

**Mirosław Truszczyński**

REPRESENTING AND REASONING ABOUT PREFERENCES -  
COMBINATORICS MEETS DECISION THEORY

The problems of eliciting, representing and computing with preferences over a multi-attribute domain arise in many fields such as planning, design, and group decision making. An explicit representation of a preference ordering is exponentially large in the number of attributes used to describe domain elements, typically referred to as outcomes or configurations. Therefore, AI researchers have developed languages for representing preference orderings multi-attribute domains in a succinct way, with the language of CP-nets being one of the most widely studied ones. It provides an elegant graphical model of representing preferences that implies an effective approach to preference elicitation and, at least in some cases, supports fast reasoning algorithms. In the talk, I will introduce CP-nets, define the fundamental reasoning problems of deciding consistency, dominance and optimality, and discuss their complexity.