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Dealing with Belief Uncertainty in Domain Models*

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Abstract. There are numerous domains in which information systems need to deal with uncertain information. These uncertainties may originate from different reasons such as vagueness, imprecision, incompleteness or inconsistencies; and, in many cases, they cannot be neglected. In this paper, we are interested in representing and processing uncertain information in domain models, considering the stakeholders' beliefs (opinions). We show how to associate beliefs to model elements, and how to propagate and operate with their associated uncertainty so that domain experts can individually reason about their models enriched with their personal opinions. In addition, we address the challenge of combining the opinions of different domain experts on the same model elements, with the goal to come up with informed collective decisions. We provide different strategies and a methodology to optimally merge individual opinions.

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