



Review of: Knauff, M., & Spohn, W. (Eds.), 2021, *The Handbook of Rationality*, MIT Press

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The concept of rationality is staple in philosophy, though it is not exclusive to it. Other disciplines – psychology in particular – take an interest in it as well. The *Handbook of Rationality*, edited by Markus Knauff and Wolfgang Spohn, sets itself the ambitious goal of providing an interdisciplinary treatment of key topics from both theoretical and practical rationality with a particular focus on the perspectives of analytical philosophy and cognitive psychology. Accordingly, the *Handbook of Rationality* is a volume of considerable length, compiling 65 contributions by various authors. Most articles reside in the areas of philosophy or psychology with a roughly equal distribution between the two fields. Contributions from other disciplines can occasionally be encountered as well, such as neuroscience, law, economics, social science, and computer science.

The book is organized in four parts. Parts are further structured into sections that focus on a specific topic. Typically, a section starts with the philosophical contributions to the topic and ends with the psychological ones, though there are exceptions to this rule, particularly towards the end of the book.

The first and shortest part focusses on preliminary and historical matters. It starts with a section on the origins of rationality (Sect. 1), where both the academic conceptual origins and the evolutionary origins of rationality are considered. Section 2 is a loose collection of rather general entries that are meant to introduce “some substantial philosophical and psychological topics of rationality” (xi), such as reasons and reasoning, theoretical and practical rationality, or mental models.

The second and third parts deal with theoretical and practical rationality, respectively. They comprise the main part of the handbook, both in length and in content. Part II is on theoretical rationality and introduces the reader to deductive reasoning (Sect. 3), probabilistic reasoning (Sect. 4), belief revision, defeasible reasoning and argumentation theory (Sect. 5), conditional and counterfactual reasoning (Sect. 6), and causal and diagnostic reasoning (Sect. 7). Section 3 on deductive reasoning is

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kept relatively short. Sections 4 and 5 dive into greater detail and give – for such a broad collection – relatively detailed accounts of their topics. Section 6 and 7, for good reason, manage to keep relatively short by largely excluding many philosophical topics that would be relevant here but would go beyond the scope of a volume of this kind, such as details on the semantics of counterfactual statements and different theories of causality.

Part III turns to practical rationality and deals with individual rationality and decision making (Sect. 8), game theory (Sect. 9), social rationality (Sect. 10), deontic and legal reasoning (Sect. 11), and the relation of morality and rationality (Sect. 12). Section 8 introduces many basic concepts and theories from practical rationality, such as preferences, utility (chapter 8.1), or standard decision theory (chapter 8.2), and finally moves on to address other accounts such as prospect theory and bounded rationality (chapters 8.3 and 8.4). Section 9 introduces classical game theory (chapter 9.1) as well as some of its more specific variants, namely epistemic and evolutionary game theory (chapters 9.2 and 9.3). Section 10 deals with all matters concerning rationality in social groups, including those from theoretical rationality. It therefore does not fit in Part III entirely but keeping all contributions on the topic together clearly aids the flow of the volume. The first half of Sect. 11 is concerned with deontic reasoning in general, while the second half is about legal reasoning in particular. Section 12 briefly relates rationality and morality.

The fourth part closes the handbook with more specific and partly niche aspects of rationality. Section 13 deals with visual and spatial reasoning and will probably be the section that is least relevant to most philosophers. In Sect. 14, the collection briefly turns to philosophy of science by addressing scientific rationality. The handbook concludes with a section on various aspects of our individual rational capacities (Sect. 15).

The handbook focuses on overview entries rather than current research contributions: most articles take a holistic view on certain parts of the academic debate instead of introducing novel ideas to it. For the most part, the articles in the *Handbook of Rationality* are reasonably accessible and serve as suitable introductions to their respective topic without being simplistic. Occasionally, though, they may be too demanding to serve as an entry point to the topic, especially for an interdisciplinary audience. For example, the article on doxastic and epistemic logic (chapter 5.1) will hardly be understandable to someone without previous training in modal logics. Furthermore, some articles seem to take a very historical turn on their subject, such as the one on reasoning and argumentation (chapter 5.6), which might be unhelpful for an interdisciplinary audience. Overall, the quality of most philosophical articles in the collection is high without sacrificing readability for the non-specialist: most articles find a good balance between philosophical accuracy on the one hand, and a brief, introductory nature and informativity for non-experts on the other hand. The more empirically-oriented articles are best judged by the relevant specialists.

