Reflection Groups in the Light of Formal Concept Analysis

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Formal Concept Analysis (FCA) is a branch of applied lattice theory, concerned with the study of concept hierarchies derived from collections of objects and their attributes. Introduced by R. Wille in the 1980s, FCA now has found applications in machine learning and related fields. An application of FCA to hyperplane arrangements yields a new Galois connection on the (conjugacy classes of) parabolic subgroups of a finite reflection group. Combined with methods from Serre's recent work on involution centralizers, we obtain a refinement of Howlett's description of the normalizers of parabolic subgroups of a finite Coxeter group. This is joint work with G. Roehrle and J.M. Douglass.