
Cataland: Why the Fuss?

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Abstract

The main objects of noncrossing Catalan combinatorics associated to a finite Coxeter system are noncrossing partitions, sortable elements, and cluster complexes. The first and the third of these have known Fuss–Catalan generalizations. We provide new viewpoints for these, introduce a corresponding generalization of sortable elements as elements in the positive Artin monoid, and show how this perspective ties together all three generalizations.

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