

1162-91-9

Lorraine Marie Arangno and **Deborah C Arangno*** (darangno@hcc-nd.edu), 54515 S.R.
933 North, P.O. Box 308, Notre Dame, IN 46556-0308. *AN APPLICATION OF
MATHEMATICAL STRUCTURES TO A PHILOSOPHICAL DEBATE.*

In contemporary metaethics, realist-antirealist debates centering on the ontology of moral properties continue to generate significant and exciting research. We have explored the use of methods from Graph Theory to clarify a debated position of Meta-Ethics, previously encumbered by intrinsic vagueness and ambiguity. We employ rigorous mathematical formalism to symbolize, parse, and thus disambiguate, particular philosophical questions regarding ethical ontological materialism of the reductivist variety. In our research, we seek to revisit the once vexed question regarding the multiple-realizability of moral properties by employing the mathematical machinery of hypergraphs. The utilization of hypergraphs offers explanatory flexibility to the hypothesis that there are, potentially, an infinite number of unrelated subvening facts (viz., the subvening sets of natural non-moral properties) which have the possibility of coming together as subsets (hyperedges) to form supervening moral properties. We hope our research will be of interest to both the Analytic Philosophy and the applied Mathematics communities, and will help facilitate discussions of metaethics, particularly pertaining to ethical naturalism. We believe there is much research yet to be done (Received July 11, 2020)