UNIVERSITÄT BIELEFELD
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UNIWERSYTET IM. ADAMA MICKIEWICZA W POZNANIU
WYDZIAŁ ANGLISTYKI

How mood affects processing of emotional adjectives in first (L1) and second (L2) language – an ERP study

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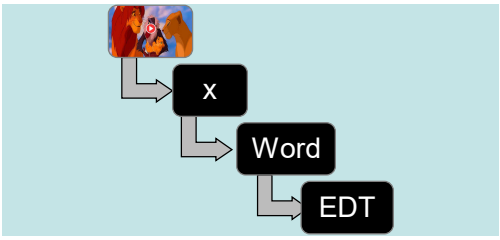
Background

Emotion matters for language processing. Words evoke feelings that cheer people up, or put them down. Visual emotion word processing research has shown that emotion words provoke differential responses in comparison to neutral words. This research has focused mostly on emotion words processed in isolation. Yet, language comprehension is heavily context-dependent: words are typically processed within a context rather than in isolation. Here, we set to investigate when/how one's emotional context – mood, starts to influence emotion words processing, and whether the influence differs for one's native and nonnative language. To address these questions, the current study examined responses to emotionally positive, negative, and neutral words as a function of induced positive and negative mood, when participants processed their native (German) and nonnative (English) languages.

Method

Participants: 27 (F:22; M:5; age *M*:26; range:19-50) right-handed, bilingual unbalanced German (L1) users of English (L2).
Mood induction: video clips (60 s) repeated 3 times per mood session;
Words: Adjectives: 32x (+; – ; Ø)(per language); Berlin Affective Word List (Vo et al. 2009)

Procedure:



Design:
2x (Mood: positive, negative video clips)
2x (Language: L1 German, L2 English)
3x (Word Content: positive, neutral, negative).
EDT: Emotion Decision Task.

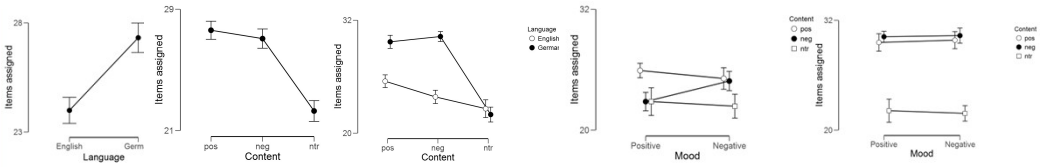
Discussion

The present study corroborates prior work on emotion words processing, with increased N1, EPN, and LPP (Kissler et al. 2009; Kissler and Herbert 2013; Scott et al. 2009; Sereno et al. 2003), and shows that emotion word processing is modulated by participants' mood as early as in N1, where mood may change laterality. Language effects start showing in EPN: increased EPN in L1 (bigger emotion effect) than in L2 (see also Conrad et al. 2011), and enhanced LPP in L1 (bigger amplitudes for negative words) than in L2. Altogether, our findings demonstrate early mood and emotional word content interactions (N1), with language effects and interactions with content showing in EPN and LPP. Smaller LPP to negative content in L2 may be in line with recent findings of reduced processing of negative content in a second language (Jonczyk et al., 2016). So far, no interaction of mood effects with L1/L2 has been observed.

References:
Conrad, M., Recio, G., & Jacobs, A. M. (2011). The time course of emotion effects in first and second language processing: a cross cultural ERP study with German–Spanish bilinguals. *Frontiers in psychology*, *2*, 351.
Jończyk, R., Boutonnet, B., Musiał, K., Hoemann, K., & Thierry, G. (2016). The bilingual brain turns a blind eye to negative statements in the second language. *Cognitive, Affective, & Behavioral Neuroscience*, *16*(3), 527-540.
Kissler et al. (2009). Emotion and attention in visual word processing—An ERP study. Biological Psychology 80 (2009) 75–83
Sereno et al. (2015). Emotion word processing: does mood make a difference? Frontiers in Psychology 6:1191. doi: 10.3389/fpsyg.2015.01191
Sereno et al. (2003). Context Effects in word recognition: Evidence for Early Interactive Processing. Psychological Science, 14,4: 328-333.
Scott et al. (2009). Early emotion word processing: Evidence from event-related potentials. Biological Psychology 80, 95–104.

Results

Behavior:

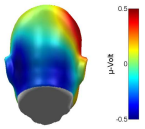


Electrophysiology

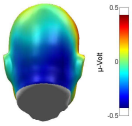
N1 140-170 ms

Positive Mood

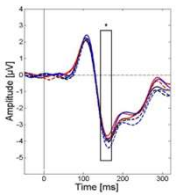
Pos words - Neg Words



Pos words - Ntr Words



Elc. P7

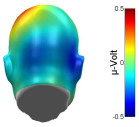


Mood
Positive Mood: solid lines
Negative Mood: dashed lines

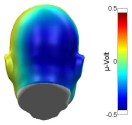
Content
Blue: positive
Red: negative
Black: neutral

Negative Mood

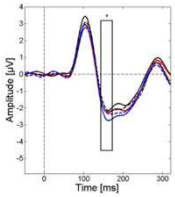
Pos words - Neg Words



Pos words - Ntr Words



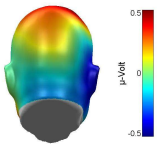
Elc. P8



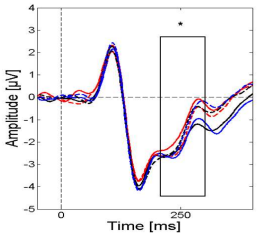
EPN 200-300 ms

German

Neg-ntr

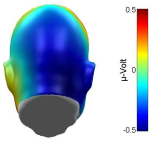


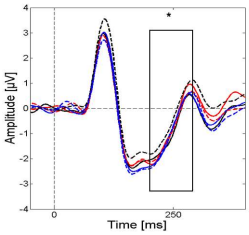
P7



English: solid __
German: dashed
Blue: positive
Red: negative
Black: neutral

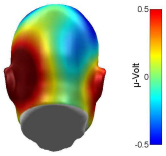
Pos-ntr



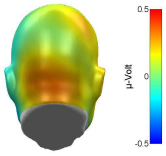


English

Neg-ntr



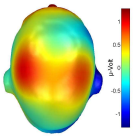
Pos-ntr



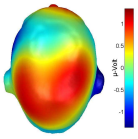
LPP 450 – 700 ms

German

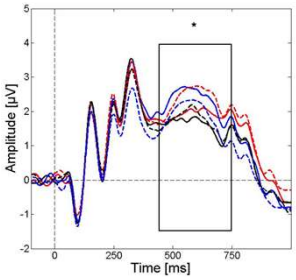
Pos-ntr



Neg-ntr



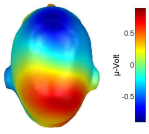
Electrode Pz



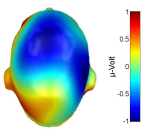
English: solid lines
German: dashed lines
Blue: positive
Red: negative
Black: neutral

English

Pos-ntr



Neg-ntr



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