

Melvin Henriksen, Amir Nikou

Removing sets from connected product spaces while preserving connectedness

Comment.Math.Univ.Carolin. 48,1 (2007) 119-134.

Abstract: As per the title, the nature of sets that can be removed from a product of more than one connected, arcwise connected, or point arcwise connected spaces while preserving the appropriate kind of connectedness is studied. This can depend on the cardinality of the set being removed or sometimes just on the cardinality of what is removed from one or two factor spaces. Sometimes it can depend on topological properties of the set being removed or its trace on various factor spaces. Some of the results are complicated to prove while being easy to state. Sometimes proofs for different kinds of connectedness are similar, but different enough to require separate proofs. Many examples are given to show that part of the hypotheses of theorems cannot be dropped, and some examples describe results about spaces whose connectedness can be established directly but not with the help of our results. A large number of examples are given for such purposes.

Keywords: connected, arcwise connected, point arcwise connected, locally connected, cut points, product spaces, long line, arcs, L-arcs, their unions, continuous images and inverse images

AMS Subject Classification: 54D05, 54B05, 54F15