

# On the cyclically fully commutative elements of Coxeter groups

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**Abstract:** Loosely speaking, a Coxeter group is a generalized reflection group. In fact, every finite Coxeter group admits a faithful representation as a finite reflection group of some Euclidean space. The symmetric group  $S_n$  and the dihedral group  $D_n$  with  $2n$  elements are examples of Coxeter groups. In this talk, we will introduce Coxeter groups from an abstract point of view involving “words” in distinguished generators. An element of a Coxeter group is called fully commutative (FC) if all of its reduced words avoid certain combinations of generators, and an element is called cyclically fully commutative (CFC) if every cyclic shift of every reduced word results in a reduced word for an FC element with the same number of letters in the word. We will discuss some of our recent findings concerning the combinatorics of the CFC elements in Coxeter groups that contain a finite number of CFC elements.

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