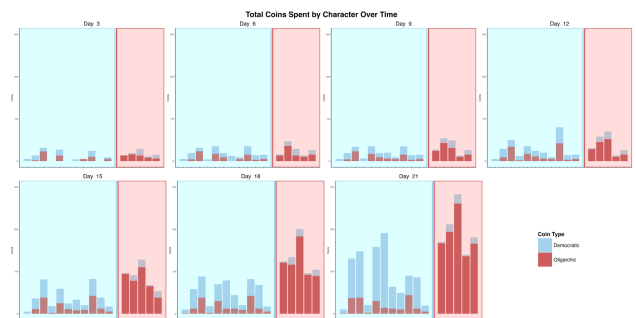


Compilation, Analysis, and Presentation of Data from *Stasis*

Tavi Greenfield, 2027

This project analyzed and modeled *Stasis*, a month-long role-playing game created by Professor Rob Sobak. *Stasis* simulates a small, tightly-knit oligarchic conspiracy working to overthrow a democratic society. Players were given specific character roles and secret political allegiances (either democratic or oligarchic). The five oligarchs knew who each other were, while the eleven democrats had to figure out who to trust. Having correct information was a central aspect of the game: the democrats were tasked with identifying the oligarchs, and all players worked to figure out the correct partition of oligarchic and democratic coins, which they could exchange with other players and spend throughout the game in order to support their team. Thus, my research looked at *Stasis* as a potential case study in political science and social epistemology (the study of how social groups learn and transmit knowledge).

I spent the first part of my summer using statistical tools like RStudio to visualize various aspects of the game in order to look for patterns that would justify *Stasis* as an appropriate case study for social epistemology. I looked specifically at the coin exchanges and coin spending, but I also visualized trends in things like coin balances and messages sent. In addition to teaching me new skills, this phase of my research showed that this was a valid case study in social epistemology, as two discreet learning groups appeared in the visualizations. In particular, I found that the oligarchs were spending the correct coins much earlier in the game and exchanged coins almost exclusively with democrats, while it took a while for the democrats to spend the right coins and they exchanged much more erratically.



The second part of my research involved using Bayesian statistics to model a player's process of updating their knowledge throughout the game. With Professor

O'Brien's help, I built one model to update one's suspicion of another player and another to update one's belief about the allegiance of each coin. After building these models in Python, I was able to use the data collected to retroactively calculate and visualize each player's belief state after each voting assembly. The resulting visualizations, as expected, showed the oligarchs' belief states converging more quickly than that of the democrats.

The last goal of my research, which remains mostly as future direction, involved creating a more comprehensive model of *Stasis* in order to simulate gameplay. I would

then be able to observe how the game responds to changes in variables like the level of information sharing among democrats, the ratio of oligarchs to democrats, the amount of unknowns in the game, or the boldness of either team. I was able to build a preliminary model this summer, but have yet to record any tangible results. I believe this part of the research is abstractable to broader political and epistemological dynamics and may complicate various theories in the literature, so I hope to continue with it in the near future.

Faculty Mentors: Robert Sobak, Jack O'Brien

Funded by the Bowdoin Research Award

