



Rationality: What it is, why it seems scarce, why it matters

by S. Pinker, London, Allen Lane, 2021, xvii + 412 pp., £16.99 (British pound sterling) (Paperback), ISBN 978-0-241-38028-4

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BOOK REVIEW

Rationality: What it is, why it seems scarce, why it matters, by S. Pinker, London, Allen Lane, 2021, xvii + 412 pp., £16.99 (British pound sterling) (Paperback), ISBN 978-0-241-38028-4

Periodically, by a rough estimate twice per decade, a new popular book aspires to shake our common understanding of rationality. Since this concept is not only the backbone of normative analysis in the behavioral sciences but also of the way people more generally understand normativity, the stakes are particularly high. Among past successful attempts to rethink rationality are, so to refresh the memory, books of the caliber of Gigerenzer (2007), Kahneman (2011), and more recently Mercier and Sperber (2017). Because of its straightforward title, *Rationality*, and one enticing part of its subtitle, the promise to tell us *What it is*, Steven Pinker's latest work aspires to be one of those ground-breaking books.

There are two reasons, however, why readers might resist the temptation to consider Pinker's book a foundational one. One reason is that in most of its parts it reads like a pamphlet, in which a world-renowned public intellectual attempts to shake the conscience of a world too dramatically lacking in reason and rationality (Pinker dispenses evidence of this masterfully). The public intellectual posture was to be expected, since Pinker has recently been in the vortex of inflamed debates over sensitive societal topics, and this book is in many regards a learned continuation of those debates. Pinker presents himself as a staunch advocate of freedom of speech and critical thinking, seen as requirements for democratic societies whose degree of rationality he deems to depend on a society's capacity to deal with its 'taboos'. Because of this posture, the book may risk being underestimated by those looking for a pristine foundational discussion. But another reason not to regard this book as foundational is the fact that Pinker does not present in it a novel idea of rationality. The readership of economists is certainly the most well equipped to understand that. The book's central part, seven-elevenths of the total, is a superbly accessible guide to the edifice of rationality from the ground floor of logic (chapter 3) up to probability (chapter 4), Bayesian reasoning (chapter 5), rational choice theory (chapter 6), statistical decision theory (chapter 7), game theory (chapter 8), and the distinction between correlation and causation (chapter 9). The other four-elevenths are a demonstration that humans do not master these subjects – let alone apply them correctly to life – and a plea for why we should. This shows that Pinker does not really venture into a quest for the essence of rationality; what rationality is seems uncontroversial from the start: 'My own position on rationality', he says more as an adept than as a pioneer, 'is "I'm for it"' (p. 36). His true goal is to convince people to embrace rationality, challenge their belief that it is something 'uncool' and 'cerebral' that would turn one into a 'nerd', a 'wonnk', a 'geek', or a 'brainiac' (p. 35, italics in original), not to challenge the classical idea of rationality. But even if one might think that the polemicist's tone and the support of a classical idea of rationality would hinder the book from being epoch-making, it would be a real mistake not to identify a genuine foundational intent in it. To uncover and assess such an intent is devoted the rest of this review.

The starting point to understand the novelty of Pinker's intent is to acknowledge that he is a cognitive psychologist: a cognitive psychologist who accepts the rationality toolbox of logic, probability, and rational choice theory as a normative benchmark. This may immediately remind economists of two other cognitive psychologists, Daniel Kahneman and Amos Tversky, who believe that humans should measure their rationality against what Pinker is not afraid to call 'godlike reason' (p. 320). But unlike Kahneman and Tversky, Pinker is far more optimistic on the descriptive side. He does not deny the plethora of biases and fallacies that affect human reasoning (a list of the many

discussed in the book is proudly presented in an appendix). 'Yet as a cognitive scientist', he claims, 'I cannot accept the cynical view that the human brain is a basket of delusions' (p. xiv). For an *evolutionary* cognitive psychologist as he is,

A list of the ways in which we're stupid can't explain why we're so smart: smart enough to have discovered the laws of nature, transformed the planet, lengthened and enriched our lives, and, not least, articulated the rules of rationality that we so often flout. (p. xiv)

Looking at our species' remote as well as recent history, evolutionary cognitive psychologists emphasize the non-trivial fact that for all the irrationality we might ascribe to ourselves, we have nonetheless done quite a good job so far. To this standard evolutionary counterargument to irrationalism, Pinker adds an important personal touch: our species has not just fared pretty well so far, it has also either *invented* or *discovered* – 'articulated' is the word used by Pinker – the tools of our rationality toolbox: logic, probability, and the likes. This is a crucial passage, of Aristotelian and Vichian kind, which leads Pinker to offer an interesting perspective: as we are the makers of rationality, this is not just a distant wonderland, a never-reachable godlike dream, but a possibility at humanity's disposal. What was for Kahneman and Tversky a mere benchmark with no real chance to be met is for Pinker a legitimate aspiration. Many are the passages in which Pinker exhorts humanity to use what it has at its disposal (or, more correctly, what it has made available to itself) to make that aspiration turn into reality. Using Shakespeare's words, he exhorts us not to let our resources 'fust in us unus'd' (p. 320). Education features prominently among these resources: we can – and should – learn how to be rational. Among the many examples,

mistaking a nonrandom *pattern* for a nonrandom *process* is one of the thickest chapters in the annals of human folly, and knowing the difference between them is one of the greatest gifts of rationality that education can confer. (p. 113, italics in original)

