

Overconfident Behavior in Informational Cascades: An Eye-Tracking Study

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This paper investigates the validity of the Dual Process theory by using eye-tracking methods to trace the process of attention during a non-preference-based problem solving task, that is, informational cascades. In this setting, gaze direction may convey evidence on how automatic detection is modified or sustained by controlled search. We provide laboratory evidence that gaze direction is driven by cognitive biases, such as overconfidence. In particular, we find a significant statistical correlation between first fixations and subjects' actual choices. Our results suggest that attentional strategies are not necessarily consistent with efficient patterns of information collecting.

Keywords: Dual Process theory, eye-tracking, cognitive biases, overconfidence, informational cascades

Since the 1970s, much theoretical and experimental work has been devoted to describing attention orienting as a dual processing activity (Birnbom, 2003; Cohen, 1993; Schneider & Shiffrin, 1977; Shiffrin & Schneider, 1977). Schneider and Shiffrin (1977) define selective attention as “control of information processing so that a sensory input is perceived or remembered better in one situation than another according to the desires of the subject” (p. 4). Information processing capacity being limited, individuals are inclined to address only a limited subset of all the available information. This selection procedure operates according to two different methods: automatic detection and controlled search. Automatic detection works in parallel, is independent of attention, and difficult to modify or suppress once learned. Controlled search is a serial process that uses short-term memory capacity and is flexible, modifiable, and sequential.

This characterization suggests a parallelism between attention orienting and the distinction between heuristics and analytic reasoning processes (Evans, 2006; Sloman, 1996). The Dual Process theory holds that cognitive activities are of two types, named System 1 and System 2 (Kahneman & Frederick, 2002; Stanovich & West, 2000). System 1 includes the processes characterized by automatic, associative functioning, and heuristic purposes, while System 2 encompasses the rational, rule-based, and analytic processes. Although both systems may be biased by prior beliefs, mental models, or memory limitations (Evans, 2006), System 1 is activated immediately and often unconsciously by external stimuli, while System 2 is slower and deliberately controlled. Kahneman and Frederick (2002) describe the interaction between the systems as follows: “Highly accessible impressions [are] produced by System 1 control judgments and preferences, unless modified or overridden by the deliberate operations of System 2” (p. 53). It has also been argued that the rule-based reasoning of System 2 can be internalized by System 1 through experience (Hinton, 1990). By repeating mental associations over time, people generate automatically intuitive responses that were previously the outcome of sequential steps of analytic thinking. Moreover, both systems being the product of evolution, it does not necessarily follow that biases in search and information processing are the same for all people. On the contrary, individual differences

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