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EDITORIAL ON SELECTED CONTRIBUTIONS TO “UNCERTAINTY MODELLING 2001”

MILAN MAREŠ AND RADKO MESIAR

This special issue of *Kybernetika* collects selected papers presented in the framework of International Conference “Uncertainty Modelling 2001” held in Bratislava on September 24–28, 2001. All twelve included papers deal with the modelling of uncertainty and/or its applications from several points of view. Roughly speaking, the first half can be understood as a theoretical one. Namely, Navara and Bartušek investigate the structure of discrete t -norms acting on some n -element chain with $n \leq 14$ (for larger n 's the complexity of the problem prevents a complete description of all relevant discrete t -norms because of hardware limitations).

The next two papers concern aggregation operations. Vivona and Divari investigate the relationship of pseudo-additive aggregation operators and pseudo-additive fuzzy measures. They look first on the horizontal pseudo-additivity and then on the relationship with special pseudo-additive fuzzy measures. Also the contribution of Kolesárová discusses the relationship of aggregation operators and fuzzy measures. Based on the Moebius transform of a given fuzzy measure, some rather simple aggregation operators induce new complex operators. E. g., starting from the min operator, we find out the Choquet integral. The paper investigates the problem in which other aggregation operators can be generalized in such a manner.

The paper by Klement, Mesiar and Pap looks for invariant copulas (operators linking joint distribution with marginal ones). The authors characterize classes of copulas invariant under some transformations. E. g., survival copulas equal to the original copulas are investigated. Special attention is paid to the invariantness of associative copulas.

The fifth paper by Candeloro presents a brief overview of some recent results concerning convergence theorems for sequences of measures of the type Vitali–Hahn–Saks.

The following contribution by Dvurečenskij is oriented to unital partially-ordered groups which are not necessarily commutative. It is shown there that in contrast to the commutative case some examples of unital po-groups have no state, but that any normal-valued unital ℓ -group, possess this property. Some other features of the po-groups that don't fulfil the assumption of commutativity are derived, as well.

The next six papers in this special issue are more applied. Inspired by Butnariu et al, Navara and Horčík investigate the validation sets in R -fuzzy logics. They focus especially on the three basic t-norms min, prod and Łukasiewicz t-norm. Sarkoczi and Sabo deal with RET (relevancy transformation) operators acting in fuzzy control. They investigate especially the information boundedness principle point of view and show its connection with 2-monotonicity.

The ninth paper by Mareš is focused on the fuzzification of some classical ordering relations used in the coalitional game theory. It is shown that the deterministic axioms have their (in some cases not very strong) analogies for the fuzzy orderings.

The next contribution by Viertl gives a way of description of measurements of continuous physical quantities by means of fuzzy quantities (non-precise vectors). Some hints on how to process with such fuzzy quantities are included. The paper by Pap and Hadžić brings fixed point theorems in probabilistic metric spaces with triangle functions derived from some continuous Archimedean t-norm. Note that these authors have recently published a monograph on the topic, however, their contribution brings some new results not contained there.

The last paper by Komorník and Komorníková proposes a new method (cointegration) of time series modelling in 2-dimensional space, starting from two marginal time series. The proposed method is successfully applied to some geodetical data.

All presented contributions offer new interesting views on uncertainty modelling and its applications. The guest editors thank to all authors of accepted (but also of non-accepted) papers for their prompt and fruitful collaboration. We appreciate also the excellent work of several referees.

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