Supplementary Materials

Although our main focus was on activity within the LPC time window, based on the previous research on early emotion effects (Bayer, Sommer, & Schacht, 2012; Hofmann, Kuchinke, Tamm, Võ, & Jacobs, 2009; Kissler & Herbert, 2013; Rochas, Rihs, Rosenberg, Landis, & Michel, 2014; Scott, O'Donnell, Leuthold, & Sereno, 2009), we considered the possibility that that emotion might modulate ERP components earlier than the LPC, with dominant contributions from either the valence or the arousal dimension. These might, in turn, be influenced by task. Our approach to statistical analysis was the same as described in the main text.

250-350ms.

A distinct positive peaks was visible preceding the N400 component. In Experiment 1, there were no main effects of Valence (All ps > 0.5), but there were significant main effects of Arousal in both the mid-regions ($F(1,23) = 6.73$, $p = 0.016$) and peripheral regions ($F(1,23) = 4.81$, $p = 0.039$) omnibus ANOVAs, with high arousal words eliciting a larger positivity than low arousal words (see Figure 2). The peripheral omnibus ANOVA revealed a four-way interaction, but follow-up analyses conducted within each peripheral region failed to reveal any significant effects aside from the main effect of Arousal. In contrast, in Experiment 2, there were no main effects of either Valence or Arousal within this time window. While a Valence x Arousal x Region effect reached significance in a mid-regions omnibus ANOVA ($F(8,168) = 3.65$, $p = 0.012$), follow-up tests for each level of Valence failed to produce any significant effects or interactions involving Arousal.

Though this positivity could conceivably be interpreted as a P300, our preferred interpretation is that activity within this time window reflected a P2 effect, as similarly reported in previous studies (González-Villar, Triñanes, Zurrón, & Carrillo-de-la-Peña, 2014; Herbert, Kissler, Junghöfer, Peyk, & Rockstroh, 2006; Kanske & Kotz, 2007; Ortigue et al., 2004; Wang, Bastiaansen, Yang, & Hagoort, 2013). The P2 is thought to reflect an orientation of attention towards the perceived salience of an incoming stimulus (Luck & Hillyard, 1994).We suggest that, in Experiment 1, where emotion was not overtly relevant to the task demands and all experimental words were "no go" trials, high-arousal words may have generally pulled attention away from the task because of their high salience (these attended emotional words also elicited sustained evaluative processing, as reflected in the LPC). In contrast, we suggest that the P2 was not modulated in Experiment 2 because, under these task demands, the emotional features of words were already overtly attended to, and high-arousal words did not capture additional attention beyond this the overt attentional deployment.

Finally, we note that the P2 and LPC arousal effects in Experiment 1 do not appear to be sustained through the intervening 300-500ms time window. We tentatively infer that these two positivities may have been distinct components rather than one long component (an interpretation that is further supported by their differing pattern of task influences).

350-500ms.

In Experiment 1, we found main effects of Valence in both the mid-regions ($F(2,46) = 3.45$, $p = 0.046$) and peripheral regions ($F(2,46) = 3.87$, $p = 0.032$) omnibus ANOVAs, as well as an interaction between Valence and Region in the mid-regions omnibus ANOVA ($F(8,184) = 2.89$, $p = 0.046$). These effects were driven by a slightly smaller negativity to pleasant than to

neutral words (ps < 0.01), particularly at frontal sites (with the largest effect over the frontal mid-region). The frontal distribution of this effect is not particularly consistent with a typical N400 scalp distribution, suggesting that this anterior negativity may be a distinct component.

In contrast, in Experiment 2, there was a main effect of Arousal in both the mid-regions omnibus ANOVA ($F(1,21) = 6.95$, $p = 0.015$) and the peripheral omnibus ANOVA ($F(1,21) = 5.10$, 0.035), reflecting a smaller negativity on high-arousal than low arousal words. Although the distribution appeared to be somewhat anterior, no interactions between Arousal and Region were significant.

Together, these findings suggest that whichever dimension of emotion did *not* elicit an LPC effect, instead elicited a anteriorly distributed negativity between 350-500ms. There are few previous reports of this type of effect to emotional words in the literature, although a comparable emotion effect was recently observed in an unpublished experiment by Frost and Federmeier (abstract: Frost & Federmeier, 2012). One possibility is that it reflected an implicit response selection processes: it may have been easier to categorize (animal vs. non-animal) pleasant words than neutral words in Experiment 1, and easier to categorize the valence of high-arousal words than low-arousal words in Experiment 2 (consistent with the behavioral data). Future research is needed to clarify whether valence and arousal effects in this negativity are robust and reliable under comparable task demands.

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