# Thinking about norms: Epistemic, rational, and moral norms in human thinking

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## Thinking about norms

Humans are uniquely good at inventing norms, thinking about norms, complying with norms and defeating norms. It is small wonder, then, that norms are a focus of much interest as well as debate across the cognitive sciences, encompassing such diverse issues as rationality, morality and action. The aim of the present symposium is to bring together a range of psychological and philosophical contributions to this pertinent debate. Contributors come from diverse backgrounds, including epistemology, meta-ethics, moral judgment, decision making, and reasoning. We will examine foundational issues in normative thinking, such as: What is the relation between norms and descriptions? What are the psychological mechanisms underlying normative thinking? How do epistemic and moral norms guide action? What, if any, are the appropriate norms for knowledge, rationality, and moral behaviour, and how can they be determined?

## Proust: The norms of acceptance

An area in the theory of action that has received little attention is how mental agency and world-directed agency interact. The purpose of the present contribution is to clarify the rational conditions of such interaction, through an analysis of the central case of acceptance. There are several problems with the literature about acceptance. First, it remains unclear how a context of acceptance is to be construed. Second, the possibility of conjoining, in acceptance, an epistemic component, which is essentially mind-to-world, and a utility component, which requires a world-to-mind direction of fit, is merely posited rather than derived from the rational structure of acceptance. Finally, the norm of acceptances is generally seen as related to truth, which turns out to be inapplicable in a number of cases.

We will argue, first, that the specific context-dependence of acceptances is derived from their being mental actions, each embedded in a complex hierarchy of acceptances composing, together, a planning sequence. Second, that acceptances come in several varieties, corresponding to the specific epistemic norm(s) that constitute them. The selection of a particular norm for accepting answers to considerations of utility – to the association of an epistemic goal with an encompassing world-directed action. Once a type of acceptance is selected, however, the epistemic norm constitutive for that acceptance strictly applies. Third, we argue that context-dependence superimposes a decision criterion on the output of the initial epistemic acceptance. Strategic acceptance is regulated by instrumental norms of expected utility, which may rationally lead an agent to screen off her initial epistemic acceptance.

## Pothos & Busemeyer: Implications for the rationality debate from the quantum cognition research programme

Bayesian theory has enabled an influential perspective on human rationality, partly based on such arguments as long term convergence and the Dutch book theorem. Moreover, behavioral predictions in decision making from Bayesian theory are typically supported by strong intuition. Yet, this intuition often goes against empirical findings. For example, Kahneman, Shafir, Tversky and collaborators have provided many compelling demonstrations of violations of the law of total probability or the conjunction principle. Recently,

researchers have shown that many of these violations can be naturally accounted for within quantum probability theory, a framework for formal probabilistic modeling alternative to Bayesian theory. If one accepts that quantum theory provides a more accurate framework for modeling human behavior, at least in some cases, then what are the implications regarding (or not) the debate on human rationality? After all, probabilistic inference in quantum theory can be strongly context and perspective dependent, perhaps going against an intuition that probabilistic inference is rational to the extent that it is objective (in some sense). Equally, we note that probabilistic inference in Bayesian models presupposes adherence to the, perhaps cognitively unrealistic, principle of unicity, the requirement that there is a complete joint probability distribution for all relevant possibilities. Consideration of the above issues provides us with two broad themes. First, is the Bayesian notion of normative rationality cognitively feasible, even if appropriate from an abstract perspective? Second, can a perspective about normative rationality arise from quantum cognitive models?

## Miller & Cushman: Action, outcome and value

How can we characterize the underlying cognitive mechanisms that give rise to moral judgment? A popular approach has been to contrast "emotion" with "cognition", but this is widely regarded as a problematic distinction--even by its chief proponents. We advocate for an alternative approach motivated by the distinction between model-based and model-free reinforcement learning. A model-based system chooses actions with the greatest expected value based on a detailed causal model of their likely outcomes. A model-free system associates positive or negative feelings with particular actions intrinsically. We will present a series of studies suggesting that this distinction between outcome-based and action-based decision-making matches the dual-system structure of moral judgment, with many benefits over the traditional distinction of emotion vs. reason. Dual system approaches in the moral domain have been used widely, although controversially, to distinguish normatively warranted and unwarranted moral judgments. The application of reinforcement learning theories to the moral domain has the potential to inform debates over the normative status of moral judgments. It allows us to state precisely the relationship between value, experience and choice. Leveraging this formal precision, we join others in arguing that psychological facts have implications for the normative status of moral judgments.

## Quintelier: The real is-ought problem in ethics

Numerous scholars have pointed out that 'is' and 'ought' should be kept separated. While valuable, this pursuit distracts from an equally important issue: In order for empirical findings to be relevant for ethics, we need an account of how 'is' and 'ought' *can* be properly linked.

I illustrate this by means of the moral universalism versus relativism debate: Scholars have advocated that we should think of moral rules as universal because, among other reasons, lay people intuitively think of morality as universal. Recent studies however show a diversity of moral reasoning, including relativist moral reasoning, in the folk. Nevertheless, it is now debated how these data are relevant for ethics because, arguably, 'is' and 'ought' should be kept separated. In the moral universalism versus relativism debate though, illegitimate inferences from 'is' to 'ought' are not the problem. While it is true that previous arguments in favor of moral universalism relied on a specific relation between 'is' and 'ought', this relation is refuted by present-day scholars. However, no alternative is put in place. Moreover, at the same time, the rationale for doing empirical research on this topic is to further a normative debate. Thus, either existing empirical research is irrelevant, or researchers have to defend a link between 'is' and 'ought'.

## Elqayam, Thompson, Evans, Over, & Wilkinson: When do we infer *ought* from *is*?

The debate on norms in cognitive science goes back at least as far as Hume's critique of what has come to be known as the is-ought problem: when, if ever, is it valid to infer normative conclusions from descriptive premises? Whereas philosophers are interested in the validity of such inference, we ask about the *psychological* mechanisms underlying it.

We present a new processing model of inference from 'is' to 'ought'. The relevant logic is deontic, the logic of rules and regulations. We propose that such inference is pragmatic, in the sense that it is socially rich, contextualised, probabilistic, and defeasible. Agents infer deontic, normative conclusions from descriptive premises under a set of conditions: (1) an agent; (2) a goal, or a valued outcome (3) an action causally linked to the goal. We present a set of findings to show that the direction of the deontic conclusion that people endorse matches the psychological value of the goal; that the strength of the conclusion is a function of the strength of the causal link between action and outcome; and that the inference is suppressed when additional premises present conflicting goals, triggering a utilitarian conflict; or conflicting norms, triggering a deontological conflict. We suggest that this normative inference underlies much of human epistemological and moral judgement and action.

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## References

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