



Steven Pinker, *Rationality: What it Is, Why it Seems Scarce, Why it Matters*

Allen Lane, 2021, 432 pp., ISBN: 978–0241380277

Jonathan Dancy¹

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2022

This book, which is effectively a written version of a class Pinker has been giving at Harvard for several years now, has many strengths. It is extremely well written, its main charm being that you really feel you are getting to know the author as you go along. There is an engaging person behind the text. And classes always (or almost always!) go better if the instructor is having a good time, and Pinker is plainly enjoying himself here. He sweeps you along with his enthusiasm and energy. But there is also an evangelistic element in the mix. Pinker thinks that if everyone knew, and more importantly understood, the things he is telling us, then everyone would be better off, the world would be safer and we could all worry a lot less.

Of course much of what he is telling us is not really new. Our appalling and apparently ineradicable tendency to make mistakes about probabilities, to which a lot of space is devoted, is well known – to the experts, if not to practitioners like you and me. But it doesn't matter whether it is new or not. It is important anyway. One of his examples: if people knew more about the probabilities involved, they (or at least those who can afford it) would invest more in their pensions, just for a start.

Here is a well known and particularly striking instance of our tendency to make such mistakes, one among many (from p. 150). Suppose that the prevalence of breast cancer in the population of women is 1%. And suppose that the sensitivity of a breast cancer test (its true-positive rate) is 90%. Suppose that its false-positive rate is 9%. A woman tests positive. What is the chance that she has the disease? Pretty much everyone says that the answer is 90%. But the correct answer is 9%. And this is not just of academic interest: a lot of things get done if

one thinks that a patient is 90% likely to have cancer, things that are invasive, expensive and potentially dangerous.

So Pinker is full of missionary zeal in this respect. The more people actually understand how probability works, the better off we will all be.

But the book is called *Rationality*, and this, as I see it, is where the problems begin. Rationality, as Pinker understands it, is the capacity to reason; and to reason is to move from considerations adduced to a conclusion of one sort or another, that is, to infer. There are two species of reasoning: reasoning to belief and reasoning to action. Call these *Theoretical Reasoning* and *Practical Reasoning*. Practical Rationality, we are told, is the capacity to work out how you are most likely to get what you want most, which you do by reasoning. Pinker doesn't have a great deal to say about this type of reasoning, basically, I suppose, because he thinks it is not very interesting. It is just ordinary reasoning for a practical purpose, in the service of desire. Theoretical Rationality, which occupies much more of the book, is the capacity to follow, or to construct, inferences. There are two sorts of inference: formal and probabilistic. Formal reasoning guarantees the truth of its conclusion if the premises are true; probabilistic reasoning establishes the degree of probability of the conclusion given the truth of the premises. Pinker runs us through a basic course on formal reasoning, but this isn't his real concern, since people don't tend to make mistakes about that. It is probabilistic reasoning that is the real bugbear since it is so hard to get it right. Accordingly, we have one chapter on formal reasoning and six on probabilistic reasoning. The book ends with two chapters about why people hold the crazy beliefs they do and why it is so hard to get them to (see reason and) change their mind.

Pinker scampers through the chapter on formal reasoning without looking right or left. The well-known oddities of the propositional calculus are given no stress. For instance, 'if p then q' is understood in the propositional calculus as 'not both

✉ Jonathan Dancy
jdancy@austin.utexas.edu

¹ University of Texas at Austin, Austin, TX, USA

p and not-q'. On this understanding of 'if', it is true that if New York is in the USA, Prince Philip died recently. But most of us would think that these things have nothing to do with each other, so that neither follows from the other. What this shows is that formal logic has no way of capturing the notion of one thing following from another – the notion of a consequence. But it manages to get on perfectly well (in its own terms) without that.

Now this is not really a criticism of formal logic; it is what it is and not another thing. Theoretical Rationality is among other things the capacity to follow arguments expressed in formal terms. It is also the capacity to follow arguments expressed in probabilistic terms. Reasoning of this sort, probabilistic reasoning, is complex and difficult. Many of us are very bad at it, and I am no exception. Pinker gives an excellent account of this, as far as I am capable of judging though I don't think there is anything being said here that is new.

I want to return to the distinction between practical and theoretical rationality. Suppose that theoretical rationality is the capacity to move from beliefs to beliefs in certain reputable ways. So understood, I reason theoretically when, starting from beliefs that my daughter said she would be home by midnight and that the last train has now arrived without her, to the belief that she is taking a taxi. One might have thought that practical rationality is, analogously, the capacity to move from beliefs to action (or at least to an intention to act, if not to the action intended). But according to Pinker, practical rationality is not that: it is the capacity to determine how one is most likely to get what one most wants. But this looks like a move not to action but to belief – to a belief about probabilities, in fact. And if so, action can never itself be the product of reasoning in the way that belief can be. Practical reasoning is at most reasoning to a conclusion that has practical relevance (to us!). But I would want to know why we should allow in advance that an action can never stand in the sorts of relation to considerations adduced in reasoning that belief can stand in. Why cannot an action be undertaken in the light of complex considerations which together make a case for acting in that way? My daughter has not come home with her brother as usual, and the only way she can now get home is by train; so I drive to the station. The 'so' here seems to be the same 'so' as the 'so' in 'so she is taking a taxi'.

