

Conflict adaptation is independent of conflict

Daniel H. Weissman¹, Matt Jones², Katie A. Smith³, and Christopher D. Erb³

¹ Department of Psychology, University of Michigan

² Department of Psychological and Brain Sciences, University of Colorado

³ School of Psychology, University of Auckland

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Correspondence: Daniel Weissman, Department of Psychology, 530 Church Street, Ann Arbor, MI, 48109, USA. Email: danweiss@umich.edu

Abstract

During Stroop-like tasks, people experience less interference from conflicting distractors in the current trial (trial N) if the previous trial (trial $N-1$) was incongruent relative to congruent. It is unclear, however, what triggers adaptive control processes to produce such “conflict adaptation”. Recent data suggest that control is triggered by *conflict-independent* processes that vary with objective trial congruency, rather than by greater conflict in incongruent (vs. congruent) trials. But these data come from unusual tasks that minimize conditional differences in conflict. In two experiments ($N=80$) designed to address this limitation, we observed the typical conflict adaptation effect. Critically, interference did not vary with whether conditional differences in conflict in trial $N-1$ were (a) relatively large (because trial $N-2$ was congruent) or (b) relatively small (because trial $N-2$ was incongruent). Instead, interference varied with trial $N-1$ congruency while controlling for trial $N-1$ conflict (indexed by trial $N-1$ RT), but not (usually) vice-versa. To distinguish among competing theoretical accounts of our results, we simulated the classic conflict monitoring model of Botvinick et al. (2001), wherein conflict triggers control processes to shift attention toward the target and away from the distractors in the next trial, and three model variants, wherein control processes are driven by objective congruency instead of conflict and/or modulate the strength of distractor–response associations instead of attention. Only the model wherein objective congruency triggers control processes to modulate the strength of distractor–response associations adequately accounted for the data. These results favor congruency-based accounts of “conflict adaptation” over conflict-based accounts.