

1162-05-185

**Michael Ren\*** (mren36@mit.edu). *Wilf Equivalences and Stanley-Wilf Limits for Patterns in Rooted Labeled Forests.*

Building off recent work of Garg and Peng, we continue the investigation into classical and consecutive pattern avoidance in rooted forests, resolving some of their conjectures and questions and proving generalizations whenever possible. Through extensions of the forest Simion-Schmidt bijection introduced by Anders and Archer, we demonstrate a new family of forest-Wilf equivalences, completing the classification of forest-Wilf equivalence classes for sets consisting of a pattern of length 3 and a pattern of length at most 5. We also find a new family of nontrivial  $c$ -forest-Wilf equivalences between single patterns using the forest analogue of the Goulden-Jackson cluster method, showing that a  $(1 - o(1))^n$ -fraction of patterns of length  $n$  satisfy a nontrivial  $c$ -forest-Wilf equivalence and that there are  $c$ -forest-Wilf equivalence classes of patterns of length  $n$  of exponential size. Finally, we prove a forest analogue of the Stanley-Wilf conjecture for avoiding a single pattern as well as certain other sets of patterns. Our techniques are analytic, easily generalizing to different types of pattern avoidance and allowing for computations of convergent lower bounds of the forest Stanley-Wilf limit in the cases covered by our result. (Received August 31, 2020)