Education and learning are for Pinker institutional more than individual processes, pointing to another distinctive ingredient in his rationality formula: interaction between people. In the evolutionary perspective of Mercier and Sperber (2017) which Pinker adopts in its fundamental traits, the ability to reason well is seen as strictly connected with socialization. From the remote evolutionary past in which reasoning emerged as a way to solve life-or-death social problems such as spotting cheaters in communities (see below), to the more evidentially obvious fact that more brains work better than one in detecting errors, the message is still the same: no rationality without interaction. Although Pinker would not strictly subscribe to Mercier and Sperber's distinction between 'intellectualist' and 'interactionist' views of rationality – as his view can be considered both interactionist AND intellectualist – the book's interactionist commitment manifests itself also in other regards, such as the non-paternalistic viewpoint. The use of phrases like 'rationality-enhancing institutions' (p. 16) might remind economists of nudges, social priming, and other tools of policy-oriented behavioral economics; however, debiasing (getting rid of reasoning biases) is for Pinker a strictly voluntary and communal process, the only way to get to a state of sustainable Enlightenment (to echo the title of Pinker's 2018 bestseller).

If the above are reasons to look at *Rationality* as a book having something foundational to offer to students of rationality, there are other reasons not to see such a foundational perspective as completely convincing. This is nowhere more evident than in Pinker's attempt to reduce the idea of 'ecological rationality' to his classical rationalistic picture. Introduced by Leda Cosmides and John Tooby in evolutionary psychology, the idea of ecological rationality has been developed into a full-fledged notion of rationality in the field of judgment and decision-making by Gerd Gigerenzer and colleagues (Todd et al., 2012). Hinging on the argument that reasoning processes are adaptations to the environments in which they have emerged, ecological rationality offers a powerful explanation as to why humans fare so well in natural environments. As Pinker says, '[t]he contrast between the *ecological rationality* that allows us to thrive in a natural environment and the *logical rationality* demanded by formal systems is one of the defining features of modernity' (p. 96, italics in original).

Yet he resists such a defining feature of modernity, and one of his chief goals is to reconcile the two views. At first, he has an easy game in doing so. A number of famous early studies on ecological rationality seem to provide exactly the sort of bridging evidence Pinker is looking for. Cheng and Holyoak (1985) and Cosmides (1989) showed that although individuals score poorly in a famous card-based logical task – the Wason selection task – they score much better, even intuitively well, when faced with the evolutionary relevant task of spotting cheating, although the two tasks are equivalent from the logical viewpoint. People prove to be intuitive logicians when the tasks are those we have adapted to, no matter how complex the underlying logical structure. The same is true for statistics: people turn into intuitive (Bayesian) statisticians when tasks are presented in more familiar frequency formats than in probability formats (Gigerenzer & Hoffrage, 1995). These studies seem to demonstrate that since we can succeed – even intuitively so – in formally demanding tasks, the benchmark of classical rationality is a legitimate one. We *can*, so we *should*. Pinker interprets these studies as if humans' ecological rationality in natural environments were a proto-form of classical rationality to be complemented and extended to other, less familiar environments through education and institutional interventions. These aids would

augment the ecological rationality we are born and grow up with – our horse sense, our street smarts – with the broader-spectrum and more potent tools of reasoning perfected by our best thinkers over the millennia. (p. 16, italics added)

It is not that classical rationality has nothing to learn from the way people reason intuitively in natural environments. Logic, Pinker recognizes, may sometimes turn out to be 'not rational' (p. 96), for instance when it 'requires self-inflicted amnesia for background knowledge' (p. 98). Therefore, logicians should learn from people's innate tendency not to abstract from background knowledge. Yet this would not question Pinker's idea that following logic should be our ultimate aspiration.

Although well constructed, Pinker's argument seems to miss an important point. The studies he mentions and interprets the way he does may point to something quite different, maybe even the opposite of what he suggests. Rather than demonstrating a *universal* human potentiality to be classically rational, they may demonstrate – no less importantly – that humans can be classically rational *in certain circumstances and not in others*. By showing that, these studies would frame ecological rationality as an alternative and higher-order normative view than classical rationality, one which prescribes to evaluate any possible criterion of rationality (classical rationality included) circumstance by circumstance, environment by environment. This interpretation of ecological rationality would completely upend the hierarchy between forms of rationality as established by Pinker. (At some points, e.g. at pp. 7 and 288, he seems to acknowledge that ecological rationality represents a higher-order framework, but his analysis invariably proceeds as if classical rationality is the true boss in town).