The *Handbook of Rationality* is remarkably comprehensive and comments on a great variety of topics that relate to rationality. It omits certain topics in fringe areas of rationality, such as the question of which precise ontological status rationality has, or the role that rationality plays in areas that are less tightly connected to rationality, such as political philosophy or the philosophy of language. As is characteristic

for a handbook of this kind, certain key concepts or aspects are introduced in multiple entries. Some of the many examples for this are expected utility, the mental models theory, and Wason's selection task. However, there is very little unpleasant repetitiveness, since different articles and disciplines take different perspectives on these topics.

Interestingly, the structuring elements of the book are exclusively in terms of content, not in terms of discipline. Psychological and philosophical contents are not clearly demarcated from each other but stand side by side within the same topical section. This also means that the handbook – sometimes quite suddenly – jumps back and forth between normative or prescriptive points and descriptive or empirical points. However, what would otherwise have been a vice is now a virtue: the interdisciplinarity of the handbook makes it necessary and even desirable to examine topics from various angles, and the format of a handbook that assembles articles by different authors does not make it feasible to neatly lead over from one chapter to the next. Therefore, the reader has to make an active effort to assess the context of the claims of each contributor, as is characteristic for interdisciplinary work. Explicit interactions between the disciplines, however, are rare. Instead, each discipline comments on a topic, usually without relating own views to that of the other discipline. This, yet again, is left to the reader. Even though an interested reader will be able to make some relevant links on their own, it is a pity that the volume does not make more interdisciplinary connections explicit. In that respect, the book falls somewhat short of its aim for interdisciplinarity. It could also be asked whether, sometimes, philosophy and psychology talk past each other when they speak about matters of rationality. After all, philosophers and psychologists occasionally use the term “rational” in different ways. Even though the introductory entry by Knauff and Spohn gives some context on this matter, the book largely leaves it to the reader to find out how to suitably translate the findings from one discipline to the other.

Given the large number of entries from different authors in the *Handbook of Rationality*, the diversity among the articles in terms of topic, style, depth, approach and also quality is, of course, large. No single article is particularly characteristic of the book as a whole. Therefore, an in-depth review of single articles would not be indicative of the characteristics of the book and would not help in getting an impression of the *Handbook of Rationality*. What ties the whole book together, though, is the introductory chapter by the editors. It explains the entire endeavour, contextualizes other contributions, and already contains some interesting philosophical thoughts that warrant a closer look. It therefore deserves closer investigation.

At the heart of the introductory chapter are four distinctions that the editors deem essential. The first one is between *theoretical* (or epistemic) rationality, which is “about the rational justification of beliefs, inferences and explanations, or of our epistemic states in general” (10), and *practical* rationality, which is “about assessing actions or pro-attitudes in general” (ibid). The second distinction that is taken into focus is the one between *normative* and *descriptive* perspectives on rationality. Roughly, the former is concerned with what rationality requires from us and how we should reason or act to be rational; the latter asks how we actually reason or act. The third distinction is between *individual* rationality, which roughly is the rationality of a single individual, and its *collective* or *social* counterpart, which roughly is

the rationality of groups. Finally, a fourth distinction is made: on the one hand, the *output-oriented* level of rationality is about which outputs are rational in light of which input and system states, for example which new beliefs should rationally be formed in light of some perception given certain pre-existing beliefs. On the other hand, the *process-oriented* level is about which internal processes are used (or are needed) to achieve this rational output. While philosophy is typically interested in the output-oriented level of rationality, psychology is typically concerned with the process-oriented one. Overall, these distinctions are not reflected in the structure of the book, except for the first one between practical and theoretical rationality, and partly the third one on individual and social rationality. Instead, they aid the reader to further contextualize each entry and offer more dimensions of reflection.

For philosophers, the first two distinctions – theoretical versus practical rationality and normative vs descriptive inquiries – are of particular interest. Knowing the editors' stance on these topics and their relations helps in answering the question why this book is so extensive: Why are both theoretical and practical rationality needed? And why does it make sense to include both normative and descriptive perspectives on each of them? In fact, the introductory chapter has interesting things to say on these matters.

The editors say that “practical rationality presupposes and thus includes theoretical rationality” (14) and that “theoretical rationality is a precondition of, and thus part of, practical rationality” (16) which is, at first, surprising. After all, that something is a precondition or presupposition of something else does not entail that one is part of the other. Something that is not quite as strong as the authors' initial slogan suffices, though: to be reliably rational in the practical sense, one also has to be theoretically rational to a sufficiently large degree, since robust practical rationality arguably needs a fair bit of proper (theoretical) reasoning, judging, belief revision etc. So, practical rationality does not necessarily include theoretical rationality, but a practically rational agent will usually also need to be sufficiently rational in theoretical terms. In this light, it is intuitively appealing when Knauff and Spohn say that “we can study theoretical rationality independently from practical rationality but not the other way around” (11) and it makes sense that the *Handbook of Rationality* treats both kinds of rationality.

