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Some results related with coarse structure, coarse map and coarse equivalent

N. Kajan* and K. Kannan

Department of Mathematics and Statistics, Faculty of Science, University of Jaffna, Sri Lanka
*kajankajan914@email.com

Coarse spaces are sets equipped with a coarse structure, which describe the behavior of the space at the large distance. Coarse space is defined for large scale in metric space similar to the tool provided by topology for analyzing behavior at small distance, as topological property can be defined entirely in terms of open sets. Analogously a large scale property can be defined entirely in terms of controlled sets. The properties we required were that the maps were coarse (proper and bornologous). But why do these maps imply that the spaces have same large structure? Essentially, this has to do with contractibility. A coarse space has well defined notation of boundedness and bounded subsets. We also define closeness of maps, a term, which indicates that two maps are uniformly bounded and also coarse equivalent. This comprises of two coarse maps whose composition in which ever order are close to the respective identity maps on each space. Boundedness and also coarse equivalent which is comprised of two coarse maps whose composition in which ever order are close to the respective identity maps on each space. The objective of this paper is to establish some example for coarse map need not be a continuous map, composition of two mapping is coarse map but the converse need not be true. Additionally, the coarse equivalent is an equivalence relation, a linear mapping is a coarse map, the closeness of coarse space is an equivalence relation and the inclusion map is coarse map.

Keywords: Coarse equivalent, coarse map, coarse space