▸ CAN BAŞKENT and ROHIT PARIKH, *Towards multi-agent subset space logic.*
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Subset space logic (SSL) is a bimodal epistemic logic with a geometrical semantics as opposed to the unimodal topological models or Aumann structures [1]. The original presentation of that logic is for a single agent [5]. There have been several suggestions for multi-agent SSL in the literature [2]. What makes multi-agent version rather difficult is the fact that admissible sets are not specified in the original construction. In this work, we present a multi-agent version of SSL by making use of the knowledge structures [3]. We first extend them to a multi-modal setting then modify them for multi-agent setting. We construct a cascade of *subset structures* inductively and give the equivalence proof with the usual semantics. Furthermore, we conjecture the completeness and decidability of our axiomatic system.

[1] Robert J. Aumann, *Agreeing to Disagree*, ***The Annals of Statistics***, vol. 4 (1976), no. 6, pp. 1236–1239.

[2] Can Başkent, *Topics in Subset Space Logic*, ***Institute for Logic, Language and Computation***, Technical Report: MoL-2007-05 (2007), Universiteit van Amsterdam.

[3] Ronald Fagin, Joseph Y. Halpern and Moshe Y. Vardi, *A Model-Theoretic Analysis of Knowledge*, ***Journal of the Association for Computing Machinery***, vol. 38 (1991), no. 2, pp. 382–428.

[4] Rohit Parikh and Ramaswamy Ramanujam, *A Knowledge Based Semantics of Messages*, ***Journal of Logic, Language and Information***. vol 12 (2003), no. 4, pp. 453–467.

[5] Rohit Parikh, Lawrence S. Moss and Christopher Steisnvold, *Topology and Epistemic Logic*, ***Handbook of Spatial Logics*** (Aiello, Pratt-Hartmann and van Benthem, editors) Springer 2007, pp. 299-342.