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Forthcoming Papers

E. Remolina and B. Kuipers, Towards a general theory of topological maps

We present a general theory of topological maps whereby sensory input, topological and local metrical information are combined to define the topological maps explaining such information. Topological maps correspond to the minimal models of an axiomatic theory describing the relationships between the different sources of information explained by a map. We use a circumscriptive theory to specify the minimal models associated with this representation.

The theory here proposed is independent of the exploration strategy the agent follows when building a map. We provide an algorithm to calculate the models of the theory. This algorithm supports different exploration strategies and facilitates map disambiguation when perceptual aliasing arises. © 2003 Published by Elsevier B.V.

S.S. Fatima, M. Wooldridge and N.R. Jennings, An agenda-based framework for multi-issue negotiation

This paper presents a new model for multi-issue negotiation under time constraints in an incomplete information setting. The issues to be bargained over can be associated with a single good/service or multiple goods/services. In our *agenda-based model*, the order in which issues are bargained over and agreements are reached is determined endogenously, as part of the bargaining equilibrium. In this context we determine the conditions under which agents have similar preferences over the implementation scheme and the conditions under which they have conflicting preferences. Our analysis shows the existence of equilibrium even when both players have uncertain information about each other, and each agent's information is its private knowledge. We also study the properties of the equilibrium solution and determine conditions under which it is unique, symmetric, and Pareto-optimal. © 2003 Published by Elsevier B.V.

M. Freund, On the revision of preferences and rational inference processes

Orderings and inference relations can be successfully used to model the behavior of a rational agent. This behavior is indeed represented either by a set of ordered pairs that reflect the agent's preferences, or by a rational inference relation that describes the agent's internal logics. In the finite case where we work, both structures admit a simple representation by means of logical chains. The problem of revising such inference processes arises when it appears necessary to modify the original model in order to take into account new facts about the agent's behavior. How is it then possible to perform the desired modification? We study here the possibilities offered by the technique of *'chain*

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revision' which appears to be the easiest way to treat this kind of problem: the revision is performed through a simple modification of the logical chain attached to the agent's behavior, and the revision problem boils down to adding, retracting or modifying some of the links of the original chain. This perspective permits an effective treatment of the problems of both simple and multiple revision. The technique developed can also be used in some limiting cases, when the agent's inference process is only partially known, encoded by an incomplete set of preferences or a conditional knowledge base. © 2003 Published by Elsevier B.V.

A. Felfernig, G. Friedrich, D. Jannach and M. Stumptner, Consistency-based diagnosis of configuration knowledge bases

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Special Issue on Logical Formalizations of Commonsense Reasoning, edited by Ernest Davis and Leora Morgenstern

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