
Is the interaction between hemispheres asymmetric during bilateral RSVP? Evidence from behavior and N2pc and P3 components of ERPs.

Kamila Smigasiewicz^{*†1}, Julius Weinrich¹, Bianca Reinhardt¹, and Rolf Verleger¹

¹University of Lübeck – Germany

Abstract

In dual-stream Rapid Serial Visual Presentation (dual-RSVP), the second target (T2) is worse identified in the right than in the left hemifield (LVF advantage). This asymmetry might reflect different abilities of the two independently functioning hemispheres, or result from asymmetric interaction, specifically from stronger inhibition exerted by the right hemisphere over the left. In order to differentiate between those two possibilities, we facilitated T2 identification by replacing the usual letter distractors by a set of easy symbols in one of the two streams. If the LVF advantage reflects different abilities of the two hemispheres, then right-side T2 should be better identified only when presented in the easy-symbol stream. If the LVF advantage reflects mutual inhibition between hemispheres, then right-side T2 should additionally be better identified when the easy symbols are presented in the opposite, left stream. Indeed, in two experiments T2 improved when presented both in the same and in the opposite stream to symbols. However, this improvement, reflecting hemispheric interaction, was symmetric for left and right T2. Furthermore, the LVF advantage was reflected in N2pc latency and in P3 amplitude evoked by T2, but only P3 amplitude was increased by symbols independently of their side. Overall the results suggest that there is interaction between hemispheres during the dual-RSVP task in form of mutual inhibition. However, the LVF advantage seems to be better explained by different abilities of each hemisphere.

*Speaker

†Corresponding author: k.smigasiewicz@gmail.com