Editorial

Special Issue on the Ninth European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty (ECSQARU 2007)

This special issue of the International Journal of Approximate Reasoning is devoted to some of the best papers presented at the Ninth European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty (ECSQARU'07) which took place in Hammamet, Tunisia from October 31 to November 2, 2007.

For this edition, we have selected a collection of 11 papers (from 75 accepted in ECSQARU 2007) which have been chosen following the recommendations of reviewers, chairmen and the editorial committee of this edition. Extended versions of these papers have been submitted for this special edition and for each of them, at least three reviewers were assigned to report on these extended versions. Finally, seven papers have been accepted to be published in this edition.

The first two papers deal with logics under uncertainty. The first one by Codara et al. addresses the problem of describing in the language of Gödel logic the notion of “Ruspini partition” for a (finite) set $P$ of fuzzy sets on $[0,1]$. The authors provide an in-depth analysis of what is the best approximation to such a notion expressible in Gödel logic; for that purpose, they resort to the combinatorial representation free Gödel algebras in terms of forests, obtaining a formula which axiomatizes the related notion “weak Ruspini partition”. The second paper by Lukasiewic and Straccia presents a web semantic oriented language mixing fuzzy and probabilistic aspects. Its main contribution is the management of fuzzy vagueness and probabilistic uncertainty in a unique framework for the semantic web.

The third accepted paper in this collection has argumentation as a main topic. In this paper, Baroni and Giacomin introduce a set of skepticism relations, providing a formal counterpart to several alternative notions of skepticism at an intuitive level. A systematic comparison of a significant set of semantics on the basis of the proposed skepticism relations is also performed.

The fourth accepted paper by Holeña proposes quality measures of sets of rules extracted from data. The author introduces three approaches to extend quality measures from classification rulesets to general rulesets and discusses in detail one of these approaches. The paper also proposes a generalization of ROC curves to general rulesets.

The fifth paper in this collection, by Dubois and Fargier, deals with qualitative evaluation processes when the worth of items is computed by means of Sugeno integral. It presents an in-depth comparison of Sugeno integral-based decision making with respect to the classical axioms of Savage. It shows several deficiencies of qualitative decision making. The authors develop several approaches based on the Choquet integral to overcome the weak discriminating power of the Sugeno integral.

The sixth paper by Bonzon et al. explores ($n$-players) Boolean games that are defined over compact propositional languages. It considers the two cases where the players have dichotomous and non-dichotomous preferences. This paper defines graphical dependencies between the players, as well as Nash equilibria as solutions to Boolean games. It turns out that the Nash equilibria have simple characterizations in certain graphical special cases.

Finally, the last accepted paper of Ogryczak and Sliwinski addresses the problem of averaging outcomes under several scenarios to form overall objective functions. This problem is of considerable importance in decision support under uncertainty. The so-called Weighted OWA (WOWA) aggregation offers a well-suited approach to this problem. The authors propose a subtle approach to reduce the WOWA optimization problem to a linear program. They also study a generalized WOWA objective function, related to a popular measure in financial applications (CVaR) where they show that a very similar approach still can be applied.

These accepted papers constitute only a small subset of the papers presented at ECSQARU 2007, but as detailed above, they belong to different fields of symbolic and quantitative approaches to reasoning with uncertainty. We hope that the reader of this special issue will find them equally interesting.
We are particularly indebted to all the reviewers who helped us at the various stages of the reviewing process. We would also thank Thierry Denoeux for the opportunity to publish this collection of papers as a special issue of the journal.

Khaled Mellouli
Zied Elouedi
Nahla Ben Amor
Boutheina Ben Yaghlane

Laboratory of Operations Research, Decision and Control of Processes (LARODEC), Tunis, Tunisia

E-mail addresses: khaled.mellouli@ihec.rnu.tn (K. Mellouli),
zied.elouedi@gmx.fr (Z. Elouedi), nahla.benamor@gmx.fr (N.B. Amor),
boutheina_yaghlane@yahoo.fr (B.B. Yaghlane)

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