilia was behaving towards Karol?

36

Robert boasted that he was good at organising things. When the party he organised turned out to be a total disaster, Kacper said:
– **I don't think you can organise parties.**

- A. Was Robert's party successful? YES / NO
 B. Does Kacper think that Robert's party was successful? YES / NO
 C. In his **comment**:
 a) Kacper wasn't speaking seriously
 b) Kacper wanted to deceive Robert
 c) Kacper made a mistake
 d) none of the above
 D. How do you think Kacper was behaving towards Robert?

37

Basia boasted that she was good at gardening. When she only managed to grow weeds in her garden, Monika said:

– *I'll have such a garden, too.*

A. Did Basia grow ugly plants? YES / NO

B. Does Monika think that Basia grew ugly plants? YES / NO

C. In her **comment**:

- a) Monika made a mistake
- b) Monika wanted to deceive Basia
- c) Monika wasn't speaking seriously
- d) none of the above

D. How do you think Monika was behaving towards Basia?

38

Asia boasted that she made beautiful ornaments and decorations. When nobody liked her decoration for the school disco, Natalia said:

– *I don't think you can make good decorations.*

A. Did Asia make an ugly decoration? YES / NO

B. Does Natalia think that Asia made an ugly decoration? YES / NO

C. In her **comment**:

- a) Natalia wanted to deceive Asia
- b) Natalia wasn't speaking seriously
- c) Natalia made a mistake
- d) none of the above

D. How do you think Natalia was behaving towards Asia?

39

Olek boasted that he liked taking care of animals. When it turned out that he neglected them and did not feed them, Kamila said:

– *You really care a lot for animals.*

A. Did Olek take good care of animals? YES / NO

B. Does Kamila think that Olek took good care of animals? YES / NO

C. In her **comment**:

- a) Kamila wasn't speaking seriously
- b) Kamila made a mistake
- c) Kamila wanted to deceive Olek
- d) none of the above

D. How do you think Kamila was behaving towards Olek?

40

Tomasz boasted that he was a good volleyball player. When his team lost the whole match because of him, Hania said:

– *Good thing you can play so well.*

A. Did Tomasz play poorly in the match? YES / NO

B. Does Hania think that Tomasz played poorly in the match? YES / NO

C. In her **comment**:

- a) Hania wanted to deceive Tomasz
- b) Hania made a mistake
- c) Hania wasn't speaking seriously
- d) none of the above

D. How do you think Hania was behaving towards Tomasz?

Thank you!

Appendix C: The “English and You” Questionnaire

TY I ANGIELSKI

Na koniec chcemy dowiedzieć się jak przebiegał Twój kontakt z językiem angielskim. Odpowiedz na pytania, wpisując odpowiedzi w wykropkowane pola i zaznaczając prawdziwe dla Ciebie odpowiedzi. Jeśli się pomylisz, nie przejmuj się. Po prostu: **skreśl** błędną odpowiedź, a prawidłową zaznacz **w kółku**.

1. Wypisz jakie znasz języki i od kiedy się ich uczysz:

..... (od kiedy miałem/am lat)
..... (od kiedy miałem/am lat)
..... (od kiedy miałem/am lat)
..... (od kiedy miałem/am lat)

2. W jakim języku:


myślisz:, liczysz:,
śnisz:, najczęściej rozmawiasz:

3. Którym językiem najłatwiej Ci się posługiwać?

polski
 angielski
 jest mi to bez różnicy
 inny język (jaki?))

4. Gdzie zaczął się Twój kontakt z angielskim?

w domu, znam angielski od dziecka
 w przedszkolu
 w szkole podstawowej



Miasto:

Szkoła: Klasa:

Płeć:

Data urodzenia: Wiek:

5. Czy mieszkasz/aś w kraju, gdzie mówi się po angielsku?

TAK (ile miałeś/aś wtedy lat:,
jak długo:, gdzie:)

NIE

6. Jak często masz obecnie kontakt z angielskim ?

codziennie
 co drugi dzień
 dwa razy w tygodniu

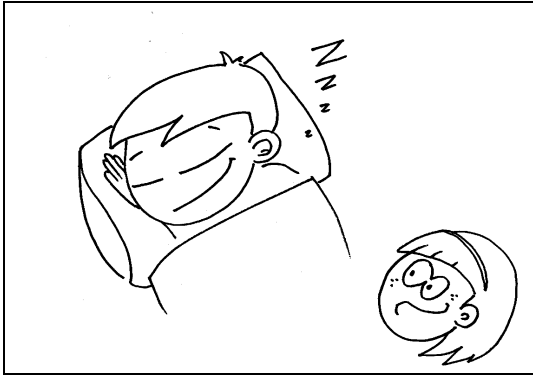
7. Gdzie masz obecnie kontakt z angielskim?
(tu możesz zaznaczyć **wiele** opcji)

w domu w rozmowach z rodziną
 w Internecie (czytanie, filmy)
 w szkole na lekcjach angielskiego
 na zajęciach dodatkowych
 inne:

