1050-05-63 **Miklos Bona*** (bona@math.ufl.edu) and **Ryan T Flynn**. *The Average Number of Block Interchanges Needed to Sort A Permutation.*

We use an interesting result of probabilistic flavor concerning the product of two permutations consisting of one cycle each to find an explicit formula for the average number of block interchanges needed to sort a permutation of length n. That is, a question from the theory of algorithms is shown to have its roots in group theory and probability. Even more interestingly, a crucial step of the proof is a lemma of algebraic flavor which may have far-reaching generalizations using tools related to association schemes. (Received February 23, 2009)