

Talk Abstract: Dialectics of Approximation of Semantics of Rough Sets

A. Mani

Department of Pure Mathematics

University of Calcutta

9/1B, Jatin Bagchi Road

Kolkata-700029, India

Web: <http://www.logicamani.in>

Email: a.mani.cms@gmail.com

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If R is a relation on a set \underline{S} , then R can be approximated by a wide variety of partial/quasi-order relations in both classical and rough set perspective [1]. Though the methods are essentially equivalent for binary relations, the latter method is more general. From a theoretical perspective, rough semantics over infinite types of general approximation spaces of the form $S = \langle \underline{S}, R \rangle$ are of interest.

The relation to the following classes of problems are of natural interest:

- ★ Formulation of Semantics across semantic domains [2],
- ★ Ontology/constructibility of correspondences across distinct rough semantics [3, 4], and
- ★ Contamination reduction and correspondences of fragments with semantic value like those relating to probability or a specific kind of RST [5].

Proto-transitivity is one of the infinite number of possible generalizations of transitivity. Proto-transitive approximation spaces **PRAX** have been introduced by the present author in [6] and the nature of definite objects and knowledge representation considered therein. It is relatively a harder structure from a semantic perspective as the representation of rough objects is

involved [6]. Though as many as five different semantic approaches have been developed by the present author in a forthcoming paper, there is scope for further enhancement.

In my talk, I will focus on the basic aspects of the first kind of problem with special reference to PRAX.

References

- [1] Janicki, R.: Approximation of Arbitrary Binary Relations by Partial Orders: Classical and Rough Set Models. Transactions on Rough Sets **XIII**(LNCS 6499) (2011) 17–38
- [2] Mani, A.: Approximation Dialectics of Proto-Transitive Rough Sets. In: Proceedings of ICFUA'2013, In Press (Dec 2013) 10 pp
- [3] Mani, A.: Axiomatic Approach to Granular Correspondences. In Li, T., et al., eds.: Proceedings of RSKT'2012, LNAI 7414. Volume LNAI 7414., Springer-Verlag (2012) 482–487
- [4] Mani, A.: Contamination-Free Measures and Algebraic Operations. In Pal, N., et al., eds.: Proceedings of FUZZIEEE'2013 Hyderabad, India, CIS-IEEE. (2013) 16pp
- [5] Mani, A.: Dialectics of Counting and the Mathematics of Vagueness. Transactions on Rough Sets **XV**(LNCS 7255) (2012) 122–180
- [6] Mani, A.: Dialectics of Knowledge Representation in a Granular Rough Set Theory. In: <http://arxiv.org/abs/1212.6519> . Refereed Conference Paper: ICLA'2013, Inst. Math. Sci. Chennai. (2013) 1–12