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Research Dialogue

What should we expect from a dual-process theory of preference construction in choice?

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Abstract

Dhar and Gorlin (2013) proposed a dual-process framework for understanding the effects of preference construction in choice. Drawing on the distinction operating principles and operating conditions, it is argued that their emphasis on cognitive elaboration fails to specify the mental operations involved in preference construction. This limitation makes their dual-process framework circular and susceptible to the criticism of single-process alternatives. The distinction between associative and propositional processes has the potential to fill this conceptual gap, thereby providing a more thorough understanding of preference construction effects in choice.

Keywords: Automaticity; Choice; Decision making; Dual-process theory; Preference construction

Introduction

Dhar and Gorlin (2013) proposed a dual-process framework for understanding the effects of preference construction in choice. Drawing on the distinction between System I and System II processing (Kahneman, 2003; Stanovich & West, 2000), the authors argue that choice effects can be classified in terms of two distinct categories depending on whether they result from either quick, intuitive processing or careful, deliberate processing. In addition to providing useful conceptual links to contemporary dual-process theorizing, Dhar and Gorlin's review of preference construction effects demonstrates the integrative value of their proposed framework. However, like many of the theories that inspired Dhar and Gorlin's analysis, their framework suffers from various conceptual problems that undermine a thorough understanding of preference construction effects. The main goal of the current comment is to identify these problems and discuss how they can be resolved by more precise theorizing about the mental processes underlying preference construction effects.

Levels of analysis

To illustrate the conceptual problems of Dhar and Gorlin's framework (and the theories that inspired their framework), it is useful to relate dual-process theories to Marr's (1982) three levels of analysis (see Gawronski, Sherman, & Trope, in press). According to Marr (1982) psychological research at the *computational level* is concerned with identifying relations between inputs and outputs. Applied to the question of preference construction, the relevant inputs include the target object, the judgmental task, and the task context; the outputs are the identified preferences. The general goal of research at the computational level is to specify which types of inputs produce which kinds of outputs. Research of this kind differs from research at the *algorithmic level*, which is concerned with the mechanisms that translate inputs into outputs. This level of analysis resonates with the goal of dual-process process theories, in that these theories include hypotheses about the mental processes and representations underlying overt behavior. From this perspective, Dhar and Gorlin's dual-process account of preference construction can be located at the algorithmic level of analysis, because it aims at identifying the cognitive operations by which inputs are translated into outputs. Finally, research at the *implementational level* is concerned with the physical systems

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that implement the mechanisms identified at the algorithmic level. This approach is prominently reflected in the emerging fields of social neuroscience and neuroeconomics, which are concerned with the neural underpinnings of judgment, decision, and choice. Although less relevant for the current question, some dual-process theories go beyond the algorithmic level by including assumptions about the neural substrates that implement the hypothesized processes (e.g., Lieberman, 2003).

The positioning of dual-process theories at Marr's (1982) algorithmic level helps to clarify their explanatory function by specifying the empirical phenomena that dual-process theories aim to explain (*explanandum*) and the theoretical assumptions that are proposed to explain these phenomena (*explanans*). Whereas research at the computational level aims at explaining observed outputs by identifying the relevant inputs that caused these outputs (*causal explanation*), research at the algorithmic level aims at explaining identified input–output relations by specifying the mental processes that translate inputs into outputs (*mechanistic explanation*). Thus, dual-process theories provide explanations of identified input–output relations by claiming that they are the product of two functionally distinct mental processes. Although this conceptualization may seem somewhat abstract and philosophical, it has important implications for dual-process theories of judgment and choice.

Operating principles vs. operating conditions

An important insight that can be gained from relating dual-process theories to Marr's (1982) algorithmic level is that it resolves the common conflation of operating principles and operating conditions (Gawronski et al., in press). Whereas the concept of *operating principles* refers to the mental mechanisms that translate inputs into outputs, the concept of *operating conditions* refers to the conditions under which a given process operates. Dhar and Gorlin put a strong emphasis on operating conditions by claiming that System II processing depends on the availability of cognitive resources, whereas System I processing is claimed to be resource-independent. However, their account remains vague about operating principles, in that it fails to specify the cognitive operations that translate inputs into outputs. Stating that a given effect does or does not depend on cognitive resources does not specify the mental processes that mediate this effect.

To provide a sound explanation of preference construction effects, an integrative dual-process framework should clearly specify the cognitive operations that mediate these effects, not just the boundary conditions of their operation. Otherwise, dual-process accounts involve the risk of conceptual circularity, in that the operation of a given process is inferred from their postulated boundary conditions. For example, although Dhar and Gorlin acknowledge that the interplay of System I and System II processing can be quite complex, they argue that effects that are increased under low elaboration are the product of System I processing, whereas effects that decrease under low elaboration are the product of System II processing. Thus, if any of their predictions about moderating effects of elaboration are disconfirmed, the consequence would be a simple recategorization of the relevant effect. That is, a preference construction effect that was initially attributed to System I processing would be recategorized as the product of System II processing if this effect turns out to decrease (rather than increase) under low elaboration. Conversely, a preference construction effect that was initially attributed to System II processing would be recategorized as the product of System I processing if this effect turns out to increase (rather than decrease) under low elaboration. In the absence of a clear specification of the operating principles of System I and System II processing, the theory does not impose any constraints on the interpretation of a given result. This limitation is problematic not only because it makes dual-process explanations circular; it also makes them susceptible to the criticism of single-process alternatives, as I outline later in the following section.

What are the operating principles?

Although Dhar and Gorlin do not explicate the operating principles of the processes underlying preference construction effects, their analysis includes a number of propositions that could be interpreted in this manner. Yet, these claims are insufficient for a specification of operating principles, in that they either (1) beg the question of what defines the proposed processes, (2) fail to provide a clear demarcation between processes, (3) are ambiguous about the categorization of a given effect, or (4) are consistent with a single-process account.

A first proposition that might be interpreted as a specification of operating principles is Dhar and Gorlin's assumption that System I processing elicits a rapid feeling of superiority for particular choice options, whereas System II processing fails to elicit such feelings. Although it is theoretically plausible that spontaneous and deliberate preferences have their roots in qualitatively distinct processes, Dhar and Gorlin's specification simply describes the output of System I processing, but it does not specify the mental processes that produce this output. In this sense, the proposed specification of System I processing begs the question of how System I processing translates inputs into rapid feelings of superiority reflected in overt choice preferences.

A second proposition that might be interpreted as a specification of operating principles is Dhar and Gorlin's assumption that System II processing is characterized by comparative (rather than absolute) assessment of attributes. This assumption may be correct in the sense that deliberate analyses of available choice options often involve comparisons of relevant attributes. Yet, it fails to provide a clear demarcation between System I and System II processing, because automatic evaluative responses (presumably elicited by System I processing) are characterized by the same feature. That is, the same neutral object has been shown to elicit an automatic positive response when it is presented in the context of a negative object, but an automatic negative response when it is presented in the context of a positive object (Scherer & Lambert, 2009). Thus, the proposed comparative nature of System II processing fails to provide a clear demarcation, because System I processing is characterized by the same feature.

A third proposition that might be interpreted as a specification of operating principles is Dhar and Gorlin's assumption that