

A PARTIAL ORDERING OF KNOTS THROUGH DIAGRAMMATIC UNKNOTTING

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Abstract

In this paper we define a partial order on the set of all knots and links using a special property derived from their minimal diagrams. A knot or link \mathcal{K}' is called a *predecessor* of a knot or link \mathcal{K} if $Cr(\mathcal{K}') < Cr(\mathcal{K})$ and a diagram of \mathcal{K}' can be obtained from a minimal diagram D of \mathcal{K} by a single crossing change. In such a case we say that $\mathcal{K}' < \mathcal{K}$. We investigate the sets of knots that can be obtained by single crossing changes over all minimal diagrams of a given knot. We show that these sets are specific for different knots and permit partial ordering of all the knots. Some interesting results are presented and many questions are posed.