Bath Spa University

Newton Park Campus

Newton St Loe

Bath

ceredmunds@gmail.com

1 August 2023

Dear Editor,

Please find enclosed our submission of the manuscript “The rapid synthesis of integral stimuli” for consideration of publication as a full article at Cognition. In this article, we report an investigation of the processes of categorization.

Classically, researchers have assumed that integral stimuli are classified using holistic representations, and that people classify them using a single dimension only if they have enough time or cognitive resources available (e.g., Lockhead, 1972). We refer to this approach as “Differentiation Theory.” In contrast, recent work by Wills et al. (2015) has found that the supporting evidence for differentiation theory is based on an incomplete analysis approach. Instead, they found evidence for “Combination Theory” – people initially represent individual stimulus dimensions, that with enough time and effort are combined (Wills et al., 2015). Thus, increased time pressure results in more single dimension classifications.

In the current paper, we extend this work to integral stimuli using the triad task, as integral stimuli have been argued by some to be an exception to combination theory (Foard & Kemler Nelson, 1984). In two experiments, we find that increased time pressure results in more single dimension classifications as found in Wills et al. (2015). In a third experiment, we carefully examine the stimulus space to ensure that the stimuli representations used by participants are similarly to the formal definition of the stimuli. In other words, that the participants do perceive two stimuli as being “the same” on a particular dimension. Thus, our work supports combination theory and rejects differentiation theory: integral stimuli are quickly combined rather than slowly analyzed.

We confirm that this manuscript has not been published elsewhere and is not under consideration by another journal and that all authors have approved the manuscript and agree with its submission to Cognition.

Yours faithfully,

**The authors:** Charlotte Edmunds, Fraser Milton and Andy Wills