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Simplicial Complexes of Strong Placement Games

Strong Placement Games are a class of 2-player, perfect information games in which pieces are placed on a graph (the board), and the order of the placement does not matter. To each strong placement game we can assign two simplicial complexes, the legal and illegal complex, which have a natural bipartition of vertices corresponding to each player. We will show that in turn every simplicial complex with a specified bipartition is the legal and illegal complex of some strong placement games. The case in which the legal complex is a flag complex is further studied. This is joint work with Sara Faridi and Richard Nowakowski.