

Milan Mareš; Radko Mesiar

Special Issue: Editorial [Selected papers from 7th FSTA Conference, 2004]

Kybernetika, Vol. 41 (2005), No. 2, [113]--114

Persistent URL: <http://dml.cz/dmlcz/135644>

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SPECIAL ISSUE: EDITORIAL

MILAN MAREŠ AND RADKO MESIAR

This Special Issue of *Kybernetika* collects extended and revised versions of selected papers presented at the 7th FSTA (Fuzzy Sets: Theory and Applications) international conference held in Liptovský Ján from January 26th to 30th, 2004. The conference was organized by the Military Academy Liptovský Mikuláš, Slovak University of Technology Bratislava, Mathematical Institute of the Slovak Academy of Sciences, Bratislava, and the EUSFLAT association.

From the selected papers we have finally accepted twelve papers, following the suggestions and recommendations of referees. In this special issue, nine of the accepted papers are included. The three remaining papers will appear in the next issue of *Kybernetika* because of the space limitation.

The first group of four papers deals with algebraic aspects of fuzzy sets and related algebraic structures. Šešelja and Tepavčević investigate necessary and sufficient conditions ensuring the equality of two poset P -valued fuzzy sets whenever their cut sets are equal. Relationship of P -valued fuzzy sets and fuzzy sets with co-domain in Dedekind–MacNeille completion of P is deduced.

Riečanová and Marinová study the unbounded versions of effect algebras, especially the problem when lattice operations are inherited under embedding as a special proper ideal of some effect algebra. These conditions are extended to special kinds of effect algebras. They show that each generalized MV -effect algebra possesses a bounded orthogonally additive measure.

Di Nola, Dvurečenskij, Hyčko and Manara study the entropy on effect algebras. In Part I, several types of entropy of dynamical systems on effect algebras are proposed and their properties are investigated. Refinements of two partitions in these settings can be defined in several different ways. In Part II, the entropy on special effect algebras (tribes of fuzzy sets, σ -complete MV -algebras) is studied. Results known for MV -algebras with product are generalized.

The next two papers deal with fuzzy measures. Kramosil has relaxed the maximality of lattice-valued possibilistic measures by means of special similarity relation, thus leading to the introduction of lattice-valued quasi-possibilistic measures. Some properties of these fuzzy measures are investigated.

Struk and Valášková discuss special fuzzy measures and their distortions. A complete description of distortion functions preserving the subadditivity (superadditivity, belief, plausibility) property is given.

In the next paper, Drygaš investigates the structure of t -uninorms on $[0, 1]$. Special attention is paid to the uninorms which are internal when they aggregate two elements from opposite cones with respect to the neutral element.

The last two papers in this issue are focused on applications of fuzzy sets theory. Bodenhofer and Bauer study the interpretability of fuzzy rule-based systems from different aspects. An axiomatic framework for dealing with the interpretability of linguistic variables is proposed. Applications to fuzzy systems design aid, data-driven learning and tuning, and rule base simplification are indicated.

Sicilia, Cuadrado-Gallego, Crespo and Garcia use fuzzy set elicitation techniques as a tool to model vague categories expressing cost driver quantities, focusing on two well-known COCOMO drivers. Fuzzy set elicitation and aggregation operator modelling combined provide a novel approach to extending fuzzy parametric models for software estimation.

The last three papers will appear in the next issue of *Kybernetika*. It deserves mentioning that the next issue of *Kybernetika* (No. 3/2005) is exclusively oriented on the theory and application of the fuzzy sets and closely related topics.

Drewniak and Dudziak study the aggregation of fuzzy relations preserving specific properties, such as reflexivity, symmetry, connectedness and transitivity.

Stupňanová discusses the cancellation law for pseudo-convolutions (based on some triangular norm) of fuzzy quantities and distribution functions. Special attention is paid to the continuous t -norms case and to the drastic product case.

Holeňa studies the extraction of logical rules from data within a five-dimensional classification scheme for neural networks. General fuzzy disjunctive normal forms are taken as an important representative of such extraction methods. An algorithm demonstrating the principal possibility to extract fuzzy logic rules from multilayers perceptrons with continuous activation functions is also given.

We are indebted to the authors of all accepted as well as of all rejected papers, and to all referees who enabled the preparation of this valuable Special Issue of *Kybernetika*.

Milan Mareš, Institute of Information Theory and Automation – Academy of Sciences of the Czech Republic, Pod Vodárenskou věží 4, 182 08 Praha 8, Czech Republic.

e-mail: mares@utia.cas.cz

Radko Mesiar, Department of Mathematics and Descriptive Geometry, Faculty of Civil Engineering, Slovak University of Technology, SK-81 368, Bratislava, Slovak Republic, and Institute of Information Theory and Automation – Academy of Sciences of the Czech Republic, Pod Vodárenskou věží 4, CZ-182 08 Praha 8, Czech Republic.

e-mail: mesiar@math.sk