Belief Revision and Knowledge Representation

abstract

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This paper is dedicated to the memory of Carlos Alchourron.

The paper consists of two parts, where the first is an overview of selected topics in belief revision theory and the second presents some suggestions for future directions of research. The first, retrospective part begins with a discussion of the assumptions that are presupposed by the AGM model. I will briefly discuss the assumptions that the underlying logic is classical and that belief sets are logically closed, the restriction to a simple propositional language, and the restriction to single revision. Connections to non-monotonic reasoning will also be outlined. The second, more prospective part deals with the kind of knowledge representation presumed in belief revision theory. Almost all work has been based on symbolic (propositional) models of knowledge. However, I propose that also conceptual and sub-symbolic (sub-conceptual) models should be studied. In particular, I will discuss conceptual models based on geometrical and topological notions and show their relevance for concept revision and for non-monotonic aspects of concepts. The relations to connectionist models of belief revision will also be considered.