Upcoming special Issues

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International Journal of Approximate Reasoning
Special Issue on
Tri-partition of a Universe: Three-way decisions, orthopairs and square of opposition

Submission deadlines:
May 30, 2016 (Full papers)   A tri-partition of a universe consists of three pair-wise disjoint subsets whose union is the universe. The use of a tri-partition for information processing, reasoning, and problem solving has appeared in many disciplines. Recently, three approaches to knowledge representation and reasoning based on a tri-partition of the universe of investigation are gaining interest.

The theory of Three-Way Decisions (3WD) is an extension of the commonly used binary-decision model with an added third option. As a novel and important theory in knowledge discovery, management and utilization, the concept of three-way decisions was first introduced in rough set theory for interpreting the positive, negative and boundary regions. It moved to a more general trisecting-and-processing framework based on a generic tri-partition of the universe that can assume different interpretations and requires different decision strategies.

Orthopairs also arise in the rough set context as an abstraction of the (lower, exterior) approximation pairs. It is a knowledge representation tool that can be used to model several situations characterized by a bipolarity, such as trust/distrust, examples and counter-examples, partial knowledge, borderline cases etc. It has strict links to three-valued logics in the sense that orthopairs are in bijection with three-valued sets.

The hexagon of opposition is a generalization of the Aristotelian square of opposition, pictorially representing different relationship between two logical statements. Any tri-partition of a universe naturally defines a hexagon of oppositions. Its ability in representing different kinds of knowledge made possible to widely apply it and discover new potentiality in several paradigms, including formal concept analysis, rough sets, abstract argumentation, analogical proportions, etc.

This special issue aims at finding new connections among three-way decisions, orthopairs and the theory of opposition, and with any other paradigms based on a tri-partition of the universe, both at a theoretical and an application level. Any approach to tri-partition, such as logical, algebraic, geometric, probabilistic, and possibilistic methods, is welcome. Finally, contributions that discover connections with new models or that explore the connection with the already known models are solicited. A non-exhaustive list of topics related to tri-partition includes:

 - abstract argumentation
 - analogical proportions
 - approximate reasoning
 - belief functions
 - bipolarity
 - classification
 - conditional events
 - decision-making
 - formal concept analysis
 - granular computing
 - interval analysis
 - interval sets
 - intuitionistic fuzzy sets
 - paraconsistent logic
 - possibility theory
 - rough sets
 - sequential analysis
 - set pair analysis
 - shadowed sets
 - three-valued logic
 - version spacesAdditional information about this special issue can be found at:
http://www2.cs.uregina.ca/~twd/publications/TofU-IJAR-2015.html

Submission Guidelines:

All papers should be submitted to IJAR website http://ees.elsevier.com/ija/ and choose the Special Issue “tri-

partition”.
All online submissions should follow the “Guide for Authors” of the journal.

Important Dates

Submission of papers: before May 30, 2016
(Papers will be sent to reviewers as soon as we receive them)

Publication of special issue: January 2017
 Guest editors Davide CiucciYiyu Yao