Supplementary Material – ECVP 2021

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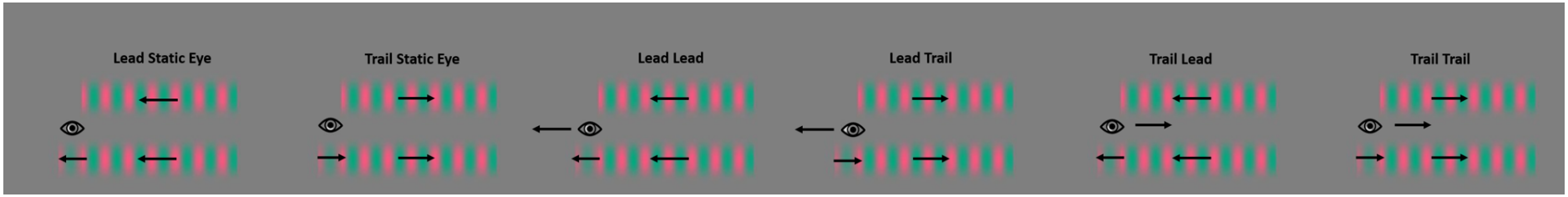

Figure 1. Target position conditions for abutting grating patterns. The first two configurations represent the conditions where the eyes were steady on a fixation point. According to the drift direction of the gratings, the target could either be in the leading or in the trailing position. If the inducer drift is towards the target, the target is in a leading position relative to the inducer. If the inducer drift is away from the target, the target is in a trailing position relative to the inducer. The last four configurations represent the conditions where the observers performed smooth pursuit eye movements. According to the eye movement trajectory or drift direction of the gratings, the target could either be in the leading or in the trailing position. The first positions represent the target's position relative to the eye movement trajectory. The second positions represent the target's position relative to the drift direction.

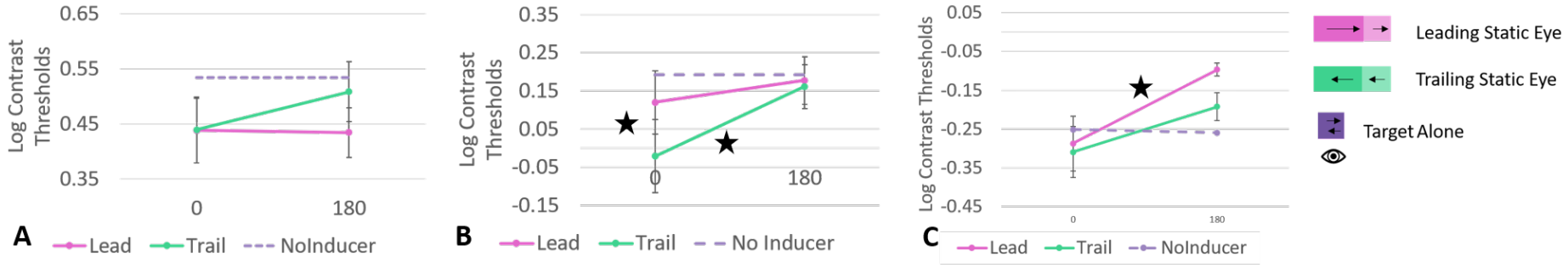

Figure 2. Phase modulation for the isoluminant and luminance-defined chromatic stimuli while eyes were steady on a fixation point. Log contrast thresholds are represented in the y-axis. X-axis shows the two conditions of the phase difference (in-phase:0° and out-of-phase: 180°). While the cyan line represents the trailing position, the magenta line represents the leading position with respect to the inducer motion. The purple dashed line represents the baseline condition, where the target was presented in the absence of an abutting inducer. Error bars indicate the standard errors of the mean (+/- 1 SEM). N=7 participants. A) The visibility of the target stimulus modulated by the phase difference between the target and the inducer at the trailing edge as a trend for isoluminant stimuli. B) The phase modulation for the luminance-defined chromatic stimuli with 50% luminance contrast. The phase modulation became significant at the trailing edge. C) The phase modulation for the luminance-defined chromatic stimuli with 100% luminance contrast. The phase modulation at the trailing edge persisted as a trend. The visibility of the target stimulus modulated by the phase difference between the target and the inducer at the leading edge.

