

Yves Bouchard (Université de Sherbrooke) : « Epistemic Contexts and Natural Deduction »

In this paper, I develop a Fitch-style natural deduction system (NDS) capable of expressing the core thesis of epistemological contextualism (EC). According to EC, knowledge should be interpreted as an indexical term, i.e. a term whose meaning is a compound of character and content. In that view, there are different types of knowledge and these types have different properties: some are more robust, more truth-conducive, some are more defeasible. Logical knowledge, scientific knowledge, perceptual knowledge, testimonial knowledge, ordinary knowledge all exhibit significant differences in their epistemic qualification processes. The need for a pluralist view on knowledge stems precisely from the variety of epistemic standards characteristic of different knowledge concepts. But such pluralism poses a special difficulty in terms of knowledge representation, in the field of artificial intelligence for instance, since it requires a coherent framework within which different concepts of knowledge may find an expression without putting at risk the possibility of exploiting knowledge-based systems by inference engines. I claim that knowledge representation can benefit from the expressive power of EC, while preserving classical inferential resources that can be made available through a NDS. In that perspective, an agent does not reason about knowledge *per se*, conceived univocally, but reason rather on the basis of specific types of knowledge, in accordance to specific rules allowing (or not) for the transposition of one knowledge type into another. The proposed NDS satisfies two epistemological constraints: (1) it allows for the differentiated expression of any concept of knowledge, and (2) it is explicit about the conditions under which a particular knowledge type can be transposed into another type. The general idea of this NDS takes his inspiration from the contextual logic developed by McCarthy and Buváč (1996, 1997) in artificial intelligence. Their contextual logic was devised to provide a formal method to disambiguate natural language predicates by means of a special operator, $ist(c, p)$, that relates a proposition p to a context c in which p is true. This operator proves to be an useful resource to disambiguate a knowledge operator interpreted indexically, and, once embedded in a NDS, it provides a formal view on logical relations between contexts associated with knowledge operators (epistemic contexts). In the first part of the paper, I present the rationale of my proposal and the general framework of McCarthy and Buváč. In the second part, I define the rules for the introduction and the elimination of the knowledge operator, and I discuss four epistemological problems (introspection, zebra case, abominable conjunctions, and testimonial knowledge) in relation with theorems of the proposed NDS.