

## SEPARATION ANXIETY

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The *separable* permutations are those avoiding the patterns 2413 and 3142, or more informatively, those formed from the singleton permutation by repeated application of  $\oplus$  and  $\ominus$ . The class of separable permutations contains all four of the classes defined by avoidance of a single permutation of length three that is not increasing or decreasing. As is well known, those classes have the property that all of their proper subclasses have rational generating functions. By introducing some new techniques that apply more generally to partially well ordered classes we prove:

**Theorem 1.** *Any subclass of the separable permutations that does not contain one of the classes avoiding a single permutation of length three has a rational generating function.*

*This is joint work with Mike Atkinson and Vincent Vatter.*