

Maximal Condorcet domains

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Abstract

Condorcet domains are subsets in the set LO of linear orders, where the simple majority rule does not yield cycles. One of the first examples of Condorcet domains is due to Black (1948). A challenging problem in the field is to construct maximal Condorcet domains. Some results in this field were obtained by Abello, Chamenie-Membua, Fishburn, Monjardet, Gallambus and Rainer. We characterize maximal Condorcet domains in terms of a symmetric binary relation \sim on the set LO. More precisely, we prove that maximal Condorcet domains are just cliques in the graph (LO, \sim) . We apply our theorem to study of two classes of maximal Condorcet domains, the so called symmetric domains, which with any order contains also the opposite order, and the tiling-type domains.

Joint work with V.Danilov and S.Karzanov