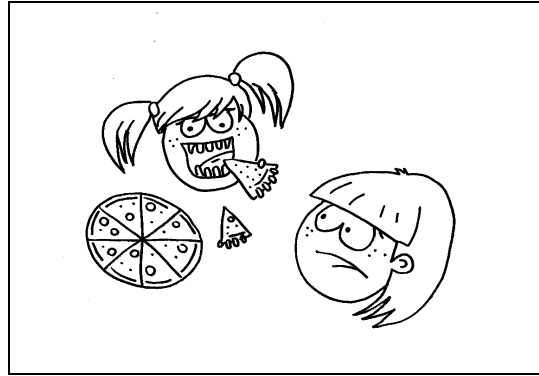
8. Obecnie uczę się angielskiego z podręcznika:
„.....”
i najczęściej dostaję oceny:

Appendix D: Drawings illustrating the scenarios

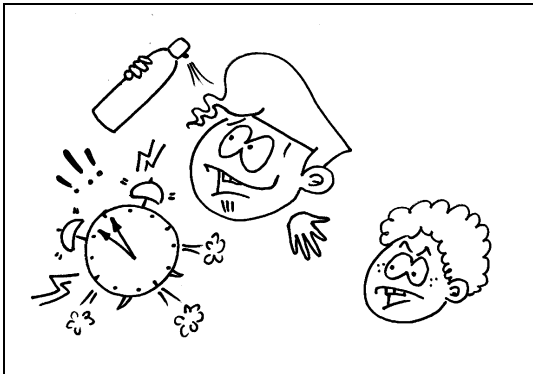
Stimulus 0



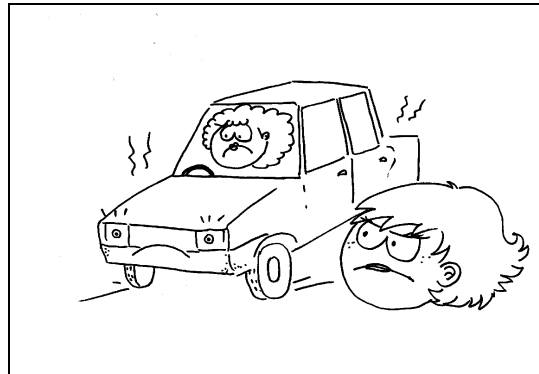
Stimulus 1



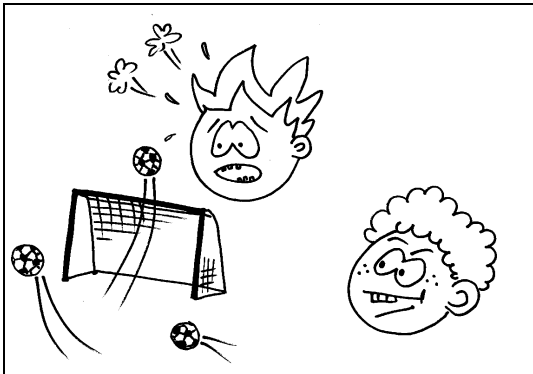
Stimulus 2



Stimulus 3



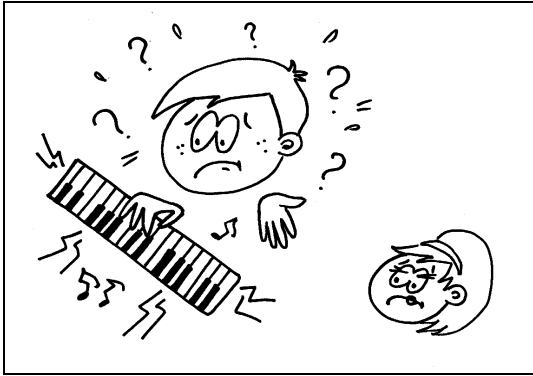
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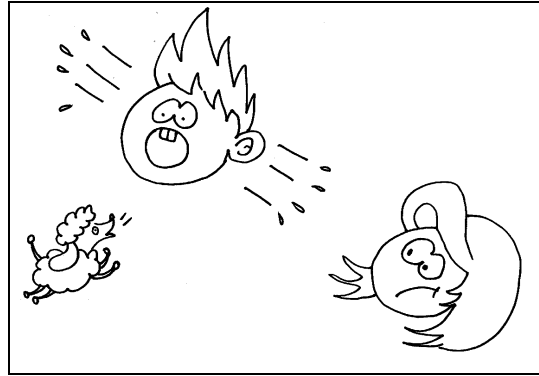
Stimulus 5



