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Coxeter brick polytopes

We define the brick polytope of a subword complex on a finite Coxeter group. This construction provides polytopal realizations for a certain class of subword complexes containing in particular the cluster complexes of S. Fomin and A. Zelevinsky. For the later, the brick polytopes coincide with the generalized associahedra of C. Hohlweg, C. Lange, and H. Thomas. We obtain a vertex description of these polytopes and explain some of their combinatorial properties. Joint work with Christian Stump.