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Do inferential processes affect uncertainty frameworks? (English) Zbl 1315.68235
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Summary: This paper studies the connections among different (comparative or numerical) degrees of belief. In particular we consider, in turn, a comparative probability or possibility on a given Boolean algebra and we prove that their upper extensions to a different Boolean algebra are, respectively, a comparative plausibility or possibility. On the other hand, in general the upper extension of a comparative necessity is simply a comparative capacity. Moreover, by considering a suitable condition of weak logical independence between the two Boolean algebras, we prove that the upper ordinal relation is a comparative possibility in all the aforementioned cases. We consider specifically also the lower ordinal relations, since they may not be the comparative dual relation of the upper ones.

MSC:

68T37 Reasoning under uncertainty in the context of artificial intelligence

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Keywords:

ordinal relations; extendibility; probability; possibility theory

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