

## Open Peer Commentary

### Throwing the normative baby out with the prescriptivist bathwater

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**Abstract:** It is neither desirable nor possible to eliminate normative concerns from the psychology of reasoning. Norms define the most fundamental psychological questions: What are people trying to do, and how? Even if no one system of reasoning can be the norm, pure descriptivism is as undesirable and unobtainable in the psychology of reasoning as elsewhere in science.

Elqayam & Evans (E&E) construe normativism as the proposal that a unique formal model (logic, Bayesian probability, whatever) is *the* paradigm of human rationality. The authors do recognize that there are programs “lower on prescriptive normativism,” (target article, sect. 1, para. 9), that is, programs that make use of reasoning norms but not as the unique standard of human rationality, either empirically or prescriptively construed; see, for example, Stenning and van Lambalgen (2008). The latter example proposes multiple logics as formal models of reasoning, and that their use necessarily involves normative claims. E&E, in contrast, propose a thoroughgoing descriptivism for the study of human reasoning, but believe that they can preserve the use of formal systems (competence models) in their descriptivism.

We agree that resorting to a single formal system as the standard of rationality is doomed to failure (Stenning & van Lambalgen 2008), but we disagree that formal systems can be preserved in a thoroughgoing descriptivism. Here we explain the role of normativity in formal models by making use of the distinction between constitutive and regulative norms (Kant 1781/1998; Rawls 1955; Searle 1970). And we explain the psychologically crucial role of normativity through the interplay between these two kinds of normativity in the application of formal systems to the modelling of data. It is a corollary that any single formal system will be inadequate for modelling all human reasoning.

E&E equate normativity with the “ought” that is erroneously derived from “is”; what they fail to notice, however, is that without an “ought” there can’t be an “is” in the first place. To help identify the norms that play an important role in human reasoning, one can make use of the distinction between constitutive and regulative norms. Abstractly, norms are *constitutive* of a certain behaviour if they are part of recognising the behaviour as the one that it is identified to be; norms are *regulative* of a certain behaviour if they are responsible for steering a behaviour in a certain direction. The two examples of norms that the authors mention at the very beginning of their article are a good illustration of the distinction: Not conforming to the rules of chess means that one is not playing chess, whereas one is still driving when not heeding traffic laws.

Constitutive norms are *internal* to a certain reasoning system in that they address the question of “*what* the reasoning is,” whereas regulative norms are *external* to a system in that they address the question of “*why* the reasoning is the one that it is.” The distinction may seem analogous to E&E’s empirical–prescriptive distinction, but it is not. Constitutive norms are not simply empirical because

they cannot be described by mere recourse to experience: the rules for playing a certain game are not something one can just observe. Regulative norms are not prescriptive in the sense that they do not prescribe a unique behaviour; rather, they provide those reasons and constraints that make a certain choice possible in the first place (the choice need not be a conscious one).

Syllogistic reasoning provides a laboratory example. We present the 64 argument forms of the syllogism to subjects and want to interpret the results. What should they do? Experimenters assumed for many years that it was obvious that they should obey classical logic – after all this was the original logical fragment, dammit. But Stenning and Yule (1997) have pointed out that there is another important interpretation as *cooperative exposition*, in which the readers’ task is to discover the author’s single intended model. The defeasible logical model of this task is in many ways opposite. These two kinds of logic have different constitutive norms, which mean that they have different regulative norms. Classical logic is partly constituted by its concept of validity – truth of conclusions in all possible models. This means it is regulatively appropriate for use in adversarial argument from closed premises about all interpretations. Defeasible logic is also partly constituted by its own concept of validity – roughly, the truth of conclusion in the intended model – which means it is regulatively appropriate for cooperative reasoning from a database of long-term knowledge plus the present text, to a single interpretation of the text. The first goal of a psychology of reasoning should be the empirical investigation of which of these goals (or others) subjects adopt, and in what contexts. Without knowing how subjects understand the task, we cannot sensibly interpret the data. There are also issues about which goal it is more reasonable to adopt in the experimental context – an important regulative normative question. Subjects themselves often switch interpretations/goals spontaneously during a sequence of problems, sometime uttering expletives when they realise what the experimenter intended – in some ways the most interesting psychological events (see also, Fugard et al. [2011b] for an example in a probabilistic framework).

None of this is available to a thoroughgoing descriptivism, which can tabulate the frequencies of the conclusions drawn for the 64 problems but has no basis for generalising beyond this table, or even justifying the range of options presented. Such thoroughgoing descriptivisms were the goal of positivist theories of science widely discredited by the observation that data is always shot through with theoretical interpretation, knowingly or not (Hanson 1958; Kuhn 1962). It is a corollary that no single formal system can provide a regulative norm for human reasoning, because, at the very least, argument and exposition are two incompatible reasoning goals that people ought to adopt at different times. Bayesian accounts are not a homogenous alternative, because they fail to model the necessary processes of interpretation (Fugard et al. 2011a; Stenning & van Lambalgen 2010). Of course, many other systems of reasoning with other goals are also needed.

It is fashionable in some quarters to claim that subjects frequently have no systematic goal for their reasoning; a suicide note for the psychology of reasoning – subjects with no goals. Psychologists should learn to love normativity, suitably regulated – after all biology is shot through with normativity, and seems to be doing rather well.

### Norms for reasoning about decisions

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**Abstract:** Reasoning research has traditionally focused on the derivation of beliefs from beliefs, but it is increasingly turning to reasoning about