Setwise and Pointwise Betweenness via Hyperspaces

Qays Shakir[*1], *Aisling McCluskey*

q.shakir2@nuigalway.ie,
aisling.mccluskey@nuigalway.ie

This work investigates the notion of setwise betweenness, a concept introduced by P. Bankston as a generalisation of pointwise betweenness. In the context of continua, we say that a subset C of a continuum X is between distinct points a and b of X if every subcontinuum K of X containing both a and b intersects C. The notion of an interval $[a, b]$ then arises naturally. Further interesting questions derive from considering such intervals within an associated hyperspace on X. We explore these ideas within the context of the Vietoris topology on the set 2^X of all nonempty closed subsets of a T_1 space X. Moreover an alternative pointwise interval, derived from setwise intervals, is introduced.

[1] The first author was partially supported by the iraqi minisitery of heigher eduactation and scientific Research