Investigating the Attentional Blink with a Predicted First Target

Introduction

• The AB can occur even without requiring identification of two targets (Chua, 2005; Spalek, Falcon & Di Lollo, 2006), suggesting that attentional control (target selection) and not T1 consolidation modulates the AB
• We investigated whether target consolidation and attentional control might both contribute to the AB
• We manipulated the degree to which T1 consolidation was required by varying the extent to which T1’s identity was predicted (0%, 50%, 100%)
• We also analyzed T1|T2 identification to investigate the possible effects of T2 on T1 (Nieuwenstein, 2006)

Methods

• Targets were red letters while distractors were black letters
• SOA was 96 ms (24 ms letter duration with 72 ms blank ISI). Each trial began with a green letter. See Figure 1
• In Experiment 1, subjects were told that this letter was the identity of T1 during one block of trials (Informed condition) and that it was not T1 during another block (Baseline condition). Block order was counterbalanced (n = 38). Lags were 1-7
• In Experiment 2, subjects were told that the letter predicted T1 on 50% of the trials. Congruent (T1 was predicted) and incongruent trials were mixed. For analysis, subjects were grouped into whether they used the green letter (Confirm, n = 9) or not (Ignore, n = 12) on the basis of T1 identification performance on congruent trials (> 85% = Confirm). Lags were 1-5

Results

Experiment 1

• T1 and T1|T2 identification approached 100% in the informed condition and was higher than baseline (p < .001)
• T2|T1 identification improved in the informed condition (p < .001), both conditions showed an AB effect (p < .001), but there was an interaction (p < .001)

• T1, T1|T2 and T2|T1 identification improved only for the confirm-congruent condition
• T2|T1 showed an AB in all four conditions, but there was a three way interaction (p < .006) indicating an AB attenuation

• There was a significant three way interaction effect for T1|T2 identification (p < .048) due to no lag effect for the confirm-congruent condition

Discussion

• Facilitating (or even eliminating?) T1 consolidation attenuated but did not eliminate the AB, suggesting that the AB is affected by both T1 consolidation and T2 selection
• T2 selection affected T1 identification (consolidation?) except when T1 identity was known (100% and 50% confirm), suggesting a serial account for the AB would be inadequate
• Tan, Still and Dark (2006) replicated the T1|T2 lag effect. Finding such an effect suggests that T1 consolidation and T2 selection might be two different processes that share a common resource (Kawahara, Di Lollo & Enns, 2006)

References: