Letter

The Mythical Dual-Process Typology

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'The central premise of the 'two types' framework has to do with alignment, or the degree to which the attributes within each category co-occur.' Melnikoff and Bargh ([1], see p. 2)

Melnikoff and Bargh [1] offer a challenge to what they term the **dual-process typology** (see Glossary): specifically, the idea that cognitive processing is either unintentional, uncontrollable, unconscious, and efficient (Type 1) or intentional, controllable, conscious, and inefficient (Type 2). The authors argue that no one has ever tested this proposition and they provide examples of thoughts that do not abide by the proposed featural configuration of the typology (e.g., that processing might be unconscious but also intentional). These examples, it is argued, invalidate the common 'two-types framework' and the authors conclude that distinguishing between two types of processes is 'systematically thwarting scientific progress' (Abstract). However, the authors make a critical error that undermines this conclusion: one need not assert alignment among a set of features to argue that one specific feature can be justified as a dual-process dichotomy (in contrast to **unimodal theories**, which argue for continuous processing).

Melnikoff and Bargh [1] rightfully trace the origins of **dual-process theories (DPTs)** to a series of seminal papers in the mid-1970s and the critique of DPTs to the late 1980s and 1990s – specifically, the critique of versions of DPT that viewed it as two long lists of features that were always aligned. Where Melnikoff and Bargh go awry is in ignoring the past 15 years of work on DPT in which various theorists [2–7] have refined and fleshed out the implications of the original 1970s' papers. Although individuals looking to apply DPTs to various psychological phenomena or to public policy may assume an alignment or a correlation between various features, research focused specifically on the specification of DPT has long ago left behind the 'list-of-features' view.

Importantly, DPT advocates such as Evans and Stanovich [4] have explicitly argued against assuming an alignment of the numerous characteristics that have been assigned to so-called 'Type 1' and 'Type 2' processes over the years (see also [8,9]). Instead, they distinguish between **defining features** – those that are used to define the two-types distinction – and **typical correlates** – those that various researchers have associated with the two-types distinction.

Rather than acknowledging these developments, Melnikoff and Bargh [1] challenge an outdated list-of-features view of DPT (i.e., the dual-process 'typology'). Curiously, they stress consciousness as a key feature although it has played little role in recent revisions of DPT [4]. Melnikoff and Bargh also argue that the fallacy where Type 1 processing is necessarily bad/error prone and Type 2 processing is necessarily good/rational is 'central to numerous dual-process theories' (p. 3). However, this fallacy has also been strongly challenged by dual-process theorists [4,8,9]. Indeed, it has recently been argued in the context of a dual-process model that Type 2 processing may come in the form of either rationalization (i.e., motivated reasoning), which perpetuates bias in typical decision-making tasks, or

Glossary

Defining features: introduced by Evans and Stanovich [4]; single characteristics or sets of characteristics that distinguish between Type 1 and Type 2 processes. For example, some theorists have focused on autonomy as a defining feature of Type 1 processes (i.e., processing is either mandatory given the presence of triggering conditions – Type 1 – or not mandatory – Type 2) [11,12].
Dual-process theories (DPTs): a class of theories in which two fundamentally different types of cognitive processes are distinguished.
Dual-process typology: a term introduced by Melnikoff and Bargh [1] to represent the idea that cognitive processes can be sorted into two types with aligned characteristics: (i) Type 1 processes, which are unintentional, uncontrollable, unconscious, and efficient; (ii) Type 2 processes, which are intentional, controllable, conscious, and inefficient.
Typical correlates: also introduced by Evans and Stanovich; the various characteristics that have been associated with Type 1 and Type 2 processes (e.g., intentionality, controllability, consciousness, efficiency) but do not define the distinction for a given DPT.
Unimodal theories: a class of theories in which cognitive processing is thought to occur only along a continuum.

cognitive decoupling, which overrides and corrects bias [6]. In fact, Morewedge and Kahneman [10], who the authors cite as advocating the good/bad fallacy, note in their conclusion that 'in many situations, [System 1] automatically, quickly and effortlessly generates a skilled response to current challenges', thus undermining the idea that the good/bad fallacy is central to their dual-process account (p. 439).

Although Melnikoff and Bargh mention Evans and Stanovich's [4] concept of typical correlates, they do not mention the central concept of defining features. They instead pursue the side issue of encouraging skepticism about the claim that some features are correlated until more empirical evidence is available. While we concur that some dual-process theorists assume a correlation among non-definitional features (e.g., that autonomous

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Type 1 processing is typically faster than non-autonomous Type 2 processing) and that theoretical claims should be tested empirically, this issue is nonetheless irrelevant to the central thesis that Melnikoff and Bargh set up and knock down: that some set of Type 1 and Type 2 features are aligned and that this is a central premise of the two-types framework. This is not a necessary requirement of DPT (which could be based on a single dichotomy); the authors do not substantiate their typology claim with regard to any specific examples, and they ignore recent research that has directly refuted this list-of-features view. They thus present their arguments as addressing the foundation of DPT when in fact is it largely irrelevant to current investigations of the theory (see [3]).

In 2013, Evans and Stanovich argued that 'in general, these critiques (of DPT) are problematic because they attack not any particular theory but rather a class of theories, effectively treating all dual-process and dual-system theories alike' (p. 224). This is true of Melnikoff and Bargh, who not only attack a class of theories instead of any specific DPT, but aim their critique at a set of assumptions that contemporary theorists have explicitly refuted.

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