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Review by: Laura Macchi and Maria Bagassi
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A NEW TEST FOR RATIONALITY: CONTRIBUTIONS AND OUTSTANDING ISSUES

The Rationality Quotient: Toward a Test of Rational Thinking

By Keith E. Stanovich, Richard F. West, and Maggie E. Toplak.
Cambridge, MA: MIT Press, 2016. 480 pp. Hardcover, \$39.

Stanovich, West, and Toplak have conducted a wide and deep investigation of individual differences in rational thinking processes. An analysis of the different components of rational thinking and how it differs from intelligence is proposed. The focus on the psychological mechanisms that underlie rational thought represents the novelty of their approach.

The authors review the empirical literature on the nature of human judgment and decision making and theoretical discussions of rationality and intelligence in cognitive science, adopting an updated dual process approach. According to their perspective, rationality encompasses but does not identify with fluid intelligence, intended as a process mainly of decoupling, with working memory as indicator of a person's ability to sustain decoupling operations (algorithmic mind). Fluid intelligence is actually the necessary but not sufficient condition to guarantee rationality, because it depends on algorithmic efficiency as well as on thinking dispositions of the reflective mind (actively open-minded thinking, needed for cognition, conscientiousness, curiosity, and diligence).

They use the theoretical concepts of epistemic and instrumental rationality in the literature of philosophy and decision science and the empirical work in the heuristics and biases tradition, because the skills

of judgment and decision making are, according to the authors, the foundation of rational thought and action. The authors investigate the individual differences in rational thinking, bridging the gap between individual intelligence and the general human tendency toward biases and irrational thought.

Research on heuristics and biases shows violations of both instrumental rationality and epistemic rationality, which are due to the “cognitive miserliness,” the basic tendency of humans to default to processing mechanisms with low computational expense. The authors use this literature to develop an assessment of rational thinking, called the Comprehensive Assessment of Rational Thinking (CART test). It is noteworthy that the authors claim that the components of rationality on the test (adaptive responding, behavioral adaptiveness, good judgment, and decision making) are not assessed by standard tests of intelligence. The rationality test should thus be able to detect the thinking dispositions of the reflective mind, concerned with the goals of the system, beliefs relevant to those goals, and the choice of action that is optimal given the system’s goals and beliefs. Differently from the IQ, the Rationality Quotient measures the components of rational thought by the CART, which concerns probabilistic and scientific reasoning, the avoidance of miserly processing, and the knowledge structures needed for rational thinking. In the test, we are taken through paradigmatic issues such as “cognitive reflection,” base-rate and conjunction fallacies, verification bias, ratio bias, and framing effect.

The aim of CART is important and justified, but the conception of rationality is still a very critical issue in the actual debate in the psychology of thinking. Rational thinking has a unique history grounded in philosophy and psychology, but what is rationality? Aware of the numerous rationality distinctions, the authors adopt a strong conceptual definition drawn from decision theory and cognitive science, as the distance of the thought or behavior from the optimum defined by a normative model.

In doing that, the book proposes something very innovative, summarized in the “thinking dispositions,” about the ability to identify relevant goals and beliefs, even if it still maintains the frame of the traditional logical-deductive paradigm of the psychology of thinking. Actually, the relevance of goals and beliefs depends on the normative theory.

Logical Language Versus Natural Language

Traditionally, the psychology of thinking considered rational thinking as an abstract formal process, ac-

ording to the logical-deductive paradigm that considered crucial extrapsychological disciplines as normative parameters and idealized models of thought.

It is worth noting that the development of formal logic, in fact, became a gradual process of “depsychologization” of logical language and of disambiguating simplification compared with natural language, intentionally pursued and programmatically declared by modern logic. The psychology of thought has inherited this tradition. Logic and natural language share a common aim, that of transmitting meaning efficaciously or, in other words, of communicating, of expressing thought. However, this objective is achieved by these two language forms in opposite ways. Logic achieves a univocal communication, through simplification, eliminating any meanings that might interfere with the univocal meaning to be communicated, whereas natural language exploits the expressive richness of words. It avoids slipping into chaos and tripping over misunderstandings by relying on the relevance of the meaning to the context.

They simply reflect different needs (in the first case, the need to ensure the efficacy of the communication; in the second, the need to guarantee the rigor of the inferential process). One of the constants in the history of logic is the tendency toward the elimination of psychological aspects and the simplification of the ambiguity of language (a justified simplification, but it is often antieconomic from a psychological point of view). Logical discourse derives from common or natural discourse by a process of differentiation that, in a certain sense, establishes it as a specialist discourse. The two systems are differentiated (and in this sense different) but not in the sense of being completely separate or lacking a common basis, and even less in the sense that they represent the opposition rationality/irrationality. There is no hierarchical order between conversational rules and logical rules, in the sense that the former are inferior or subordinate to the latter. If this is the way things stand, it is in some respects unreasonable to expect subjects to formulate their responses on the basis of logic and not according to the discursive rules.

What unavoidably emerged from the logical approach adopted by experimental psychology of thought was an unexpected counterpoint: the dilemma of how to explain a pervasive presence of errors and discrepancies from classical logic and the other normative disciplines (classical logic, probability theory, expected utility theory). This result has been

considered a demonstration of our irrationality or natural tendency to adopt heuristics instead of exhaustive processing and to be misled by context and content of the task.

