Epistemic Norms in a Nutshell

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When modeling agents involved in scientific activities, one of the major issues is how to let them evaluate the reliability of evidence and the trustability of sources. In the real world of science, input judgment is a common, potentially complex task, of considerable interest for scientific practice and meta-scientific studies. It turns out that epistemic norms here constitute an important tool to manage information quality and coherence, as well at the level of individual scientists/groups, as at the level of scientific communities. In fact, the adherence to appropriate rules or prescriptions in the context of research helps to generate trust, and therefore to limit the complexity of information gathering, processing, and communication.

Generally speaking, epistemic norms are just conventions meant to control the epistemic behaviour of cognitive agents in specific contexts. In particular, they are meant to guide the formation and evolution of doxastic attitudes, but also the specification of doxastic goals and intentions. The overarching ideal is of course to gain knowledge, i.e. adequately justified true belief (or so) about the world, as mirrored by the attribute "epistemic". Epistemic norms are often characterized by high expectations w.r.t. some form of "correctness", "optimality", or "rationality". However, in the context of actual resource-bounded agents, these are rather elusive concepts, allowing different interpretations, and hence again different normative stipulations. For practical purposes, it seems therefore preferable to adopt a broad reading of epistemic norms. This more liberal approach forces us however also to take a more dynamic perspective, opening the door to defeasible and revisable epistemic norms. In fact, we even will have to accept the co-existence of – locally and globally – conflicting epistemic norms. The question is now how we are going to model all this. Here we propose two general principles, of course to be supplemented by many others.

1. Generality. A theoretical framework for epistemic norms should be applicable to any reasonable model of epistemic communities, whatever its granularity. The minimal ingredients of such a model are evolving decision-taking cognitive agents a, reasoning about the concrete/abstract world, communicating with each other, and interacting with the environment ω (except for math agents).

2. Normativity. Whatever the exact nature of epistemic norms, on the semantic level, every admissible set of norms $\mathcal{N}$ should define for each state $\vec{a}$ of an epistemic community the collection $\mathcal{H}_{\vec{a}}[\mathcal{N}]$ of those histories which obey the norms and are compatible with the state. We emphasize that we do not assume $\mathcal{H}_{\vec{a}}[\mathcal{N} \cup \mathcal{N}'] = \mathcal{H}_{\vec{a}}[\mathcal{N}] \cap \mathcal{H}_{\vec{a}}[\mathcal{N}']$. This is necessary, first, to handle conflicting norms, and secondly, to model synergetic ones. However, norms specifying the same choice sets do not have to be identical. The difference may show up through the choice behaviour in the context of other norms.