Stimulus 6



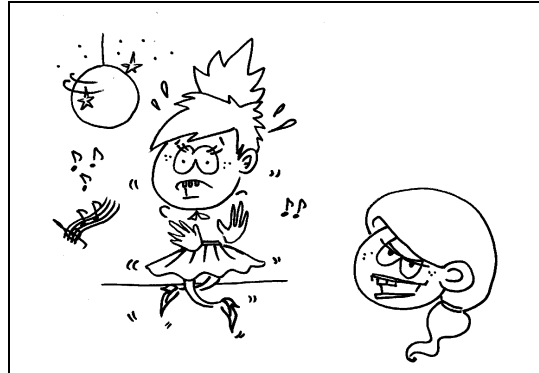
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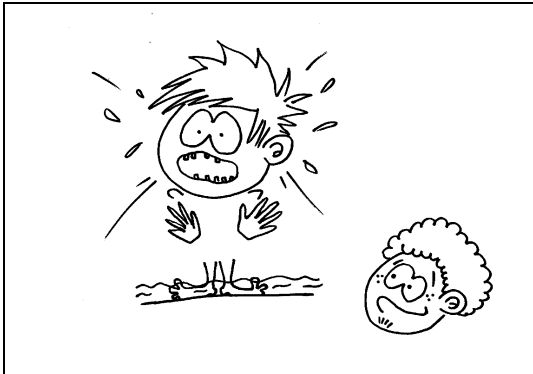
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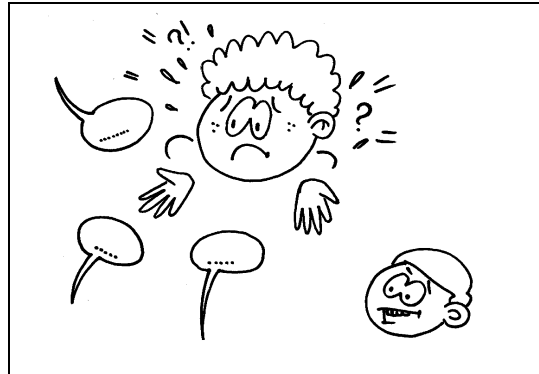
Stimulus 9



