Commentary

Yes, There Is a Preferential Detection of Negative Stimuli

A Response to Labiouse

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In a previous issue of *Psychological Science*, we (Dijksterhuis & Aarts, 2003) reported evidence supporting the hypothesis that less stimulus input is needed to detect negative stimuli than to detect positive stimuli. Commenting on that research, Labiouse (2004) stated that it "suffers from a number of limitations, methodological flaws, and theoretical ambiguities" (p. 364). Because he did not elaborate on the supposed theoretical ambiguities, we focus on methodological aspects of our work in this reply. We show that a significant part of Labiouse's criticism stems from a misreading of our report. As for the more well-founded side of his critique, which concerns the limitations of one design we used, we qualify his conclusions and discuss supportive evidence recently obtained from a more appropriate paradigm.

Labiouse reviewed our experiments separately. In Experiment 1, participants were briefly presented with masked stimuli consisting of 25% positive words, 25% negative words, and 50% nonwords. On each trial, participants had to indicate whether the stimulus was a word or not. As hypothesized, participants reported having seen a word more often when presented with a negative word (54.5%) than when presented with a positive word (40.1%) or a nonword (33.5%).

Labiouse concluded that it is possible that participants responded randomly to the trials. Unfortunately, this conclusion builds on a misreading of our article. Labiouse inferred that the mean "word" response rate was 60% across conditions, which would indeed have been problematic. However, this percentage was not 60 but 40.4, as can be easily derived from the percentages listed in the previous paragraph. Thus, Labiouse's criticism appears to be entirely unfounded: Participants were significantly better at detecting negative than positive information (i.e., 54.5% vs. 40.1%), and their detection of negative information (i.e., 54.5%) was better than what would be expected from the average "word" response rate (i.e., 40.4%).

Labiouse criticized Experiments 2 and 3 on different grounds. In these experiments, participants were presented with words only; 50% of the words were positive and 50% were negative. Participants' task was to indicate whether each stimulus was a positive or negative word. In both Experiments 2 and 3, the number of correctly categorized negative words was significantly higher than the number of correctly categorized positive words. In addition, the correct categorization of negative words differed significantly from chance, whereas correct categorization of positive words did not. Admittedly, however, interpretation of these data remains problematic, as this design does not allow one to assess detection of negative and positive words independently of response bias.

Being unable to assess detection independently of response bias is an issue, however, only when the direction of this bias is such that it offers an explanation that is an alternative to the authors' conclusions. In order to prevent throwing out the baby with the bathwater, a closer look at the data of Experiments 2 and 3 is warranted. In Experiment 2, participants categorized as negative 56.3% of the negative words and 52.0% of the positive words. Because responses to both negative and positive words contributed to a response bias toward "negative" responses, Labiouse was right to conclude that this data set does not allow useful conclusions.

For Experiment 3, however, the situation is quite different. In this case, participants categorized as negative 57.7% of the negative words and 48.7% of the positive words. That means that in this experiment the reponse bias toward negative responses was caused solely by... indeed, the negative words. Now is this really a response bias? Labiouse did not discuss Experiment 3 explicitly in his note, whereas we feel this experiment shows that we should indeed be careful with the bathwater. We would like to keep the baby, if possible.

But let us go one step further. Despite the support for our hypothesis that we have just discussed, the paradigm used in Experiments 2 and 3 did not allow an independent comparison of participants' sensitivity to positive and negative information. This comparison can be made in the context of an experiment involving four tasks: affective decisions on positive words (i.e., deciding whether positive and neutral words are positive or neutral), lexical decision on positive words (i.e., deciding whether positive words and nonwords are words or nonwords), affective decisions on negative words (i.e., deciding whether negative and neutral words are negative or neutral), and lexical decision on negative words (i.e., deciding whether negative words and nonwords are words or nonwords).

We recently conducted such a study (Corneille, Vermeulen, Luminet, & Dijksterhuis, 2003). We relied on a signal detection analysis to

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assess participants' sensitivity to positive and negative stimuli independent of response bias. Despite the use of (a) a different student population, (b) different procedures, (c) a different language, and (d) highly controlled word materials, this study provided, again, full support for our hypothesis. Specifically, participants in this (fully within-subjects) study turned out to be unable to detect the lexicality of positive words, the lexicality of negative words, and the valence of positive words. Yet they were sensitive to the valence of negative words. In other words, and fully in line with predictions, participants were insensitive to the valence of subliminally presented positive words, whereas they were sensitive to the valence of subliminally presented negative words.

In sum, Labiouse correctly pointed out that one of the paradigms used in our original article is not without problems. However, in light of both the original evidence and recent evidence, it seems more than reasonable to conclude that people are indeed better at detecting the valence of negative subliminal stimuli than of positive subliminal stimuli.

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