1135-J1-2418 **Abdur-Rahman Munajj*** (rmunajj@gmail.com), 112-15 209 Street, Queens Village, NY 11429, **Shaquille Winston** (shaquillle.winston42@myhunter.cuny.edu), 51-45 Almeda Avenue, Far Rockaway, NY 11691, and **Brett Sims** (bsims@bmcc.cuny.edu), 199 Chambers Street, Department of Mathematics, New York, NY 10007. *Topologies on Cognitive Substructures.* Preliminary report.

Kurt Lewin, in his book Principles of Topological Psychology (1936), wrote that topology is a suitable mathematical theory to describe properties and dynamics in psychological spaces. He presented a detailed analysis of psychological space and dynamics in topological terms of interior and exterior regions, boundary zones, paths, and connectivity. In 2011, Falmagne and Doignon defined cognitive substructures as Knowledge Spaces composed of subsets of states of knowledge that a learner can "move" through, during problem solving. In our work, we consider cognitive substructures of the mind to be sets of many-sorted formulas. These formulas, as defined by Eysenck and Keane (2000), are mental representations of perceived aspects of environments (subsets) of the real-world, or mental representations of things imagined in the mind itself. We discuss Hausdorff and non-Hausdorff topologies on cognitive substructures of a space of mental representations. We explore the degree of "Hausdorff-ness" of a cognitive structure with respect to the emotional magnitude imposed on that structure. Bases are defined for topologies on subsets of the real-world and cognitive mental substructures, and we construct a type of mental covering space and map for selected subsets of the real-world. (Received September 26, 2017)