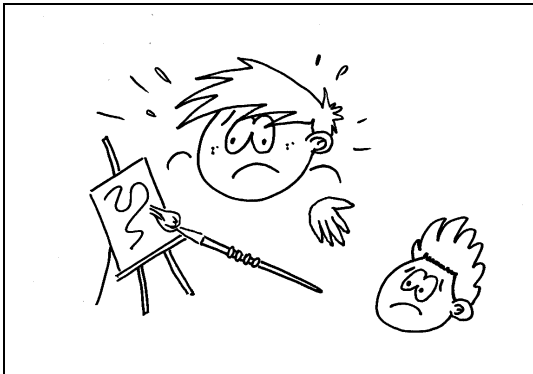
Stimulus 10



Stimulus 11



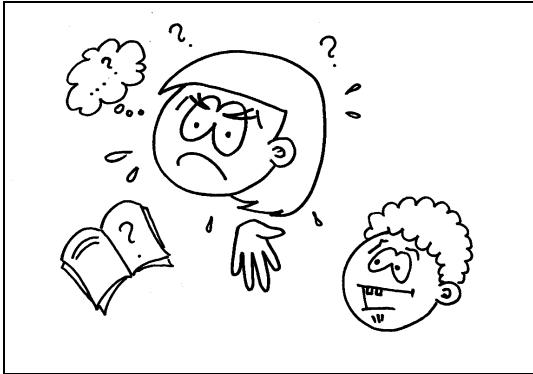
Stimulus 12



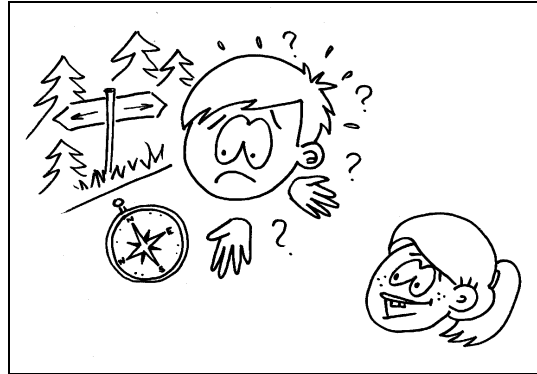
Stimulus 13



Stimulus 14



Stimulus 15



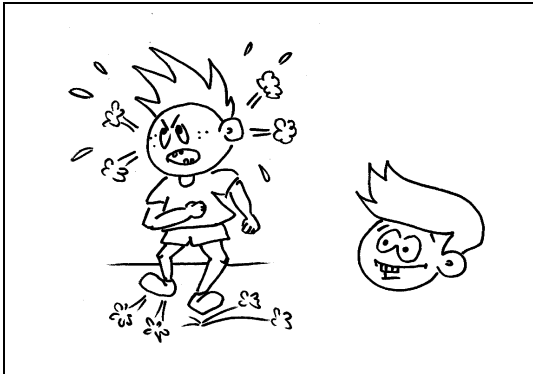
Stimulus 16



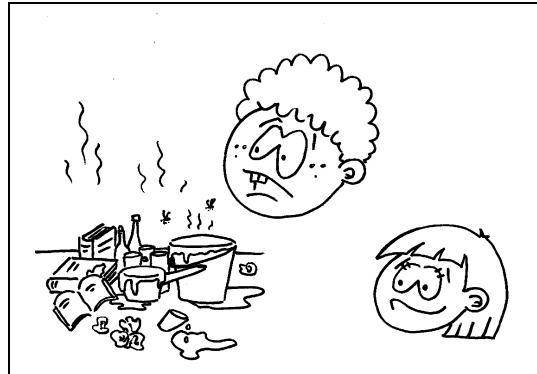
Stimulus 17



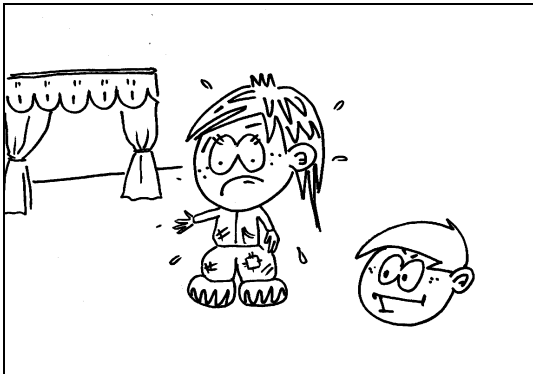
Stimulus 18



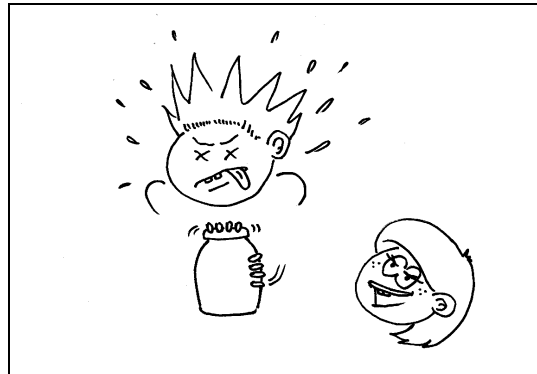
Stimulus 19



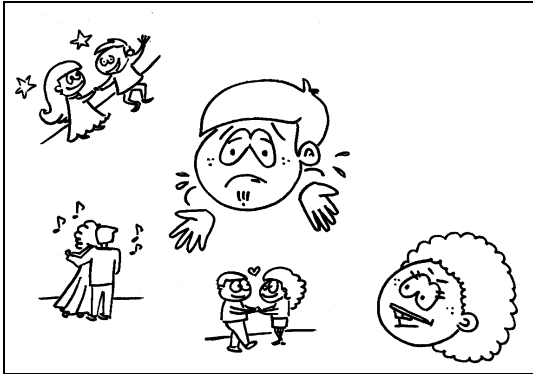
Stimulus 20



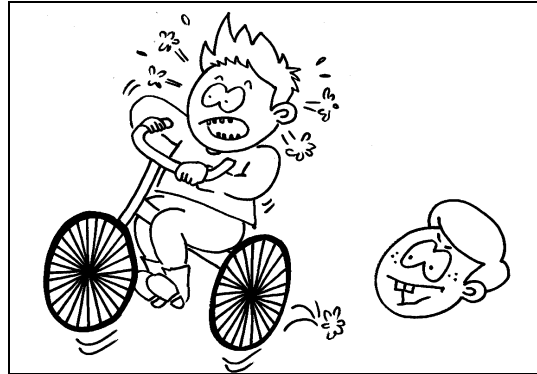
Stimulus 21



Stimulus 22



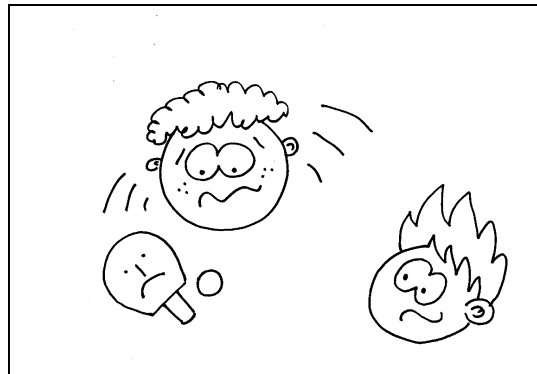
Stimulus 23



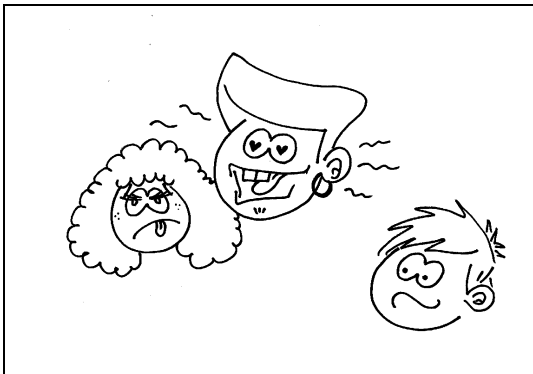
Stimulus 24



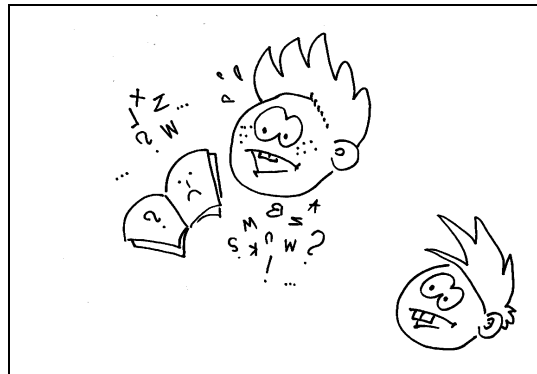
Stimulus 25



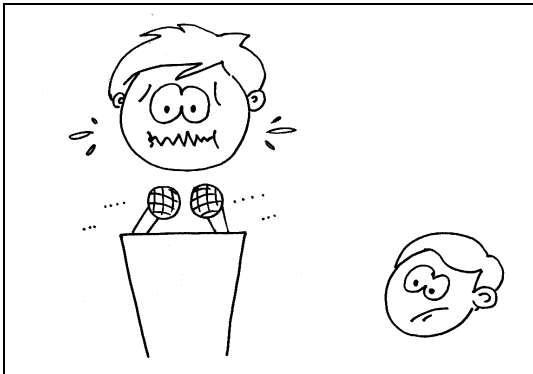
Stimulus 26



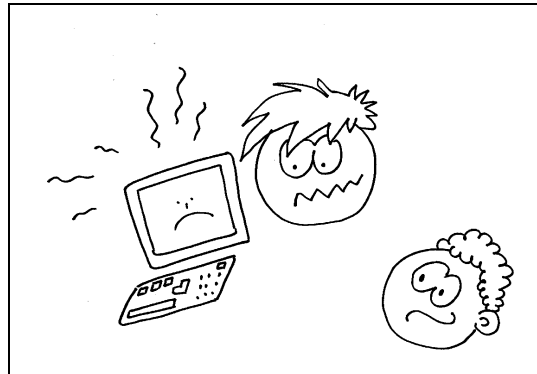
Stimulus 27



