

Garside shadow and Shi arrangements in Coxeter groups

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Abstract

Given an affine Coxeter group W , the corresponding Shi arrangement is a refinement of the corresponding Coxeter hyperplane arrangements which was introduced by Shi to study the Kazhdan-Lusztig cells for W . Shi showed, in particular, that each region of a Shi arrangement contains exactly one element in W of minimal length. Garside shadows in W were introduced to study the word problem of the corresponding Artin-Tits (braid) group and turns out to produce automata to study the combinatorics of reduced words in W .

In this talk, we will discuss the following conjecture: the set of minimal length elements of the regions in a Shi arrangement is a Garside Shadow. The talk will be illustrated by the example of the affine symmetric group.