In addition to this, there might also be what one might call desiderative reasoning, which is reasoning aimed at determining an aim (or desire). Wants and aims do not just assail us; we can form them, and do so for reasons. So at this point my thought is that something significant has been missed out in this instrumental conception of practical reasoning. It is as if wants are just given. You find yourself with them, and the only question thereafter is how to manoeuvre to obtain maximal desire satisfaction. The question what to want is one that can hardly be addressed. But there is such a thing as trying to work out what to want. And this is not the same as trying to

find out what one already wants. Suppose I have accepted a job as Dean of my Faculty. Starting in, I ask myself what my aims should be in this new post, with all the opportunities and pitfalls it presents. What should I be most concerned about and what should I not be concerned about or not so much at least? I decide that my primary concern should be equity, which is a decision about what to care about most. And this is a decision about what to want.

So far, then, Pinker has dealt with formal reasoning and probabilistic reasoning, both of which are reasoning from belief to belief, and with practical reasoning, where we are reasoning from belief to action, seeking to make choices consistent with our beliefs and with our other choices. But does rationality consist merely in the capacity to construct or follow arguments – to reason, in that sense?

One way into this large and difficult question is to ask what is distinctive of rational creatures like us. What is it that we can do that makes us non-trivially distinctive? We reason, yes, but there is something even more basic than that: we are capable of recognizing reasons in ways that have nothing to do with reasoning understood as inference. Our ability to recognise reasons and to respond to reasons as such is surely as much a central and distinctive element of our rationality as is our ability to infer. And there is absolutely nothing in this book about our capacity to recognise and respond to a reason. I regard this as a notably large shortcoming in a book about rationality. It also means that when we come to the last two chapters, where Pinker is trying to come to terms with the recent explosion in ideologically motivated craziness (in certain parts of the world), we are deprived of one essential tool, the idea that people take a consideration that is not a reason at all to be a reason of some strength, and take considerations that are at best only very weak reasons for belief as clear indications or even as proof.

What is a reason, then? It is admittedly hard to say anything that is not circular or banal about this. I find myself saying that a reason is a consideration that counts in favour of a response. Responses can be practical – if the reasons are reasons for action – or theoretical – if they are reasons for belief. We are (probably) the only creatures we know of that act for reasons – that respond to considerations as favouring our so responding, i.e. believe what we see reason to believe and do what we see reason to do. We alone can respond to reasons as reasons. And don't forget that deciding that the time is ripe for running is as much an action as deciding to run, and as running too. Of course many animals do what they have good reason to do. But it appears they are not capable of acting in the light of those considerations as reasons so to act. This is what is probably distinctive about us.

So though rationality includes the capacity to act for a reason, there is nothing whatever about that aspect of it in Pinker's *Rationality*. I view this as a significant criticism because there is a strong suggestion that the book covers the

whole topic rather than just one aspect of it. As evidence of the intellectual blinkers being worn here, I offer the remark in Chapter 1 about the African Bushmen, or San, who sometimes help their enemies or rivals when they are in deep distress. Pinker says that they do this because memories are long and fortunes may reverse, so that the San's reason for helping is a self-interested calculation. But this is not the only possible explanation. Another is the moral explanation: they help because, though these people are rivals, they are in dire straits and need help. I would want to know why this is not a possible explanation – and note that, if it is, it is nothing to do with calculating how best to get what one most wants (the only sort of practical reasoning that Pinker allows). And, as I have already suggested, that one wants something is not just a brute fact. There is always the question what to want to be born in mind. Desires do not (always) just arrive and impose themselves on us. We can decide what is worth wanting and pursue it in that light. And in doing so we are dealing with reasons.

This is where moral reasoning comes in. Suppose that I have a debt which comes up for payment next week, but the person who lent me the money has absolutely no need for it yet. If I don't repay her next week, I can use the money to help someone get home to see his mother before she dies. I can't get in touch with my creditor – if I could things would be easy. My question is: what do I have most moral reason to do? (or just: what should I really do?) Here I have to weigh up the relative importance of paying what I owe according to my agreement, and helping someone see his mother for the last time. This is an instance of a sort of moral reasoning that does not appear in Pinker's book. And it is not a form of inference.