However, now this perspective is at the center of a debate. The psychology of thinking, by adopting a depsychologized standard, leaves outside some important psychological characteristics, such as sensitivity to context, content, implicit presuppositions, and conversational rules, which instead to be considered as causes of biases have to be considered fundamental adaptive factors (at least as well as the formal reasoning capacity), the bases of an “interactional intelligence” (Bagassi & Macchi, 2006; Hilton, 1995; Macchi, 1995, 2000; Macchi & Bagassi, 2007, 2014, 2015; Macchi, Bagassi, & Passerini, 2006; Passerini, Macchi, & Bagassi, 2012; Politzer & Macchi, 2000). From this perspective many factors that were formerly seen as biases or shortcuts appear as legitimate inferences and rational procedures (see, for instance, the experiments on the “postal employee” reported in Bagassi & Macchi, 2016; Mosconi, 2016; Mosconi & D’Urso, 1975; Sperber, Cara, & Girotto, 1995).

A Relevance-Informed Rationality and the Interpretative Function of Thought

An eclipse of the conception of a mind informed by extrapsychological theoretical models is in action, toward a less strong but more “genuinely” psychological conception of rationality. To cope with all the uncertainty in the real world, thinking must consider probabilities, implicit presuppositions, and degrees of belief, in accordance with pragmatic conversational rules (see, for instance, experiments with a pragmatic approach to some paradigmatic tasks of judgment and decision making).

This issue can be further explored by revisiting the classic studies conducted on probabilistic reasoning with people trained in logic and mathematics, inviting further speculation about the type of cognitive capabilities of those gifted people who solved the same tasks without such training.

A first critical question emerges from an analysis of the results obtained by Tversky and Kahneman (1983), working with informed and even sophisticated subjects in the field of statistics. Paradoxically, when attempting to solve the well-known Linda problem, the majority of these subjects committed the conjunction fallacy. In our view, the fact that people trained in decoupling failed to recognize the inclusion rule, which is an elementary logical rule, raises

questions that need to be addressed. These results suggest that the skills of these subjects did not help them in focusing on the logical relationships of the items in the Linda problem. In this case, the misleading contextualization of the task, which focused on an irrelevant sketch of personality, hindered even statistically sophisticated subjects from grasping the intention of the experimenter concerning the inclusion class rule.

We could further speculate that the few who gave the correct answer to the Linda problem (but also in the Wason selection task, or the syllogisms; see Bagassi & Macchi, 2016) had a particular aptitude for grasping the intention of the researcher and the aim of the task rather than the ability to decouple from contents and contexts. In doing so, they seem to reveal a special form of competence that seems not to be overcoming the context of the task toward an abstract structure but to be overcoming the default context toward an even more relevant context. We suggest that rational thinking could be seen as a form of sophisticated interpretative ability that permits the subject to decouple from the default interpretation and identify that which is most pertinent to the task on hand.

From our perspective, we wonder whether the crucial concept of thinking disposition that considers “goals and beliefs relevant to those goals” has something to do with this interpretative function, informed by relevance. “Maximizing the thinking dispositions, as deliberativeness and belief flexibility, is *not* the criterion of rational thought itself. . . . Rather, there must be a balance” (p. 28). Anyway, how to achieve the “balance” is an open question. We suggest that this crucial goal can be reached by a maximization of relevance.

It would be important to introduce in the CART a test for pragmatic competence, given that in many tasks expertise did not influence the results, although a more felicitous pragmatic formulation of the tasks did produce more rational behavior. We could speculate that people who do well in the original tasks are high in pragmatic competence. From our perspective, the Reflection versus Intuition subtest of the CART is functional to explore an important dimension of human rationality, involving insight problem solving (Cognitive Reflection Test problems). The insight problem solving does not appear to involve the working memory capacity, nor the conscious retrieval from memory of solutions to reproduce, but it necessitates a restructuring process, which could be seen as a *re-interpreting* process. The issue of human rationality

is a controversial one, but it is important that it has promoted a dialog between different approaches.

Laura Macchi
Department of Psychology
University of Milano-Bicocca
Piazza Dell'Ateneo Nuovo, 1
20126 Milano, Italy
E-mail: laura.macchi@unimib.it

Maria Bagassi
Department of Psychology
University of Milano-Bicocca
Piazza Dell'Ateneo Nuovo, 1
20126 Milano, Italy
E-mail: maria.bagassi@unimib.it

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MORAL DISENGAGEMENT AS A PSYCHOLOGICAL CONSTRUCT

Moral Disengagement: How People Do Harm and Live With Themselves

By Albert Bandura. New York, NY: Macmillan Higher Education, 2015. 544 pp. Hardcover, \$47.

In 2013, Edward Snowden began leaking classified information to the press about government surveillance by the U.S. National Security Agency (NSA) (Reitman, 2013). In considering whether to leak information about the NSA surveillance program, Snowden faced a dilemma. On one hand, blowing the whistle on the NSA surveillance could protect privacy rights and prevent the government from abusing people’s personal information. On the other hand, disclosing classified information would be illegal and violate written promises Snowden had made. It could also damage U.S. counterterrorism efforts and international relations. Reflecting the complexity of the dilemma, people differ in their evaluations of Snowden’s disclosures. Whereas some have praised him as a hero of an open society, others have condemned him for being disloyal (Brooks, 2013; Reitman, 2013).

Though extreme, Snowden’s situation highlights a key feature of morality: In many situations, people sometimes act and judge in violation of general moral principles, for instance by breaking promises yet generally holding that promises ought to be kept. In his recent book *Moral Disengagement: How People Do Harm and Live With Themselves*, Albert Bandura aims to provide an explanation for why people sometimes violate their general principles. According to the theory of moral disengagement, people violate general principles by “disengaging,”