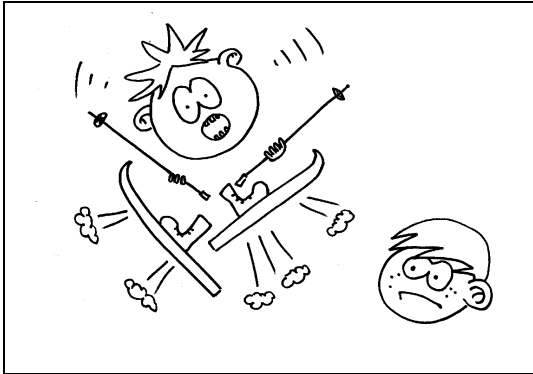
Stimulus 28



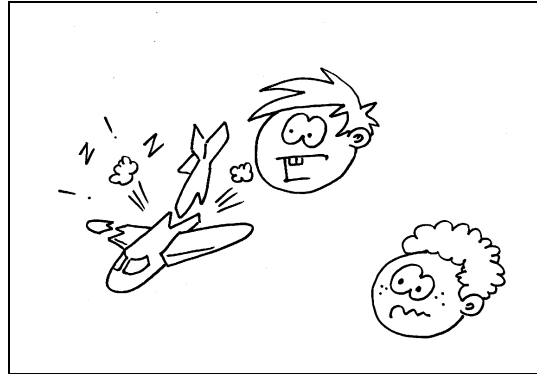
Stimulus 29



Stimulus 30



Stimulus 31



Stimulus 32



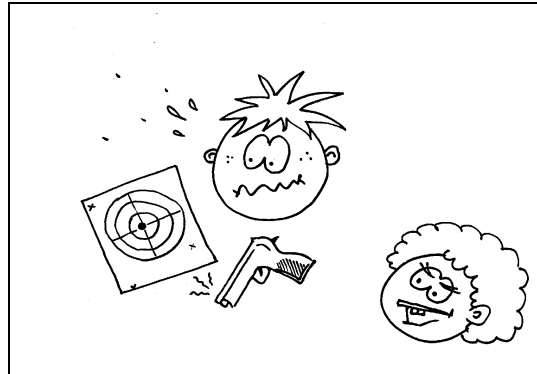
Stimulus 33



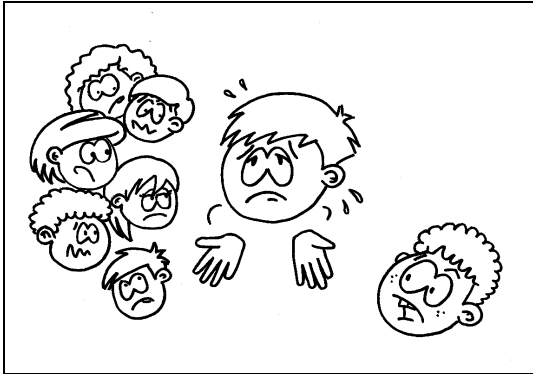
Stimulus 34



Stimulus 35



Stimulus 36



Stimulus 37



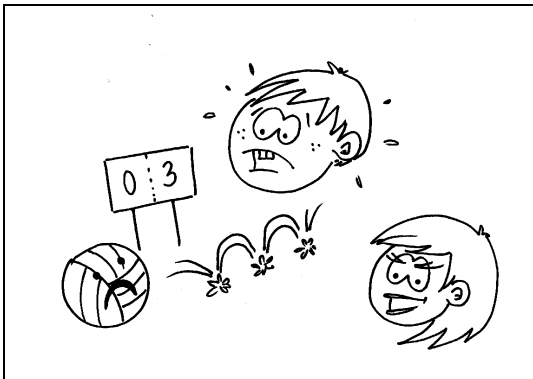
Stimulus 38



Stimulus 39



Stimulus 40



Appendix E: Responses to speaker attitude question: Group 1 (younger children)

Group 1: younger children		
monolinguals	bilinguals (Polish)	bilinguals (English)
bardziej niemiła	fajna	a normal lie (a liar)
brzydki	fajny	bad
cham	miła	bad joke
chyba fajny	miłe	bad mistake
fajna	miły	funny
fajny	neutralne	funny joke
ironiczna, chciała przykrość mu zrobić	nie do końca fajne nie do końca zabawna	good good joke
ironicznie – chciał mu zrobić przykrość	niedobra nieдобry	malicious mean
ironicznie niemiła	niefajna	mean joke
ironicznie niemiłe	niefajne	neutral
ironicznie miły	niefajny	nice
ironicznie normalna	niemiła	nice joke
ironicznie zła	niemiłe	nice lie
miła	niemiły	nice lie – funny
miły	nieprzyjemny	niemiła
nie bardzo	nieśmieszne	normal
niedobra	niezbyt miłe	not funny
nieдобry	normalna	not good
niefajna	normalne	not nice
niefajnie	normalny	not normal
niefajny	paskudny	not ok
niegrzeczny	średni	not very good
niemiła	średnia	not very nice
niemiłe	trochę fajny	stupid
niemiły	trochę fajny – normalny	stupid in a nice way
nienormalna	trochę miła i trochę niemiła	stupid mean
nienormalny	trochę miłe	stupid mistake
niezbyt miły	trochę niemiła	
normalna	trochę niemiły	
normalne	trochę normalna	
normalny	trochę wredna	
obleśny a ble	trochę wredny	
paskudny	trochę zła	
przyjacielska	trochę zły	
przykry	wredna	

