**Remapping Time Across Space**

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**Introduction:** Prior evidence suggests that attention’s temporal properties differ between the left and right visual fields (LVF and RVF). Notably, Verleger et al.’s (2008) N2pc (parietal contralateral) ERP potentials peaked ~30 msec earlier for LVF than for RVF targets on a bilateral-stream Rapid Serial Visual Presentation (RSVP) identification task. Might this hastened neural response render LVF targets perceptually available sooner than RVF targets? If so, how might the visual system reconcile these timing differences to estimate simultaneity across the LVF and RVF?

**Method:** Twenty-three Denison University undergraduates viewed bilateral-stream RSVP displays containing black-letter distractors and two targets –a salient red letter, and a less salient black digit. These two targets were presented in opposite hemifields simultaneously or at various asynchronies. Temporal order judgments (TOJs) and simultaneity judgments of the targets occurred in separate daily sessions, counter-balanced across participants. Retinal stimulation remained identical across the two tasks.

**Results:** Psychometric functions for the TOJ task revealed that participants perceived LVF targets ~130 msec earlier than RVF targets (p=0.00001). Participants’ simultaneity judgments exhibited criterion shifts that depended significantly on the salient target’s (red letter’s) hemifield; mean target asynchronies associated with subjective simultaneity ranged between ~93 and ~123 msec briefer for LVF- than RVF-salient-targets (p=0.025). Intriguingly, participants misperceived brief (133 msec) asynchronies as “same” significantly more often (p=0.0001) when LVF-salient-targets preceded, rather than followed, less salient RVF targets. This error pattern would be expected if participants “remapped” LVF-salient-targets to a later point in the RSVP stream, to counteract hastened neural responses to LVF stimuli.

 **Conclusion:** Our TOJ data demonstrate hastened perception of LVF targets by durations approximating one cycle of visual attention’s canonical ~10 Hz temporal resolution. Our findings further suggest humans can unknowingly compensate for (“remap”) a hastened neural response to LVF targets by using hemifield-specific rules within the decision-stage of simultaneity judgments.

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