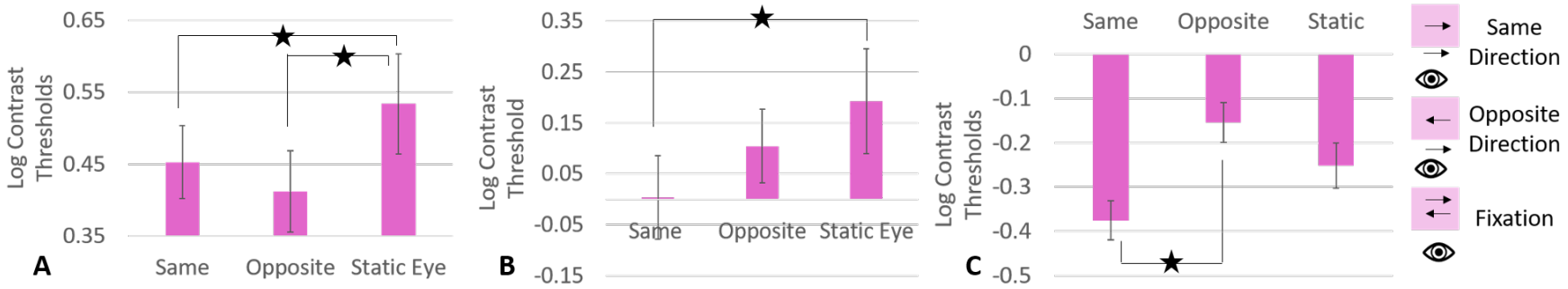

Figure 3. The visibility of the isoluminant and luminance-defined chromatic stimuli during fixation and smooth pursuit eye movements in the absence of an inducer. Log contrast thresholds are represented in the y-axis. On the x-axis are the three levels of the relative directions of the pursuit and the grating drift (Same, opposite, and fixation). Error bars indicate the standard errors of the mean (+/- 1 SEM). N=7 participants. A) The visibility of the isoluminant target increased during smooth pursuit eye movements. The grating drifting in the opposite direction to the pursuit was more visible than the grating drifting in the same direction as a trend. B) The visibility of the luminance-defined chromatic target with 50% luminance contrast increased during smooth pursuit when the target drifted in the same direction as the eyes. C) Smooth pursuit eye movements did not increase the visibility of the luminance-defined chromatic target with 100% luminance contrast. However, the visibility of the target drifting in the same direction as the eyes was higher than that of the target drifting in the opposite direction.

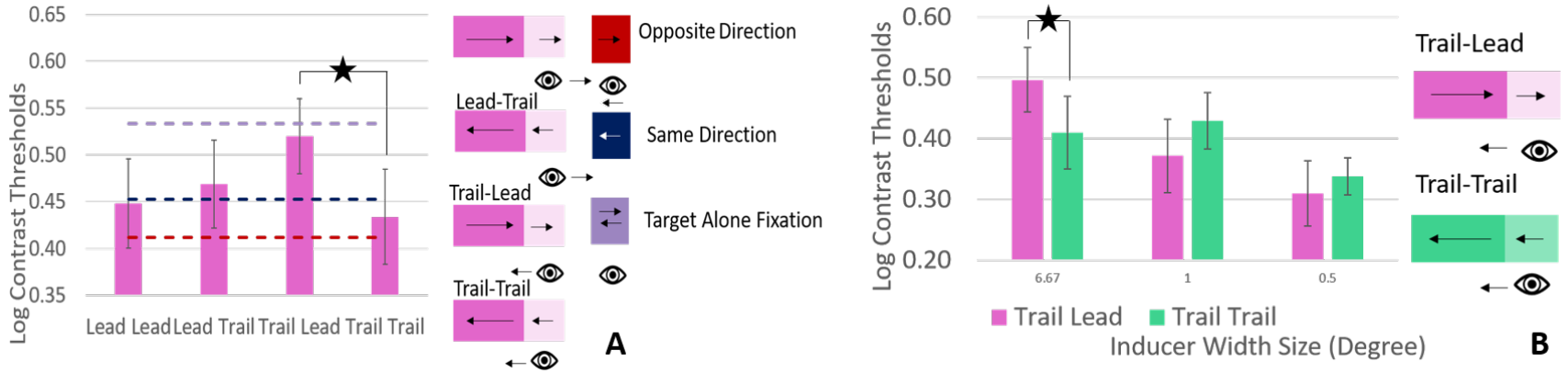

Figure 4. The contrast modulation for the isoluminant abutting gratings during smooth pursuit eye movements. A) Interaction between the target position with respect to the drift direction and the target's position on the eye movement trajectory. When the target was in the trailing position on the eye trajectory, the visibility of the target moving in the same direction as the eyes was higher than the target moving in the opposite direction. N=7 participants B) The size of the inducer was manipulated to see whether the surround suppression mechanisms are responsible for the observed interaction. The gradual decrease in the inducer size attenuated the inducer's suppressive effect on the target in the trailing position. N=5 participants.