

Abstract

Title of Document: **AUTOMATIC AND CONTROLLED
PROCESSES IN TEMPORAL
SELECTION**

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One major challenge for a human information processing system is limiting the amount of information it has to process at any given point in time. Selective attentional mechanism plays a key role in ensuring the efficiency of this system. The control of attentional selection is typically understood to be implemented by a dynamic combination of top-down as well as bottom-up processes. There has been a significant research effort to understand this dynamics for attentional processing at spatial and featural level. However, relatively less is known about how top-down and bottom-up factors contribute to the control of

attentional selection over time. This thesis employs Rapid Serial Visual Presentation Paradigm (RSVP) and the theoretical models provided by Attentional Blink (AB) and Emotion Induced Blindness (EIB) studies to understand the relative contribution of top-down and bottom-up factors in temporal selection. The thesis reports sixteen experiments, organized into five empirical chapters, and investigates, how different aspects of top-down and bottom-up attentional control determine temporal selection.

Study 1 examined the role of emotional arousal and emotional valence in EIB and showed that EIB is more affected by the changes in the arousal level of the emotional image as compared to the changes in its emotional valence. Study 2 investigated the relative contribution of emotion and attention in EIB and showed that EIB is not an emotion-specific effect rather a consequence of attention capture by the irrelevant emotional distractor. Study 3 follows up on the findings of the study 2 and showed a similar level of impairment for neutral distractor that captured attention and discredits the view that EIB is an emotion specific effect.

Study 4 examined the underlying mechanism of Lag-1 sparing and showed that working memory requirement associated with the stimulus identification plays a crucial role in the presence of

Lag-1 sparing. Study 5 examined the role of saliency in temporal attention and how the strength of the signal leads to the attenuation of the impairment in AB. Result did not show any blink for both emotional as well as perceptual salient information; this shows that featural properties of the information presented in the RSVP determine the temporal limits of attention. The present thesis contributes to the current theoretical understanding of the temporal attention by providing novel findings of how automatic and control processes modulate information processing.