

1086-05-1831      **Henning Arnor Ulfarsson\***, [henningu@ru.is](mailto:henningu@ru.is), and **Anders Claesson**. *GRIM: An algorithm for the discovery of generalized permutation patterns.*

Various properties of permutations (or objects in bijection with a subset of them) are captured by permutation patterns. Sometimes classical patterns suffice, e.g., the permutations avoiding 231 are the ones that require at most one pass through a stack to become sorted. Other properties require various generalizations of classical patterns, e.g.,

1. permutations that require at most two passes through a stack are the ones that avoid one classical pattern and one barred pattern;
2. forest-like permutations (corresponding to factorial Schubert varieties) are the permutations avoiding one classical pattern and one vincular pattern.

Mesh patterns provide a common generalization to many older pattern definitions such as barred, vincular, bivincular and interval patterns. GRIM is an algorithm we developed, that given a finite set of permutations, outputs a list of mesh patterns that the input avoids. The algorithm can successfully discover the descriptions mentioned above as well as many others.

In this talk we will discuss the implementation of the algorithm, new results it was used to find and extensions that are planned for it. (Received September 24, 2012)