

Q Leedham



Predicting Board Game Complexity

Problem Statement

With platforms like Kickstarter, anyone with an idea can easily make and produce a board game on their own. But while it's easy to produce a game, it's hard to know how complicated the game will be for players. There is a complexity, or weight, rating on Board Game Geek, though it relies on community voting. Is it possible to predict that rating knowing what a creator would know at the start of their project?

Is there a correlation between the mechanics and features of a board game and the game's complexity rating, or weight, on Board Game Geek?

Data Sources



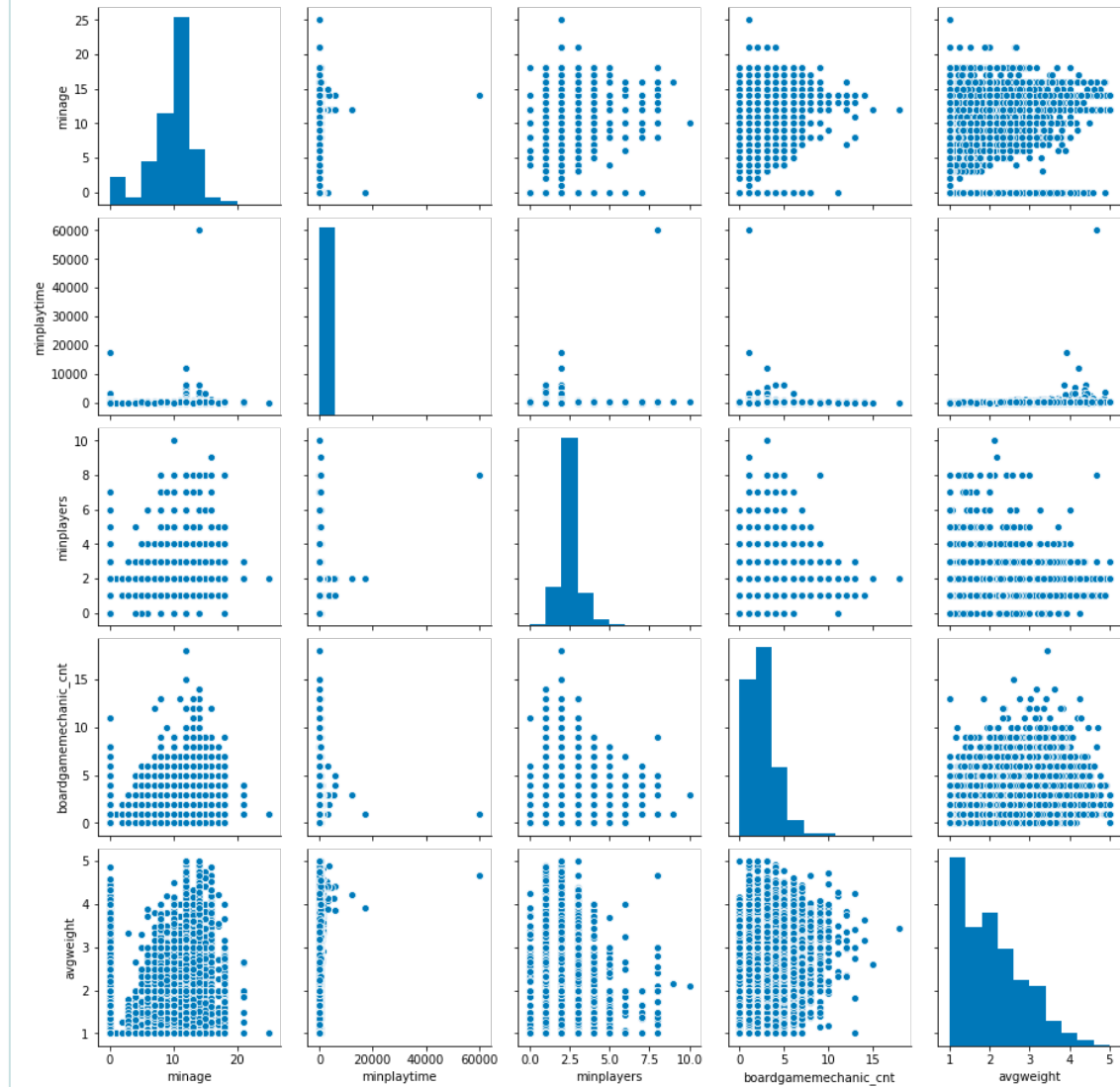
Board Game Geek



Kaggle

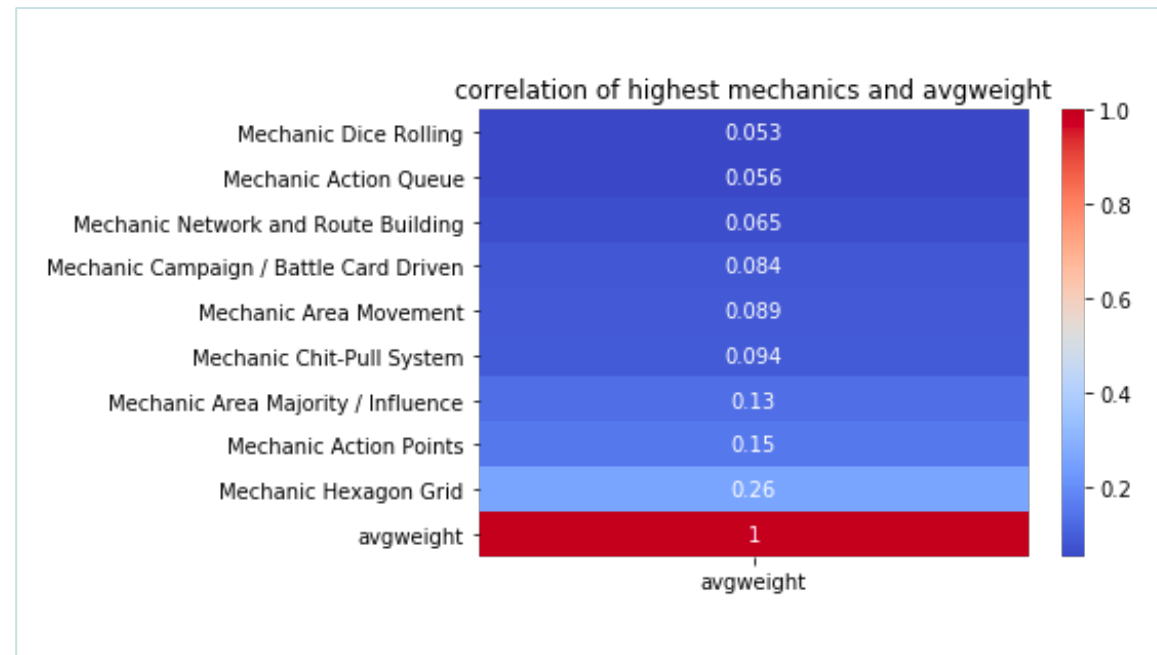
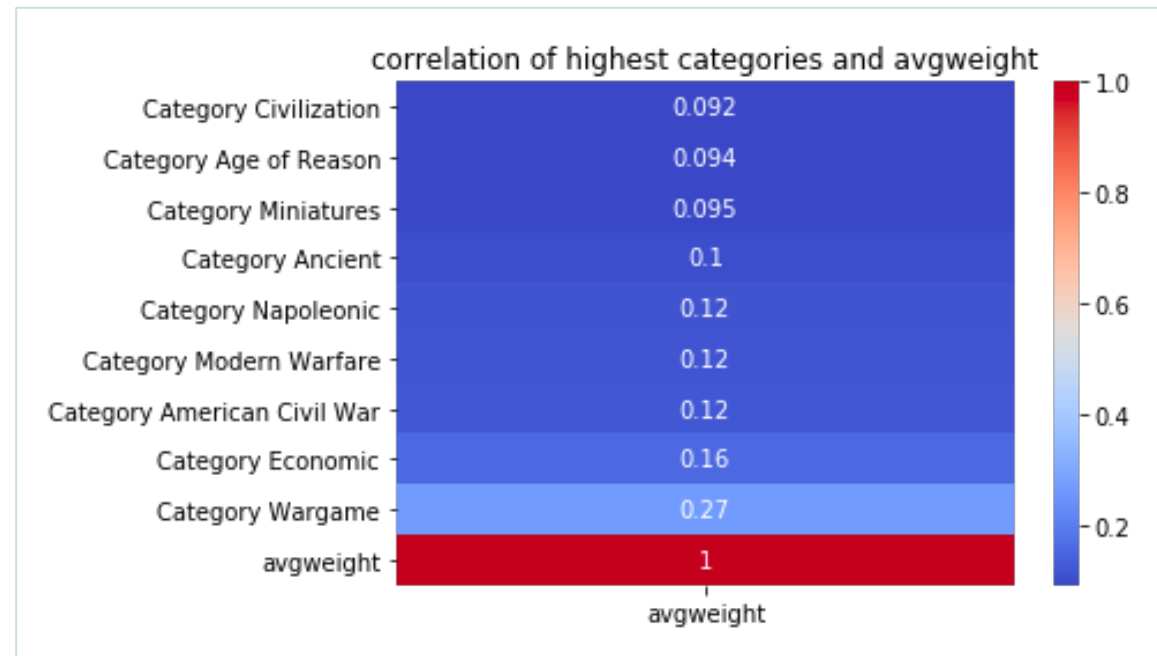
EDA

