

Even ‘unconscious thought’ is influenced by attentional mechanisms

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Commentary on Newell & Shanks, “Unconscious Influences on Decision Making: A Critical Review”

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Abstract: In this commentary, we focus on the role of attentional mechanisms in unconscious thought. We argue that even distracted or unconscious thought is capacity limited and differences in scope of attention influence processing during unconscious thought. Attention also would influence processes at different stages in the proposed lens model. We conclude that there is a clear need to understand the role of attention to better understand conscious or unconscious thought.

Recently multiple attempts have been made to argue in favour of powerful unconscious processes affecting decision making including recommendations to let the unconscious guide one’s decisions (Dijksterhuis & Nordgen, 2006). Newell and Shanks have done a commendable job questioning the efficacy of seductive claims regarding unconscious processing. We focus on the Unconscious Thought Theory (UTT) and paradigms used to argue for deliberation-without-attention. While we agree with the broad claims made in the paper against UTT, the authors do not directly address the role of attentional mechanisms involved in distracted or supposedly unconscious thought. The role of attentional processes in the lens model discussed by the authors is also not clear although they point to attentional or top-down mechanisms influencing processes like motion perception. We think that the role of attention is extremely critical for the debate on conscious and unconscious thought and requires further elaboration. We suggest re-thinking on the core assumptions of UTT, the very definition of unconscious thought and the nature of processing during distraction.

A critical assumption of UTT is that the powerful unconscious is not constrained by limited capacity attentional processes (Dijksterhuis & Nordgen, 2006). We have questioned

the unlimited capacity and optimal weighing assumptions of UTT using simulations that were performed on datasets employed in the UTT paradigms (Srinivasan & Mukherjee, 2010). The simulations clearly showed that a small subset of information is sufficient to produce performance that is seen in UTT tasks. Experimental results (Ashby, Glöckner & Dickert, 2011) confirm our concern with the fundamental assumptions of UTT (the capacity and weighting principles). The use of a generic ‘sub-sampling’ heuristic can enable people to ‘select’ a small set of dominant attributes during distracted thought (hypothesized to elicit ‘unconscious thought’) and can partly explain other related findings based on consideration sets even during conscious thought (Mukherjee & Srinivasan, in press). This is consistent with suggestions made by Newell and Shanks to explain earlier findings on decision making (Wilson & Nisbett, 1978). Even intuitive or affective processing (Usher et al. 2011, Kahneman, 2011) could be utilizing a subset of attribute information along with quickly recovered cues from memory that would result in decently good solutions because many choice scenarios require attending only to a subset of the information. For example, in Usher et al.’s (2011) dataset, choice based on the two best attributes creates a tie between the best and second best option and selecting seven out of a possible twelve results in selection of the best alternative out of the four options. These results indicate an important role of attention to select specific attributes based on prior experience to make satisficing decisions.

A critical problem in many decision making studies is the lack of proper treatment of attentional processes, possibly linked to graded differences in consciousness. For example, attention is used to operationalize ‘unconscious thought’ which we believe conflates attention and consciousness and treats attention as a dichotomous variable (Srinivasan & Mukherjee, 2010; Mukherjee & Srinivasan, 2013s) thereby limiting the construct of attention. Attention can vary as a resource (more versus less) and perceptual scope (focused versus distributed) which involves differences in selection resulting in differences in perception, memory, and awareness (Baijal & Srinivasan, 2009; Srinivasan, Mukherjee, Mishra, & Kesarwani, 2013).

Given that people are performing a distractor task during ‘unconscious thought’, the nature of the distractor task and more specifically the attentional mechanisms employed during distraction can potentially influence processing either during or after distraction. The changes in (perceptual or conceptual) scope of attention under different situations enable us to sample and process information differently leading to differences in processes involved in memory and decision making. Using the UTT paradigm, we manipulated the distraction task using global or local processing (associated with changes in scope) at low and high levels of cognitive or working memory load (Srinivasan et al., 2013). We found that global processing

during distraction resulted in stronger preference for the chosen item irrespective of cognitive load. In addition, we found better incidental memory for attributes with global compared to local processing during distraction only when the distractor was an easy low load task.

Thus, we propose that the putative ‘unconscious thought’ is constrained by differences in the attentional processes employed during distraction (Mukherjee & Srinivasan, 2013; Srinivasan et al., 2013) and to differences in selection (like information sampling; Srinivasan & Mukherjee, 2010). Theorizing about the causal effects of conscious versus unconscious processes is critically dependent on a proper treatment of attention (like the ‘global workspace’ theory discussed in the paper). Conflating both attention and consciousness would add more confusion to this critical debate on the role of consciousness in decision making.

More generally, attention could influence judgment and decision making at multiple points like cues and their utilization – points C and D in the lens model. Selective attention mechanisms (like sub-sampling) can affect the number of cues selected for processing depending on the weights of the cues and past experience of their validity. Sometimes not attending to part of the information or relying on small samples can prove useful (Gigerenzer & Gaissmaier, 2011). The differences in selection (changes in scope of attention) could also affect utilization of the cues and would be consistent with results showing that changes in scope of attention can affect preference strengths and memory (Srinivasan et al., 2013).

Information attended to, get privileged access in working memory (McElree, 2006) and is related to graded levels of consciousness as attention and working memory interact (Baars & Franklin, 2003). A clear understanding of the role of different attentional processes is crucial for debates on the role of consciousness in decision making including the current analysis about causally effective unconscious processes. Much of the published literature in UTT and other areas of decision making (see Mukherjee & Srinivasan, 2013) need to be re-evaluated through the lens of attentional mechanisms and their role in conscious or unconscious thought.

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