

# COMPUTING WITH WORDS IN MULTI-CRITERIA DECISION MAKING

LUIS MARTÍNEZ

Computer Science Department, University of Jaén, Jaén, Spain

## Abstract

The concept of computing usually implies calculation processes either by mathematical means of numbers and symbols or by a computer. Paying attention to computing processes done by human beings, it is noteworthy that they employ frequently words in computing and reasoning, arriving at linguistic results from linguistic premises. Hence, Computing with Words (CW) applies the same view to their computing processes aiming at obtaining linguistic outcomes from linguistic inputs. Due to the fact that words have fuzzy denotations when they are used by human beings, the paradigm of CW was clearly stated as a branch of fuzzy logic by Zadeh in which CW was defined as “A methodology in which words are used in place of numbers for computing and reasoning.” Later on, Zadeh added that “CW is a methodology in which the objects of computation are words and propositions drawn from a natural language.”

Decision makers involved in complex decision making problems usually provide information about their preferences by eliciting their knowledge with different assessments. Usually, the complexity of these decision problems implies uncertainty that in many occasions has been successfully modelled by means of linguistic information, mainly based on fuzzy based linguistic approaches. This talk will provide an overview of the fuzzy linguistic approach used for CW in Multi-Criteria Decision Making and some challenges for future proposals.