The second question that shall be raised here is: how are normative and descriptive inquiries related when it comes to rationality? And by extension of that: why do we need interdisciplinary collaboration in rationality research? It might be intuitively plausible to many that drawing interdisciplinary connections is oftentimes worthwhile. Having an argument in favour of that, though, is perhaps better than mere intuition.

Obviously, empirical research can use normative insights as benchmarks to evaluate its findings. For example, researchers frequently used propositional logics as the standard to which they held participants in Wason's selection task. Thereby, they concluded that many of them selected irrationally. This alone does not yet establish a strong connection between the normative and the descriptive in the realm of rationality, though. After all, evaluating empirical findings against a normative framework is only the very last step of a research process that aims at descriptive theory, and arguably an optional one at that. Additionally, by this line of reasoning,

one could say that, although psychologists should be normatively informed, nothing follows immediately for philosophers.

Knauff and Spohn see a stronger connection, though, and make a curious case for a tighter relation between the normative and the descriptive. They bring forward an explicitly defeasible argument and claim that “whenever something that is under human control *ought* to be the case, there is some plausibility that it actually *is* the case” and “reversely, whenever something under human control *is* the case, then there is some plausibility that it *ought* to be the case” (25). Thus, they try to make a “defeasible inference from *is* to *ought*” (26) and vice versa. If such an inference was cogent and forceful, a tight connection between normative and descriptive perspectives would have been established which, in turn, would also be more than enough to motivate a tight interdisciplinary cooperation. *Prima facie*, this bidirectional is-ought inference sounds far too strong, though. Knauff and Spohn even acknowledge that along with the fact that one can “immediately cite hundreds of counterexamples” (26). They try to ameliorate this point by citing instances where *ought* and *is* go hand in hand and argue that if we come across a mismatch between *is* and *ought*, we try to overcome this by either trying to change what is or by re-evaluating the appropriateness of our norms. But as it is with all defeasible arguments: if there are too many relevant counterexamples, the argument loses its force. And, indeed, it *prima facie* seems as though this is the case for Knauff and Spohn’s argument. If the argument is read with charity, though, its core idea is plausible: we indeed often try to suitably harmonize what is and what ought to be. To this end, it is *prima facie* helpful for researchers on either side of the fence to know, at least roughly, what those on the other side are doing. After all, if nobody knows both the *is* and the *ought*, there is also nobody who could possibly take action to bring *is* and *ought* in line. This already makes a *pro tanto* case for interdisciplinary work, without the need for any of the strong claims that Knauff and Spohn use in their argument. Understood in this, more charitable way, the author’s claim on the defeasible is-ought relation can also be understood to add to Hume’s famous dictum – roughly, that you cannot reason from exclusively descriptive premises to a normative conclusion in a logically valid way – instead of violating it.¹ Just because one cannot reason from *is* to *ought*, one can still acknowledge that the two occasionally go hand in hand.

Overall, the *Handbook of Rationality* offers a broad interdisciplinary overview of rationality. Its endeavour, i.e. giving a comprehensive overview of rationality in two disciplines, is highly ambitious. On the one hand, it achieves its aim to bridge the gap between philosophical and psychological rationality research in the sense that it covers a great amount of topics from many perspectives. On the other hand, it does not offer a great amount of interdisciplinarity within entries – most entries are either from philosophy or from psychology, and they rarely take an interdisciplinary perspective themselves. For scholars seeking an introduction to the topic of rationality (from the point of view of either philosophy or psychology), it offers various points of entry that are not overburdening. Also, most entries in the handbook are not primarily current research contributions but usually take a holistic view on the

¹ I am thankful to an anonymous reviewer for their comment on the relation to Hume’s dictum.

rationality debate while introducing to a certain aspect. For those who count rationality among their areas of expertise, the volume offers the opportunity to broaden their view and to find new perspectives on a familiar topic. Those seeking to delve deep into selected, concrete areas of rationality will probably find more specialised, less broad literature more suitable to their needs. Nevertheless, they, too, will find the handbook useful as the entries provide valuable guidance in finding such, more specialized, literature. In conclusion, the *Handbook of Rationality* is a very suitable entry point for students and researchers alike who want to get a broad introduction into many different aspects of rationality. Moreover, the handbook combines two disciplines that both conduct research on different aspects of rationality and are presumably prone to talking past each other when they lack understanding of each other's work. The handbook is an excellent tool for raising awareness of each other's work and facilitating interdisciplinary discourse. Via its broadness in various dimensions, it offers truly inspiring perspectives on a familiar topic. The *Handbook of Rationality* is thus a worthwhile addition to the library of any rationality researcher.

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