1083-05-211 **Axel Hultman*** (axel.hultman@liu.se). *Permutation statistics of products of random transpositions.*

Let stat be a permutation statistic. Consider a subset of the symmetric group $T \subseteq S_n$. What is the expected value of stat on a product of t randomly chosen uniformly distributed elements of T?

We describe a simple method to answer such questions. Specifically, if T is the set of transpositions (or, more generally, any union of conjugacy classes), the problem boils down to expanding a certain "average statistic" as a linear combination of irreducible S_n-characters. This turns out to be a simple combinatorial exercise for many standard statistics; examples include the inversion number, major index, descent number, (weak) excedance number and various versions of cycle numbers.

The technique extends earlier joint work with Eriksen. Other specializations recover results by Sjöstrand, Jackson and Alon-Kozma. (Received August 28, 2012)