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Mahesh G Nerurkar* (nmahesh@crab.rutgers.edu), 311 N 5th street, Department of Mathematics, Rutgers University, Camden, NJ 08081. *Regional Proximity Relation in Topological Dynamics*.

One of the most fundamental theorem in topological dynamics says that, (under various conditions on the acting group or its action) the regional proximity relation is an equivalence relation. Several different proofs of this result are available, (due to Furstenberg, Ellis, Veech, McMahan, Auslander-Guerin). We shall present another proof based on capturing this relation in terms of ‘Birkhoff ultrafilters’ and showing that these ultrafilters has a semigroup structure. The advantage in our proof is that it can be extended to the study of the notion of ‘order d regional proximity’ recently introduced by Host, Kra and Maass. (Received August 10, 2013)