

Avoidance of Partially Ordered Generalized Patterns of the form $k\text{-}\sigma\text{-}k$

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Abstract

Anders Claesson [Generalized Pattern Avoidance, *European Journal of Combinatorics* 22 (2001), 961-971] gave two bijections, one between permutations avoiding the pattern 3-12 and set partitions, and the other between permutations avoiding the pattern 12-3 and set partitions. We use them to construct a bijection between bi-colored partitions and permutations avoiding the partially ordered generalized pattern 3-12-3 (that is, permutations avoiding both the patterns 3-12-4 and 4-12-3).

We enumerate these pattern classes by finding their generating functions. We then describe how the same method can be used to enumerate permutations avoiding a pattern of the form $k\text{-}\sigma$ as Sergey Kitaev has shown [Partially Ordered Generalized Patterns, *Discrete Mathematics* 298 (2005), 212-229]. We extend this further by showing how to enumerate permutations avoiding a pattern of the form $k\text{-}\sigma\text{-}k$.