

Categorical Model Theory and Knowledge-How

Categorical Model theory (CMT) stems from the functorial semantics of algebraic theories proposed by Lawvere in his thesis back in 1963. Today this theory uses a family of concepts of model none of which is fairly standard. An evidence is provided by the present-day Homotopy Type theory where presently there is no full agreement among the researchers as to what counts as a model of this theory and what does not (even if there is a consensus that certain constructions do qualify as models). Further, the technical concept(s) of model considered in CMT lack so far any generally accepted epistemological underpinning. It remains unclear whether or not the classical Tarskian notion of model based on the T-schema applies in CMT in all cases. I argue that this classical notion is not adequate for accounting for models of HoTT. As a remedy I show how HoTT and its models can be understood as vehicles for knowledge-how (and also for the propositional knowledge-that, which also has a place in this scheme). This feature of HoTT and the related CMT ideas suggests applications in Knowledge Representation some of which will be described in the talk.