

## Adjustment-based conditioning in OCF graphical models

S. Benferhat\*, K. Tabia, CRIL-CNRS, Artois University, France

Graphical models (Bayesian networks, valuation-based systems, possibilistic networks etc) are powerful tools for managing uncertain knowledge. This paper uses ordinal conditional functions (OCF) to represent uncertainty distributions. Like Bayesian networks, OCF networks are also directed acyclic graphs (DAG), where each node encodes a variable and every edge represents an influence relation between two variables. Uncertainties are expressed by means of conditional OCF distributions for each node in the context of its parents.

We propose an efficient algorithm for updating OCF graphical models in the presence of uncertain observation. The proposed algorithm consists in incrementally updating parameters of the initial OCF graph using adjustment procedures. We show that the size of the obtained graph is linear with respect to the one of the initial graph. We also show belief update is done without extra computational cost comparing to existing algorithms such as the one based on junction trees. This work is done within AniAge project.

Keywords : Ordinal conditional functions (OCF), graphical models.