# Monometrics: a new tool for data aggregation

Bernard De Baets

KERMIT, Department of Data Analysis and Mathematical Modelling

Ghent University, Coupure links 653, 9000 Gent, Belgium

**Abstract**

The study of aggregation functions is undeniably one of the most important spin-offs of fuzzy set theory. Although the major part of the literature considers the aggregation of numerical values, also qualitative linearly or partially ordered scales are witnessing increased attention. One could say that there is a shift towards the aggregation on structures.

Given the data-generating era we are living in, materialized in the buzzword big data, a dedicated study of aggregation processes has become even more indispensable. This lecture is an appeal to the fuzzy set community to play a key role in this endeavour. This can only be achieved with an open mind. Firstly, although the unifying conditions of aggregation functions (boundary conditions and monotonicity) are extremely basic, we claim that their generality might be questioned. Secondly, the aggregation of structured information, such as rankings, graphs, trees, posets is likely to become a hot topic.

In short, we expect to see an increasing interest in the aggregation of relational data, just as has been the case already in the closely related field of machine learning. We will focus on the aggregation of rankings, point to largely ignored monotonicity issues and downgrade the role of distance metrics in favour of the recently introduced monometrics, which should be appealing to the fuzzy set community.