

Convex embeddability on linear/circular orders and connections to knot theory

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Given two countable linear orders L and M , we say that L is convex embeddable in M iff L is isomorphic to a convex set in M . We first show that, in contrast to the usual embeddability between linear orders, convex embeddability is combinatorially complicated. Then we study the complexity of the equivalence relation induced by convex embeddability, proving that it “is not much more complicated” than the isomorphism relation between linear orders. We use convex embeddability to look at the complexity of the sub-arc relation among proper arcs, and we also consider an analogue of convex embeddability on countable circular orders to obtain similar results for knots. This is joint work with Vadim Kulikov, Alberto Marcone, and Luca Motto Ros.