The last two chapters are an attempt to understand the apparently recent phenomenon of ideologically driven craziness. The first of these is entitled 'What's wrong with people?'. As Pinker recognizes, this is where interest peaks: in large numbers, people (other people, of course, not rational people like us!) believe crazy things. (So we are still thinking about theoretical rationality here.) Apparently three quarters of Americans believe in something paranormal such as possession by the devil (42%), extra-sensory perception (41%), ghosts and spirits (32%), astrology (25%), witches (21%), communicating with the devil (29%) and so on.¹ All this quite apart from the peculiarities of recent political events in the US (and not only in the US, alas), birtherism, anti-vax – once you start the list seems endless, and it has got longer recently. So what is going on?

Pinker insists that we must allow that people who have beliefs we think are crazy still have the capacity to grasp 'the canons of rationality' (so rationality must have canons for us to grasp). (I have two colleagues in my Faculty who

voted for Donald Trump, causing great consternation all round. But nobody supposed that this impugned their grasp on the canons of rationality. Their logical capacities are exceptional.) So they are reasoning, yes, but their reasoning will be what Pinker calls 'motivated reasoning'. This is a strange term because reasoning is an activity and as such likely to be engaged in for a reason (such as the desire to find the truth) – but what Pinker means by it is reasoning motivated by something other than the simple desire to find the truth. So people reason in ways that lead to conclusions that suit them. This has always been the case, not very surprisingly; what is surprising is the way in which it is our ideological (especially political) preferences that have come to determine so much of what we think.

Pinker's move here is to distinguish between what he calls the reality mindset and the mythology mindset. The reality mindset is concerned with how things really are in our immediate surroundings, the people we deal with face to face, our factual memory of previous interactions, and the rules and norms that regulate our lives (p. 200). This is rather a strange list, because rules seem so different from facts. But Pinker thinks that most people get such matters right and reason perfectly rationally about them. Then there is the world beyond 'immediate experience', the distant past and the unknowable future, how things might have been, the microscopic and the cosmic. Pinker says that people have no way of finding out what is or is not the case in these zones, and the question whether this or that belief about them is true or false is the wrong question. The function of such beliefs is not to guide us to the truth, but to construct a social reality that binds our tribe or sect (p.300). This is the mythology mindset, and it operates according to different rules. This is the realm within which people believe crazy things.

To me it seems that Pinker has given up far too much right at the start. First, beliefs about the future are as factual as beliefs about the immediate past. And it is not the case that we can never know what caused what. We should not give up our own claims to knowledge about such matters in order to explain the extraordinary beliefs that other people have, and we should not be forced to allow that because some people have crazy views, the question whether it is they or we who are right, or even whether there is something for us to be right about, is the wrong question.

Moreover, even if beliefs about what might have happened, or would have happened in different circumstances, are in some good sense not factual (they are after all commonly called counterfactual) this does nothing whatever to show that the function of such beliefs is to construct a social reality that binds our tribe or sect. The disjunction Pinker postulates is too extreme. The function of beliefs about the safety and efficacy of the vaccine is not to bind our tribe. We have been given too few options.

¹ <https://news.gallup.com/poll/16915/three-four-americans-believe-paranormal.aspx>

Now Pinker recognizes that as children of the Enlightenment we hold that all our beliefs should fall within the reality mindset. And submitting all our beliefs to the test of reason and evidence is an unnatural and at times painful skill that has to be learnt. Schools and universities can help by teaching courses on statistical and critical thinking. Still, he says, there is a side of our nature that resists it. We resist the demand that all our beliefs should be held to this standard. We can have commitments that are not beliefs; otherwise put, we can have commitments that we don't think are factually true but which are very important to us.

What is most obvious, and most worrying, is that ideological opinions are increasingly determining where one stands on matters that should be independent of ideology. A classic example is the reading of statistics in the attempt to grasp what sort of gun control would be most effective; people make mistakes that align closely with (and seem to be best explained by) their political opinions. The same applies to views about vaccination and many other topics. The hard question here seems to be how ideological distinctions have been allowed to become so central in all this. I don't think that we have yet got much of an answer to that challenge or how to counteract it.

My final point is that Pinker's focus on inference may be partly the cause of his difficulties here. We should return to reasons. Ideologically motivated beliefs are not held for the reason that they subserve one's ideology. There is a 'because' here which is not the 'because' of 'for the reason that'. They are held for ordinary reasons, but (in many cases) inadequate ones. An ideological motivation may nevertheless explain why one takes what is not much of a reason for a very strong reason, or fails to see the strength of a very strong reason – for example, the reason(s) to be vaccinated.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Reviewer: Jonathan Dancy, FBA is Professor of Philosophy at the University of Texas at Austin and author of several books, including *Practical Reality* (2000), *Ethics Without Principles* (2005) and *Practical Shape: A Theory of Practical Reasoning* (2018).