Jonathan St. B. T. Evans and **Keith Frankish**, eds.
In Two Minds: Dual Processes and Beyond.
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While there may be two kinds of people—those who think there are two kinds of people and those who do not—in psychology it seems like everyone these days pays at least lip service to what is sometimes called the 'two minds' hypothesis. Yet, I must confess, I find myself of two minds about it. On the one hand, by focusing upon mental architecture dual-process approaches move away from the particularly atomized way of doing psychology that had been (and in some circles still is) *de rigueur* since the days of Skinner's pigeons. On the other hand, it sometimes seems that 'dual-process' is more a logo than a theory, in that anyone willing to reify a distinction duality in how the mind works is welcome into the big church.

To understand both the two minds program—the word that perhaps best characterizes what connects the contributors—and the volume's place within it, something of a historical overview is necessary, and this is provided in the introduction written by the volume's editors, Evans and Frankish. The early focus of the program was upon human reasoning, and the motivation for it was to be found in the difference between two ways in which human minds appear to arrive at solutions: sometimes by what has been variously characterized as conscious, slow, reflective or logical thinking, while on other occasions unconsciously, quickly and intuitively. The general approach has been to assume that the apparent distinction reflects a basic difference between underlying mental processes or, even, mental systems—thus leading straight to the two systems theory: System 1 and System 2. (The choice of these neutral names was necessitated by disagreements between different theorists and is emblematic of the problems with the approach.) With the growing popularity of the approach, this dual-system architecture has come to be applied throughout psychology with some authors suggesting that the mind as a whole should be thought of as neatly bifurcated.

Inarguably, this edited collection by Evans and Frankish is the definitive statement of the status quo in this area of work. While the volume does not contain articles by every single major contributor to the approach—the lack of pieces by Kahneman and Frederick or by Sloman is felt most—it does include articles by most of those who have run or been instrumental in developing the tradition. As such, it is the best place to begin for anyone who would wish to understand what the fuss is about. Indeed, work not directly represented within the volume is repeatedly referred to, allowing the reader to grasp its basic outline and import. This is because, after starting with papers discussing the basic dualist mental architecture, the collection moves to applications of the approach, in effect covering the range of the ways in which the program has made itself felt.

The papers focused upon mental architecture argue almost uniformly for weakening the dualist claims, with the article by Jonathan Evans doing this perhaps most clearly. Evans is, of course, one of the central figures within the dual minds tradition; and if the tradition is a big church then here he is its liberal minister. Through a careful analysis of the various approaches that have come under the common umbrella of 'two minds' he scales back some of the bigger claims that have been made in its name. Most importantly, he casts heavy doubt on whether there is empirical evidence for the existence of two systems and moves to talking about two types of process—a position also argued for in this collection by Richard Samuels in a similar paper. Even that claim, however, is further diluted when Evans introduces a third type of process, made necessary to reconcile the other two. While Evans makes a number of very sensible suggestions concerning mental architecture, it is hard to see what they have to do in the end with a dual-anything approach—much as it is sometimes hard to see what ministers have to do with religion.

Investigations of System 2 within the subsequent chapters result in a couple of recurring proposals. The strategy pursued by Peter Carruthers as well as by Keith Frankish is to argue that System 2 is virtual as compared to System 1, i.e., that it is produced by System 1. This strategy has much to recommend it and allows Carruthers to reconcile his massive modularity theory with the dual-process program but at the cost of weakening the central dualist claim. At the same time, Keith Stanovich and several other writers find that System 2, whatever it is, is not uniform but must be analyzed into further subsystems—a claim that does not negate the basic distinction but does move past a focus upon on mental duality. This is on top of the apparently common agreement that System 1 must be seen as, at best, a collection of all sorts of processes. A common and frustrating trait of these discussions is that they mostly maintain the System 1 / System 2 terminology, even as they undermine its sense.

Whereas the first few chapters in the collection generally come from the main figures involved with the two minds approach, later chapters are written mostly by people who either apply the dual system model to some particular problem or find it convenient to relate their own work to that carried out in this program. The topics include learning and development, social cognition and cross-cultural comparisons. So it is highly significant that while the early papers generally reject the idea that the mind is clearly bifurcated, the later papers almost all start by assuming the simple dual-system model. This is profoundly troubling. Either the assumption is essential to their work, in which case the interpretations are questionable for all the reasons given, or dual-system theory does not play any substantive role in the papers and is thus so much dressing. Whatever the truth for the individual papers, it is doubly troubling that this mismatch goes unnoticed or at least without comment within the volume, despite the large number of reciprocal citations between the various articles contained in it.

A good example of the problems with the later chapters is provided by the otherwise valuable paper written by Hugo Mercier and Dan Sperber. They examine the distinction between reflective and intuitive inferences, i.e. the distinction that originally motivated the dual-process approach, in order to argue for their argumentative theory of reasoning. Their view is that our ability to formulate and evaluate arguments, including logical arguments, originally developed to detect lying in interpersonal communications, rather than to meet any need to deal with the non-social environment. The connection to dual system models is that the authors think System 2 reasoning is to be identified with one of the kinds of products of the argumentation module—they start with a massively modular view of the mind. It is clear that their position gains nothing from the dual-system model, as System 2 appears in it merely as a means to identify a kind of reasoning, and does not bring with it any substantive assumptions about the underlying architecture. System 2 can't even be identified with the argumentation module since, according to the authors, it the module is also responsible for some System 1 reasoning.

Ultimately, it seems that the 'dual systems' program has, without noticing it, come to a crossroads. The thesis that the mind bifurcates into two largely independent systems has been very attractive and has motivated a lot of researchers to relate their work to this program. However, those who have looked closely at this thesis have recognized that it is ultimately unsupportable (see, also, Keren and Schul's critical examination of the thesis in *Perspectives on Psychological Science* 4.6 (2009)). Yet many of those involved continue to use the System 1 / System 2 terminology in ways that mislead others into thinking the distinction is sound. In effect, either the program will have to give up on a popular label or it will continue to be mired in confusing terminology.

Having said that, the Evans and Frankish volume is the perfect source for coming to grips with the scope and content of this popular and influential program as well as, ultimately, with its internal difficulties. It should be read carefully by anyone who would use the System 1 / System 2 distinction in their own work.

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