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**Temporal reasoning about fuzzy intervals.** (English) Zbl 1183.68620  
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Summary: Traditional approaches to temporal reasoning assume that time periods and time spans of events can be accurately represented as intervals. Real-world time periods and events, on the other hand, are often characterized by vague temporal boundaries, requiring appropriate generalizations of existing formalisms. This paper presents a framework for reasoning about qualitative and metric temporal relations between vague time periods. In particular, we show how several interesting problems, like consistency and entailment checking, can be reduced to reasoning tasks in existing temporal reasoning frameworks. We furthermore demonstrate that all reasoning tasks of interest are NP-complete, which reveals that adding vagueness to temporal reasoning does not increase its computational complexity. To support efficient reasoning, a large tractable subfragment is identified, among others, generalizing the well-known ORD Horn subfragment of the Interval Algebra (extended with metric constraints).

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**MSC:**

[68T37](#) Reasoning under uncertainty in the context of artificial intelligence

Cited in 4 Documents

**Keywords:**

[temporal reasoning](#); [interval algebra](#); [fuzzy set theory](#)

**Software:**

[PDDL](#)

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