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On fuzzy temporal constraint networks. (English) Zbl 0833.68012
[Mathware Soft Comput.](#) 1, No. 3, 315-334 (1994).

Summary: Temporal constraint networks are a well-defined, natural and efficient formalism for representing temporal knowledge based on metric temporal constraints. They support the representation of both metric and some qualitative temporal relations and are provided with efficient algorithms based on CSP techniques. Recently, a generalization based on fuzzy sets has been proposed in order to cope with vagueness in temporal relations.

In this paper, we generalize some earlier definitions for fuzzy temporal constraint networks, we identify and define “interesting” queries in a fuzzy temporal constraint network, and explore a method for efficiently computing them in a specific case. Further analysis of some measures on possibility distributions turns out to be fundamental in order to precisely determine some of these queries. We discuss the advantages and shortcomings of various choices and propose specific alternatives which satisfactorily avoid the problems of previous proposals.

The results presented in this paper can be useful in the design of a system for temporal reasoning under uncertainty. For instance, we have applied them to defining a possibilistic temporal logic, where approximate and temporal representation and reasoning are consistently combined.

MSC:

[68M10](#) Network design and communication in computer systems
[68T30](#) Knowledge representation

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[temporal constraint networks](#); [possibilistic temporal logic](#)

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