

Report on Marcin Naranowicz' PhD thesis titled "How mood influences native and non-native language processing: Behavioural and electrophysiological evidence"

Evaluator: Prof. Dr. Niels O. Schiller (Leiden University, The Netherlands)

Introduction

This is a dissertation which consists of a series of articles that are connected by a central theme, i.e., the role of mood in native and non-native language processing. More precisely, the dissertation manuscript consists of an introduction to the research topic of about 20 pages, including a summary of the four research articles, followed by a general discussion of the results obtained in the articles (three empirical studies and one literature review) and a discussion of the limitations and possible future directions of about 20 pages. This discussion is followed by a reference list and four published articles. The PhD candidate is first author on three of them and co-author on one article. All articles appeared in peer-reviewed, international journals, i.e., *International Journal of Bilingualism*, *Brain Sciences*, *Brain and Language*, and *Frontiers in Psychology*.

In the following, I will first evaluate the part preceding the published research articles and after that briefly comment on the articles themselves. However, since they have been peer-reviewed and published already, my comments will be short.

Evaluation of the Introduction and Discussion

This PhD thesis is generally well written, good to read and easy to understand. The topic addressed in this thesis is relatively new: the role of positive and negative mood on

word and sentence comprehension in the native (L1) and non-native (L2) language. The research reported in this PhD thesis adds to the understanding of the role of mood in language comprehension from a behavioural and an electrophysiological point of view. Furthermore, the thesis investigated bilingual participants and contrasted participants' behaviour and electrophysiological responses between their L1 and L2. This is an innovative aspect of the current PhD thesis.

In the first study reported in this PhD thesis, highly-proficient and unbalanced bilingual Polish (L1) – English (L2) speakers were put into a positive or negative mood (through animated movie fragments) and asked to perform an emotive classification task, i.e., categorize words as positive, negative, or neutral. A facilitatory effect was found for female participants, i.e., faster categorization responses for the positive mood compared to the negative mood condition, irrespective of language, while no effect was found for male participants. Furthermore, positive L2 words were responded to faster in the positive compared to the negative mood condition; however, mood did not have an effect on positive L1 words. While the gender difference is interesting, and (partly) consistent with other reports in the literature, it remains largely unexplained. Also, the effect of mood on positive words in the L2, but not on the L1 remains underdetermined. One may expect stronger mood effects in L2 than L1 (however, doesn't this go against the hypothesis of emotional detachment in the L2?), however, why only for positive words (and not neutral or negative words as well)?

The second study extended the research question to sentence (instead of single word) and included EEG measurements besides RTs. Only female participants from the same population performed a semantic decision task (i.e., was the sentence meaningful?). Early (pre-)lexical markers (i.e., P1, N1, N2) showed mood effects, sometimes for the L1, sometimes for the L2, however, no clear pattern showed up. The

same was true for the N400, e.g., why was there no N400 in the L1 in the positive mood condition (while there was such an effect in the L2)?

The third study further extended the research question to creative meaning processing, i.e., metaphorical constructions. Participants from the same population as in the previous study performed a semantic decision task (i.e., was the sentence meaningful?) while their RTs were measured, and their EEG was monitored. The only mood effect observed was a larger LPC response to anomalous (compared to literal and metaphoric) sentences in the positive mood condition (but no difference in the negative mood condition). The implications remained somewhat unclear because the candidate stated on top of p. 23, 2nd paragraph that the results “did not point to mood-dependent processing of highly creative novel metaphoric messages” while stating at the end of the same paragraph that “mood-dependent processing pattern for semantic anomalies, such that a positive mood may promote and a negative mood impede heuristics-based processing of general knowledge violations during semantic integration, irrespective of the language of operation”. This seems somewhat contradicting to me – maybe the wording is just not very clear here (also in the light of this statement on top of p. 30, liens 1-2: “[t]he observed facilitatory effect of a positive relative to a negative mood on novel metaphoric sentences in L1 but not L2”).

The fourth study included in this thesis is a literature review of mood effects on cognitive functioning, including language processing.

In the Discussion section, the candidate makes an effort to summarize the findings from the three experimental chapters and discusses the outcome taking into account other findings in the literature. The candidate also discusses the limitations of this PhD thesis and future directions in this field of research.

Minor comments and typos

p. 10, bottom, 7th but last line: "oftentimes" -> often times

p. 14, top, lines 4-5: "bilinguals watched a positive and a negative mood-inducing film excerpts" -> excerpt

p. 16, middle: "While there were no mood-driven effects on response accuracies, the analysis revealed a mood-gender interaction, such that females had faster RTs in the positive compared to the negative mood condition irrespective of the language of operation, with no between-mood differences in RTs in males." -> I find this sentence confusing because an analysis of response accuracies is suggested in the first part, but then the candidate goes on talking about response times: what is it, accuracy or RT?

p. 17, bottom, 6th but last line: "Abstract words are typically more emotionally charged than neutral words" -> should "neutral" read "concrete"?

p. 22, bottom, 4th/5th but last line: "larger N400 responses to both novel metaphoric and literal than anomalous sentences" -> anomalous than literal?

p. 27, top, line 10: "evince" -> be evidence? (maybe better: prove)

General conclusion

The PhD candidate has demonstrated that they are able to carry out and report scientific studies and publish these in peer-reviewed, international journals. They have demonstrated a high level of academic English and the ability to conduct reaction time and EEG/ERP experiments. Furthermore, they have shown to be able to analyse the acquired data with state-of-the-art statistical methods and interpret the results taking into account the literature in the field. On the basis of these achievements, I can wholeheartedly give a **positive evaluation of this PhD thesis** and believe the candidate should be allowed to proceed to the final stage of earning a PhD title, i.e., the public defence of this thesis.

Leiden, 26 December, 2022



Signed Prof. Dr. Niels O. Schiller