śmieszna	wredne
śmieszny	wredny
taki normalny	zła
trochę dobry	złośliwa
trochę jakby niedobry	złośliwy
trochę wredna	zły
wredna	
wredne	
wredny	
wścibska	
wścibska – ignorowała ją	
wścibski	
wścibsko	
zła	
zła – niefajne żarty	
złe	
złośliwy	
zły	
żartował wścibsko	

Appendix F: Responses to speaker attitude question: Group 2 (older children)

Group 2: older children		
monolinguals	bilinguals (Polish)	bilinguals (English)
bardzo niemiła	chamska	bad
bardzo zły	chamski	friendly
był dobrym kolegą	dobra	funny
chamska	dobry	good
chamski	dobrze	honest
dobry	dziwna	joking
ironiczna	głupi	joking and laughing from him
ironicznie złośliwy	głupia	joking mean
kłamał	ironiczna	joking nice
kłamała	ironiczne	laughing from her
kłamczuchem	ironiczny	laughing from him
kłamliwa	kłamała	malicious
kłamliwy	kłamca	mean
kłamstwo	kłamczuch	mean-honest
koleżeński	kłamczucha	mean-sarcastic
miła	kłamliwy	nice
miła i dobra	mądra	normal
miła/niemiła	miła	not bad
miły	miły	not friendly
miły/niemiły	niedobra	not nice
nie była uważna	niedobry	not nice-sarcastic
nie kłamał	niefajna	rude
niedobra	niegrzeczny	rude-sarcastic
niefajna	niekulturalna	rude but it was honest
niefajny	niemiła	sarcasm
niekoleżeńska	niemiłe	sarcastic
niemiła	niemiły	sarcasticly
niemiły	niemiły-wstrętny	stupid
niemiły/miły	normalna	very good
nienormalny	normalne	very nice
niesympatyczny	normalny	wredna
niezbyt miła	normalny-trochę niemiły	wrong
nieznośna	ok	
normalna	okropny	
normalny	sarkastyczna	
okłamał	sarkastyczny	
okłamała	szczera	

okropny	szczery
oschła	szczery i niemiły
pomocna	śmieszna
prawda	śmieszny
szczera	troskliwa
szczery	wredna
śmieszny	wredny
wredna	wścibski
wredna i niemiła	zła, niedobra
wredny	złośliwa
wredny-wymądrzały	złośliwy
wścibski	zły
zabawna	żartownisiem
zabawny	
zła	
złośliwa	
złośliwy	
zły	
zły ale powiedział prawdę	
zły i chamski	
zły zły	
żartobliwa	
żartobliwy	

Appendix G: Responses to speaker attitude question: Group 3 (teenagers)

Group 3: teenagers		
monolinguals	bilinguals (Polish)	bilinguals (English)
bezczelna	bezpośrednia	angry
bezczelny	chamska	bad
bezpośredni	chamska i niemiła	badly
bratem	chamski	casually
był człowiekiem	cyniczna	cool
był debilem	cyniczna-niemiła	friendly
był dla niego wilkiem	cyniczny	fun
był dla niego za głupi	grzeczna	fun at him
była dla niego poje...	hahaha! Niemiły	fun/laugh at him
chamska	humorystyczny	funny
chamska-niemiła	ironia	funny-a bit unkind
chamska-sarkastyczna	ironiczna	funny-ironic-impolite
chamska-sarkastyczna!	ironiczna-krytyczna	good
chamska-szczera	ironiczna-niemiła	happy-nice
chamski	ironiczna-prześmiewcza	he made fun of him
chamski-niemiły	ironiczny	he was making fun of her
chamski-sarkastyczny	ironiczny, prześmiewczy	he was making fun of him
chamstwo	ironiczny-niemiły	honest
chciała też dobrze tańczyć	ironizująca	honestly
chwalipięta	ironizujący-złośliwy	humorous
cthulu	karcący	impatient
dobry	kochany	impolite
dokuczliwa	krytyczna	impolite-ironic-funny
dokuczliwy	krytyczna-niemiła	inpolitely
egoistyczny	krytyczny	ironic
fair	kutas	ironical
fajny	kutasem	ironic-funny-a bit unkind-honest
głupi	miła	ironic-funny-impolite
ironia	miły	ironic-rude
ironiczna	negatywnie nastawiona	ironic-sarcastic
ironiczna-złośliwa	nie wiem	ironic-sarcastic-rude
ironiczne	niemiła	ironic-unpolite
ironiczny	niemiła-ironiczna	joking
ironiczny-chamski	niemiła-sarkastyczna	kind
ironiczny-złośliwy	niemiły	kindless
ironiczny-pogardliwy	niemiły (bardzo)	Krzysiek tried to be funny
ironizująca	niemiły ale słuszny	laugh