- Not much correlation
- Had to decide between regression and classification



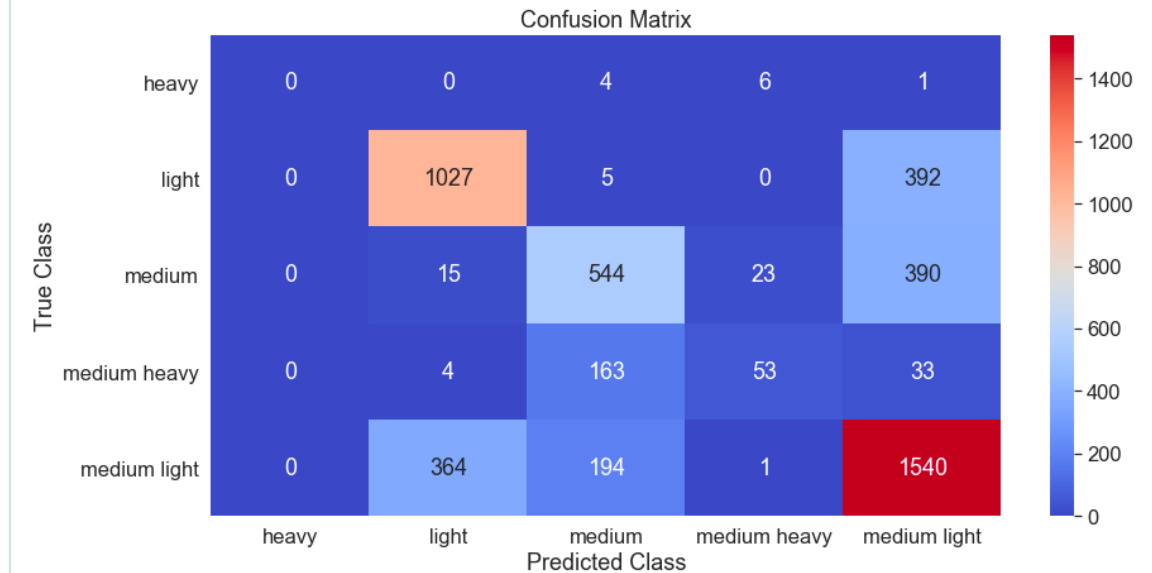
Mechanics & Categories

- 103 total mechanics
- 82 total categories
- None are highly correlated with weight



