

Inversions

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Given a digraph D and a set $X \subseteq V(D)$, the operation of inverting X in D consists of changing the orientation of all arcs whose both endvertices are in X . The inversion number of a given digraph is the minimum number of inversions needed to obtain an acyclic digraph.

Using a probabilistic argument, we show that there are digraphs whose inversion number is close to their order. We further refute a conjecture of Bang-Jensen et al. concerning the behaviour of the inversion number with respect to a certain graph operation.

We also study the problem of obtaining a highly connected digraph by a small number of inversions.

This is joint work with Guillaume Aubian, Julien Duron, Frédéric Havet, Felix Klingelhofer, Nicolas Nisse, Clément Rambaud and Quentin Vermande.