
ARAM DERMENJIAN, University of Quebec at Montreal

Facial Weak Order for finite Coxeter groups

We will discuss a poset structure that extends the weak order on a finite Coxeter group W to the set of all faces of the permutahedron of W . We call this order the facial weak order. We first provide two characterizations of this poset: a local one, which was first studied by Krob, Latapy, Novelli, Phan, and Schwer in the case of symmetric groups, and a global one, that generalizes the notion of inversion sets of roots. These characterizations are the keys to show that the facial weak order is a lattice, generalizing a well-known result of A. Björner for the classical weak order. This is joint work with Christophe Hohlweg and Vincent Pilaud.