

## **Facial EMG Reveals Top-Down and Bottom-Up Emotional Interference in an Adapted Context Processing Task**

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Affective conflict and control may have important parallels to cognitive conflict and control, but these processes have been difficult to quantitatively study with emotionally naturalistic laboratory paradigms. We developed a new paradigm that measures emotional conflict in terms of facial expression latency to and intensity emotional picture probes. The task is an analog of the AX Continuous Performance Task (AX-CPT) that has been widely used to investigate context processing in the service of controlled cognition, in typical and atypical populations. Participants were biased to automatize a high-frequency, emotionally congruent target response (e.g., frown to negative pictures). In two types of interference trials, the automatic facial expression response to the picture valence conflicted with a prior contextual cue ("SMILE" or "FROWN"). A within-subjects manipulation of delay between cue and probe allowed us to examine the impact of preparatory time on controlled emotional processing. In interference trials, expressions were slower to peak and lower in amplitude than in target and control trials. Besides providing a greater characterization of automatic and controlled emotional facial expressions, this study demonstrates that emotional interference effects may occur via emotional incongruity between probe and response ("bottom up" interference), or by context expectancy even when the probe and response are emotionally congruent ("top down" interference). These parallels to observations of facilitation and interference in the cognitive AX-CPT suggest that the present adapted paradigm may be effectively used to characterize affective conflict and control.