

Title: Conditioning in an interval-based possibilistic setting

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Abstract:

Conditioning is an important task for updating the current uncertain information when a new sure piece of information is received. A conditioning operator is designed to satisfy some desirable properties such as giving priority to the new information and ensuring minimal change while transforming an initial distribution into a conditional one.

This talk deals with conditioning uncertain information in an interval-valued possibilistic setting.

Possibility theory and possibilistic logic are uncertainty frameworks particularly

suited for representing and reasoning with uncertain, incomplete and qualitative information. Interval-based uncertainty representations extend the underlying uncertainty settings in order to encode uncertainty by means of intervals of possible degrees instead of single values.

The first part of the talk introduces interval-based possibility theory.

We propose a set of natural postulates for conditioning interval-based possibility distributions. We show that any interval-based conditioning satisfying

these three postulates is necessarily based on the set of compatible standard possibility distributions. The last part of the talk consists in a proposal of efficient procedures to compute the lower and upper endpoints of the conditional interval-based possibility distribution and its syntactic counterpart.