ironizujący	niemiły-chamski	laugh at her
jaja sobie z niego robiła	niemiły-chamski-ironiczny	laugh at him
kłamał	niemiły-ironiczny	laughing at him
kłamiący	niemiły-żartobliwy-ironiczny	making fun of her
kłamiwa	niesprawiedliwa	making fun of him
kłamiwy	nieszczery	mean
kłamstwo	nieuprzejma	mean-sarcastically
kochany	nieuprzejmy	naughty
komiczny	normalny	nice
milusi	odpowiednia	normal
miła	okrutny	normally
miłe	pełna podziwu	not honest
miły	podziwiający (głupi)	not kind
miły-koleżeński	prześmiewcza	not nice
mówiła prawdę	prześmiewczy	not polite
mówiła sarkazmem	prześmiewczy-cyniczny	not seriously
naśmiewał się	przyjacielski	polite
nie fair	sarkastyczna	proud of his friend
nie wiadomo	sarkastyczna-wredna-niemiła-	rude
nie wiem	szczerą	sarcastic
nie wiem :)	sarkastyczna-żartobliwa	sarcastically
nieczo opryskliwa	sarkastyczny	sarcastically-cool
niedelikatna	sarkastyczny-ironiczny	sarcastically-ignorant
niecelegancki	sarkastyczny-niemiły	sarcastically-mean
niegrzeczna	szczerą	sarcastically-not mean
niegrzeczny	szczerzy	sarcastically-uncool
niekoleżeńska	szczerzy i niemiły	sarcastic-funny-impolite
niekoleżeński	szczerzy/hejter	sarcastic-impolite
niekulturalna	szczerzy-sarkastyczny	sarcastic-rude
niełojalna	uszczypliwa	screaming out of his
niełojalny	uszczypliwy	serious
niemiła	uszczypliwy ale miał rację	seriously
niemiła-chamska	wredna	super
niemiła-sarkastyczna	wredna/hejter/chamska	szczerą
niemiły	wredny	szczerzy
niemiły-chamski	wredny jak wszyscy	truly
niemiły-sarkastyczny	wredny jak wszyscy tutaj	uncool
nieprawdomówna	wredny-kochany	unfriendly
nieprzyjazny	wredny-sarkastyczny	unfriendly
niesympatyczna	zabawny	unkind
niesympatyczny	zazdrosna	unpleasant
nieszczera	zazdrosny	unpolite
nieszczery	zła	unpolitely
nietaktowny	złośliwa	
nietolerancyjna	złośliwy	
nietolerancyjny	żartobliwy	
nieuprzejma	żartował	
nieuprzejmy	żartowała	
nieuprzejmy ale żartobliwy		
nieuprzejmy-sarkastyczny		
niewyrozumiała		
niezbyt miła		
nijaki		
normalna		
normalnie		
normalny		
ok		
okropny		

opryskliwy
opryskliwy-ironiczny
opryskliwy-niemiły
pocieszny
podziwiająca
pogardliwa
pogardliwy-ironiczny
pomocna
poważna
prawdomówna
prawdomówny
prześmiewcza
prześmiewczy
prześmiewna
prześmiewny
przyjacielska
przystojna-piękna
samolubny
sarkastyczna
sarkastyczna-niemiła
sarkastyczna-wredna
sarkastyczny
sarkastyczny-chamski
sarkastyczny-śmiał się z niego
sarkastycznym
sarkazm
sexi
stanowcza-niemiła
strzelił mu dobrą radę
szczera
szczery
szczery-chamski
szydrczy
śmieszny
tak
trochę nieuprzejma-ironiczna
trochę wredna
trochę złośliwy i zabawny
uprzejma
uprzejmy
uszczypliwa
uszczypliwy
wkurzający
wredna
wredny
wstrętna
wyrozumiała
wyśmiewał się
zabawna
zabawny
zabawny-złośliwy
zajebisty
zgryźliwa
zgryźliwy
zła
złośliwa
złośliwa i szczera
złośliwość

złośliwy
złośliwy-normalny
złośliwy-zabawny
zły
żałosny
żartobliwa
żartobliwy
żartował
życzliwa
