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Tracking the Jucys-Murphy Specialization.

Specializations of the algebra of symmetric functions can often be used to clarify our understanding of complicated relationships between quantities of combinatorial interest. This is similar in spirit to the way in which representations of compact Lie groups can unify our understanding of special functions. I will discuss a specialization which maps the algebra of symmetric functions onto the center of the symmetric group algebra, and the problem of tracking the images of familiar symmetric functions (elementary, complete, power sum, monomial, etc.) under this specialization. This problem, which turns out to be relevant in a wide variety of contexts such as matrix integrals and Gromov-Witten theory, can be addressed using tools from both algebraic and enumerative combinatorics. (Received February 02, 2011)