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Jim C. Manning* (manninjc@email.sc.edu) and **Margaret Cozzens**. *Cascading Behavior in Networks: A Game Theory Approach to Modeling Voting Behavior*. Preliminary report.

This project is at the nexus of applied math and political science, using techniques from graph theory and game theory to model recent Congressional and Presidential elections. Using CNN exit poll data in which voters self identified as liberal, moderate or conservative, we represented the electorate as a graph, where individuals were depicted by vertices and those voters with similar ideologies were connected with edges. Obama and McCain could then choose marketing strategies, where their success rate would be determined by the percentages obtained from the exit polls. Our model showed Obama was best to run a moderate campaign, and that he could expect to win with 53% of the popular vote. He actually had 52.9%. However, by allowing each candidate multiple rounds of marketing (with the option to change strategies) the updated model indicated that McCain could have won, had he run a more moderate campaign. Similarly modeling the percentage of the national vote share received by Congressional candidates in the last three cycles also closely followed the observed results. (Received September 22, 2010)