

The Psychology of Reasoning, the Logic of Discovery, and Critical Rationalism

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Hugo Mercier and Dan Sperber's recent *The Enigma of Reason* (2017) offers a radically original but already much acclaimed account of the psychology of reasoning. Its hypotheses derive from the impetus of work that Karl Popper unintentionally initiated. Mercier and Sperber explain reason in a way that, equally unintentionally, echoes Popper's logic of scientific discovery and indeed his whole critical rationalism. Without realizing it, they show in new ways why Popper's breakthrough idea and his wider philosophy cut so deep and offer so much.

To anticipate: Mercier and Sperber propose that reason is not a faculty to lead individual minds toward right decisions and true conclusions but a socially evolved capacity to solve problems of cooperation and communication in the hypersocial species we have been evolving into. Reason works in lazy and biased ways on our own individual reasons but becomes much more alert in critiquing the reasons others propose. Popper too rejects reason as a faculty of individual minds, and proposes instead rationality in social terms, a readiness to listen to the criticism of others: "reason, like language, can be said to be a product of social life. . . we owe our reason, like our language, to intercourse with" others (OS II 1966: 225).

In 1966 the psychologist Peter Wason, at University College London, introduced the four-card selection task now known as the Wason selection task. He thereby initiated the modern psychology of reasoning, which "has to a large extent become the psychology of the Wason task" (M&S 39). Wason was inspired by Popper, teaching nearby at the London School of Economics, and especially by Popper's account of the power of falsification in discovery. Wason sought to find whether people were naturally inclined to seek falsifications. No, they were not: on average a mere 10-15% of subjects, when invited to pick which cards would test a simple "rule" in the card system, correctly picked only the cards that would logically falsify the rule. Wason's work gave a new vigor to the psychology of reasoning, whose results have been consistent and insistent in the half-century since: people reason very badly, in lazy and biased ways.

Nevertheless, the recent psychology of reasoning has been much poorer at explaining than at simply uncovering reason's weaknesses. Twelve highly non-convergent explanations of human syllogistic reasoning have not shown why reason, if its function is to improve individual conclusions and decisions, should function so badly. Mercier and Sperber by contrast try to explain the results, and do so in a way that seems a late echo of Popper's evolutionary epistemology—not that they make that connection. They accept all the evidence that individuals reason so badly, but propose a different evolutionary function of reason, according to which reason serves its function well, if far from perfectly.

They propose that reason has evolved not to lead to better individual ideas and decisions, but to improve social exchange. In our hypersocial species, where we benefit enormously from cooperation, cooperation always faces a problem: how do others trust us, how do we trust others? Not only do our actions themselves get judged by others, directly and, through gossip, indirectly, but we can also offer reasons to explain our actions and ideas, to indicate that we are competent, norm-abiding, and trustworthy. We seek to justify our actions or conclusions to others, and therefore seek only reasons in support of what we do and say.

These reasons are much less the motivations or causes of our actions and conclusions than swift after-the-fact justifications to offer others (or if before the fact, in anticipation of a need for after-the-fact justifications). Our actions and conclusions are prompted by rapid, mostly unconscious intuitive inferences. Only after inferences have led us to a conclusion or a decision do we seek to offer justifications, if called on to do so. Reason, Mercier and Sperber argue, “does not objectively assess the situation in order to guide the reasoner toward sounder decisions” but “just finds reasons for whatever intuition happens to be a little bit stronger than the others.” (MS 253)

Our justifications are biased—we usually seek only to support the position we have leaped to—and lazy—we do not seek hard for stronger reasons. Our reasons are not likely to be good reasons: they are arrived at not by some common mental logic, inductive or even inferential, but by the interaction of specialized, opaque, largely unconscious and opportunistic inferential subsystems; and we grab onto would-be justifications only after we have leaped to intuitive conclusions.

But there is another side to reason: “reason is more efficient in evaluating good arguments”—especially those of others—“than in producing them” (MS 11). As hypersocial animals we can benefit from the information others can share with us, but we need to sift what they offer so as not to be easily misled or manipulated. We therefore need to assess others’ reasons for their conclusions, and in this, as the experimental evidence shows, we are much less biased and much more demanding: we tend to sift others’ reasons much more stringently than our own, and to accept conclusions only when the reasons proffered seem strong. Mercier and Sperber therefore reject the term “confirmation bias,” since we do not look primarily for confirming evidence of propositions and proposals that *others* advance. They suggest instead that we should see reason’s bias as “myside bias”: seeking to justify the position arrived at by me or my side.

