

Representations and the Symmetric Group

Elizabeth Norton
Advisor: Michael Orrison

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Project Description:

For this project, I will be learning about representations of finite groups, which I was exposed to in fall 2000 "Advanced Algebra." The books we will be using are James and Liebeck's "Representations and characters of groups" (1993) and I. Martin Isaacs's "Character Theory of Finite Groups" (1994).

Later, I will be exploring applications of representation theory to data analysis, such as creating efficient algorithms for decomposing ranked data. For example, this will help to analyze the preferences of voters if they were asked to rank candidates in order of preference, making visible coalitional effects among the candidates and allowing analysis of how the voters decided on rankings among the candidates.