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Complexity results and algorithms for possibilistic influence diagrams

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Titre	Complexity results and algorithms for possibilistic influence diagrams
Type de publication	Article de revue
Auteur	Garcia, Laurent [1], Sabbadin, Régis [2]
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Résumé en anglais	In this article we present the framework of Possibilistic Influence Diagrams (PID), which allows to model in a compact form problems of sequential decision making under uncertainty, when only ordinal data on transitions likelihood or preferences are available. The graphical part of a PID is exactly the same as that of usual influence diagrams, however the semantics differ. Transition likelihoods are expressed as possibility distributions and rewards are here considered as satisfaction degrees. Expected utility is then replaced by anyone of the two possibilistic qualitative utility criteria (optimistic and pessimistic) for evaluating strategies in a PID. We then describe decision tree-based methods for evaluating PID and computing optimal strategies and we study the computational complexity of PID optimisation problems for both cases. Finally, we propose a dedicated variable elimination algorithm that can be applied to both optimistic and pessimistic cases for solving PID.
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[2] http://okina.univ-angers.fr/publications?f[author]=7499
[3] http://okina.univ-angers.fr/publications?f[keyword]=8702

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