Reason, Mercier and Sperber argue, is not a broad faculty of the mind, as it is for Plato or Cartesian rationalism (or as Popper calls it, intellectualism). Rather, it is a specialized metarepresentational module, a particular kind of intuitive inference that focuses only on our own or others’ reasons for what we do or think. Proposing our own reasons, in justification, we are slack; sifting others’ reasons, in argument, we are both more demanding and less biased. And when people have diverse opinions and are given the chance to discuss reasons in pursuit of a common goal, whether better understanding or better decisions, the performance rises steeply: among hunter-gatherers, children, the

unschooled, the educated, juries and mock-juries, communities using deliberative democracy, expert forecasters, medical students and doctors, and scientists. Under conditions of open discussion, for example, performance on the Wason test rises to 80% answering correctly, far beyond what has been achieved in any other condition, even among highly educated subjects.

Reason operates poorly at an individual level, leading not only to sloppy thinking, but also to belief perseverance and belief polarization, but it operates well at a social level where there is open discussion, and therefore best of all in science. There, open discussion works all the way from lab meetings to publications read by well-informed colleagues with the time and motivation to counter-argue, gather counter-evidence or devise counter-experiments. These open exchanges of ideas and criticism make it likely that, although scientists as individuals and as researchers are as prone to myside bias as any, only the better ideas tend to survive, at least provisionally.

Wason tested what for Popper was the logic of scientific discovery as if it could explain the psychology of discovery. But Popper had long rejected the psychology of discovery, partly following Frege, partly because he thought more progress could be made in the logic of discovery: as indeed it was, when in the early 1930s he recognized the impossibility of verifying a universal claim but the possibility of falsifying it. He recognized simultaneously the importance of the sociology of discovery, to explain not hypothesis forming, but hypothesis testing: the readiness of other scientists to test and seek to falsify scientific proposals before or in the course of trying to advance better hypotheses.

But almost a century later, after a half-century of empirical results that remained unexplained, the psychology of reasoning at last seems to have made real progress in explaining the role of reason and to cast new light on the logic of discovery. If, as Mercier and Sperber propose, our systems of intuitive inference are specialized, unconscious and therefore opaque to inspection, and opportunistic, they provide even less ground than many had assumed to suppose that we can induce from known examples to reliable generalizations. If our intuitive inferences about reasons for the conclusions we have reached are also after the fact (and tend to be lazy and biased) then we have even more reason for scepticism about our conclusions. The psychology of reasoning undercuts what confidence we may have had in our intuitions, in their apparent self-evidence, and in the adequacy of the reasons we find in support of them. It therefore places still more weight on the centrality of critical discussion and offers still more arguments for the intellectual modesty and the openness to discussion that Popper promotes.

Popper's antijustificationist logic finds an echo in Mercier and Sperber's psychology, their focus on the strength of our eagerness to justify, and the frequent logical weakness of the result. His logical critique of empiricism and of induction as a supposed means for reaching secure generalization by unbiased observation finds a psychological echo in their emphasis on the role that a network of diverse, opaque, swift but fallible inferential subroutines play in perception, memory, and the production of argument. Popper's reorientation of reason as not a faculty of the mind but an acceptance of the power and

value of critical discussion, as a social rather than a purely individual process of inquiry, is almost exactly echoed in theirs. His critique of the authoritarianism of those who trust in their own supposedly superior reason (OS II 1966: 240: “we owe it to other men to treat them and ourselves as rational”) also finds an echo in theirs (MS 172: “how rational is it to think that only you and the people who agree with you are rational?”)

Popper rejected an “intellectualist” theory of knowledge, whether in the Platonic or the Cartesian sense, and proposed an “interactionist” one: interaction, that is, between world 1, the physical world, world 2, the psychological worlds of individuals, and world 3, the world of objective knowledge, of problems, arguments, discussions and other products of many minds. Similarly, although with obvious differences, Mercier and Sperber explicitly reject the standard accounts of reason, which they call “intellectualist” (because such accounts assume reason’s function is to lead individual minds to better conclusions and decisions), and they propose instead what they call their “interactionist” account, one in which reason evolved as an adaptation in social discussion, where it works “reasonably” well, not lone thought, where it often leads astray.

Popper was right to reject the psychology of discovery and to focus instead on the logic of discovery: he had reached bold and rich results by 1934. But the psychology of reasoning may now have caught up with and provide new evidence for his conclusions in the logic of discovery and in stressing the social role of a rationalism alert to the power of criticism rather than based on the supposed power of individual reason.