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*Permutations and Geometric Realizations of  $K_{2,n}$*

Two geometric realizations of  $G$  are geo-isomorphic if there is an isomorphism between them preserving edge crossings and non-crossings. Geo-homomorphisms, an extension of graph homomorphisms, define a partial order on geo-isomorphism classes. We investigate the homomorphism poset of  $K_{2,n}$  by establishing a correspondence between realizations of  $K_{2,n}$  and  $S_n$ , in which edge crossings correspond to inversions. We provide the number of geo-isomorphism classes for  $n \leq 9$  and the complete poset for  $n \leq 5$ .