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Michael E Orrison* (orrison@hmc.edu), Department of Mathematics, Harvey Mudd College, Claremont, CA 91711. *Voting, the Symmetric Group, and Representation Theory.*

If the outcome of your election procedure has anything to do with a matrix-vector product, then linear algebra can probably say something interesting about the way you are voting. Furthermore, if the matrix you are using happens to be a module homomorphism, then ideas from representation theory may yield additional insights and natural generalizations. In this talk, I will describe some of the recent work that my students and I have been doing to better understand voting and voting paradoxes from an algebraic perspective. In particular, I will talk about the eye-opening role that the representation theory of the symmetric group has played in our work to date. (Received September 17, 2007)