

AN ADAPTIVE LOGIC FOR PRESUMPTIVE TRUTH

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Problem solving in the sciences often forces us to rely on a pragmatic notion of truth. An adaptive logic interpreting scientific theories as pragmatically possible was already given in [9]. The logic presented in this paper refers to a complementary view on pragmatic truth: not with respect to theories but with respect to single statements, facts or data. Therefore we rely on Nicholas Rescher's concept of presumptive truth and the connected cognitive action called (presumptive) taking presented in [11]. As an introduction we will give a brief review of what Rescher considers a crucial aspect of our language-deploying discursive practice and meanwhile draw attention to its relevance and applicability to problem solving contexts. During the presentation of our approach for an adaptive logic representing presumptive taking we will - instead of giving an exhaustive overview of one proof-format and meta-theory - focus on a few specific topics and present some alternative versions for such a logic. First we define a simple adaptive logic based on an alternative view on the discursive logic AJ (see [10]) and show that: (i) we can interpret this logic in such a way that its Upper Limit Logic Triv captures the core idea of presumptive taking and (ii) that in this context an adaptive approach is better suited (i.e. more explicative) than some existing non-monotonic logics such as Gomolińska's logic for acceptance and rejection (see [6] and [7]). For the conception and evaluation of some alternatives to this basic approach, we take a particular point of view. We relate the modal fragments of the adaptive logics to the corresponding temporal logics and focus on two main features: (i) the structure of modal frames (e.g. linearity) and (ii) the ability of these logics to distinguish between past and future (moments, statements or knowledge). It will be shown that our basic approach hardly gives an account of a flow of time. A simple alternative version already deals with this shortcoming: it defines an adaptive logic based on an omni-temporal modal logic for branching time and thus allows us to interpret presumptive truth as: it will be accepted as truth. It suffers nevertheless from a lack of expressivity: it fails to explain acceptance as a purely prospective cognitive action. Switching to a real bi-modal temporal logic solves this ambiguity. Our final proposal is based on such a bi-modal logic and a specific bi-modal form of the classic Triv-axiom. Finally we will take a look at a few examples and point out some problems that arise when we 'accept' complex statements. It will be argued that limiting acceptance to atomic formulas (see: [10]) isn't our preferred solution.

References

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