It is telling that Pinker does not venture to contrast in more depth his approach with the leading interpretation of ecological rationality proposed by Gigerenzer and his colleagues (among whom Reinhard Selten). Doing so would have required Pinker to confront an approach that not only sees environmental adaptation as a higher-order criterion of rationality but that also sees classical rationality as a largely overrated framework. Even when classical rationality works, Gigerenzer argues, something may work better. It is quite ironic that Gigerenzer is probably the book's most cited author for his pioneering work on frequency formats and probability (compatible, as seen above, with Pinker's view) while his research on 'fast-and-frugal heuristics' (Gigerenzer et al., 1999) is not even mentioned. Fast-and-frugal heuristics are cognitively undemanding judgment and decision criteria that, exemplified by Herbert Simon's 'satisficing' (Simon, 1955), work particularly well in specific circumstances. The 'adaptive toolbox' – the repository of our adaptive heuristics – can be a sheer alternative to the tools Pinker displays in his rationality toolbox when used in the right environment. Extensive empirical work has demonstrated that heuristics can perform as well as, or even better than, traditional logical and statistical techniques (for evidence see, e.g. Gigerenzer & Brighton, 2009). Among the techniques outsmarted by heuristics would be especially multivariate

regression. Pinker proudly claims that ‘despite their simplicity, one of the stunning findings of twentieth-century psychology is that a dumb regression equation usually outperforms a human expert’ (p. 279). Yet he does not mention other findings, likely more stunning, that regression can be outperformed by even dumber heuristics, for instance in prediction tasks (Gigerenzer & Gaissmaier, 2011). Although he does not discuss Gigerenzer’s program explicitly, Pinker generally frowns on decision rules that make our life easier. Commenting upon Tversky’s ‘elimination by aspects’ (Tversky, 1972) – a heuristic vindicated by Gigerenzer despite Tversky’s own skepticism (Gigerenzer & Brighton, 2009, p. 109) – Pinker is eager to note that ‘a decision rule that makes life simpler can violate the axioms [of rational choice theory]’ (p. 185). That it can be useful in certain circumstances is not adumbrated as a possibility. Arguments of this sort reaffirm Pinker’s unshakable hierarchy, which sees ecological rationality as something good only insofar as it supports, not when it subsumes, and certainly not when it challenges, classical rationality.

The (implicit) rejection of Gigerenzer’s ecological rationality is, as said, a rejection of an alternative and irreducible normative viewpoint. But it is also, more earthly, a rejection of the idea that gut feelings can be reliable sources of rationality (Gigerenzer, 2007). When gut feelings do not make us intuitively align to the axioms (which they not often do), they are something to look at with suspicion. When Pinker asks: ‘is gut feeling a better guide to life decisions than cogitation, with its risk of overthinking and rationalization?’ (pp. 319–320), this is a rhetorical question: his answer is in large part ‘no’. Early in the book, Pinker tells a story of pandemic times that he merely intends as a confutation of the ubiquity of biases, but which can also be read as a rejection of the idea that rationalism is always to be preferred to gut feelings:

When Covid-19 arrived in the United States and Europe in February 2020, several social scientists (including two heroes of this book, though not Kahneman himself) opined that people were irrationally panicking because they had read about a gruesome case or two and got carried away by the “availability bias” and “probability neglect.” The objective risk at the time, they noted, was lower than that of the flu or strep throat, which everyone accepts calmly. (p. 11)

People were on alert because evolutionary history has rendered us all too aware of exponential growth in the context of infectious diseases. Although in conflict with carefully assessed ‘objective risk’, gut feelings were right this time. What Pinker wishes for us as a species is to become worthy of Mr. Spock, the *Star Trek* character, who used to “find [humans] illogic and foolish emotions a constant irritant” (p. 35; despite his detached attitude, Mr. Spock is generally quite fond of humans). But banishing emotions would not be a cure for our lack of rationality. Gut feelings are there for a reason. Without them we risk becoming, as Amartya Sen famously said, ‘rational fools’. Without a bit of initial caution suggested by gut feelings, a pandemic might have been (even) worse. The gist of rationality would then be to understand what emotions tell us, when to follow them and when not to, not to be indiscriminately wary of our gut feelings (emotional education would probably be at least as crucial as education in logic and probability to foster rationality). Rationality is, on this perspective, mostly a matter of flexibility. Then, more Captain Kirk than Mr. Spock.

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