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Embedded Factor Patterns and Deodhar Elements of Weyl Groups

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A pattern in a permutation is a specified sequence of rises and fall. Several disparate phenomena have been characterized by permutations avoiding certain patterns, including stack sortability in computer science, geometric information about Schubert varieties in algebraic geometry, and properties of the set of reduced words of a permutation. We introduce embedded factor patterns, which are a generalization that can be defined for any Coxeter group, and use them to characterize when the Kazhdan-Lusztig polynomials (which arise in representation theory and the geometry of Schubert varieties) have a simple combinatorial formula using a framework of Deodhar.

This is joint work with Sara Billey.