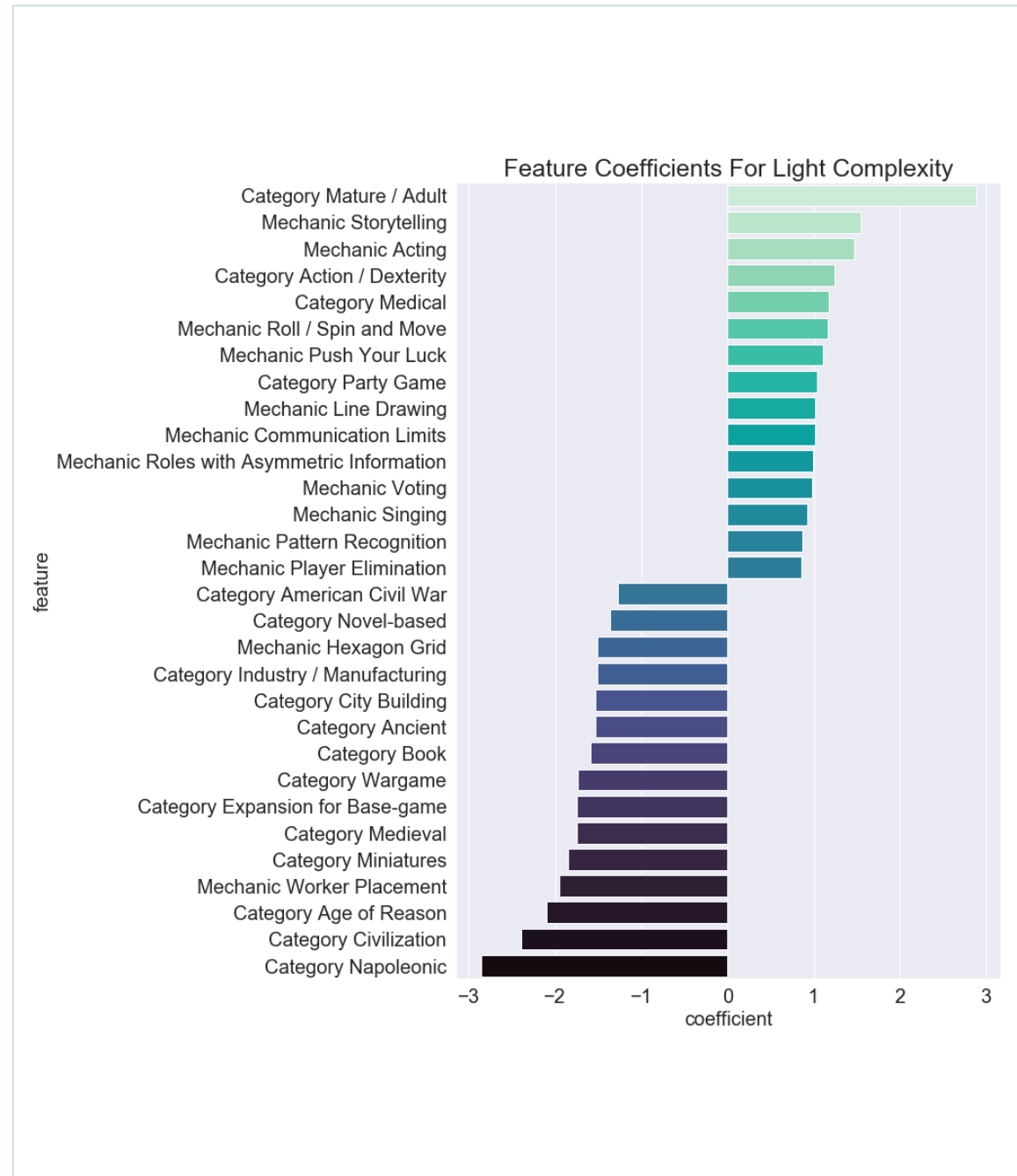
Voting Classifier Model

- 66% accurate
- TPR "light": 72%
- TPR "medium light": 73%
- TPR "medium": 55%
- TPR "medium heavy": 21%
- TPR "heavy": 0%



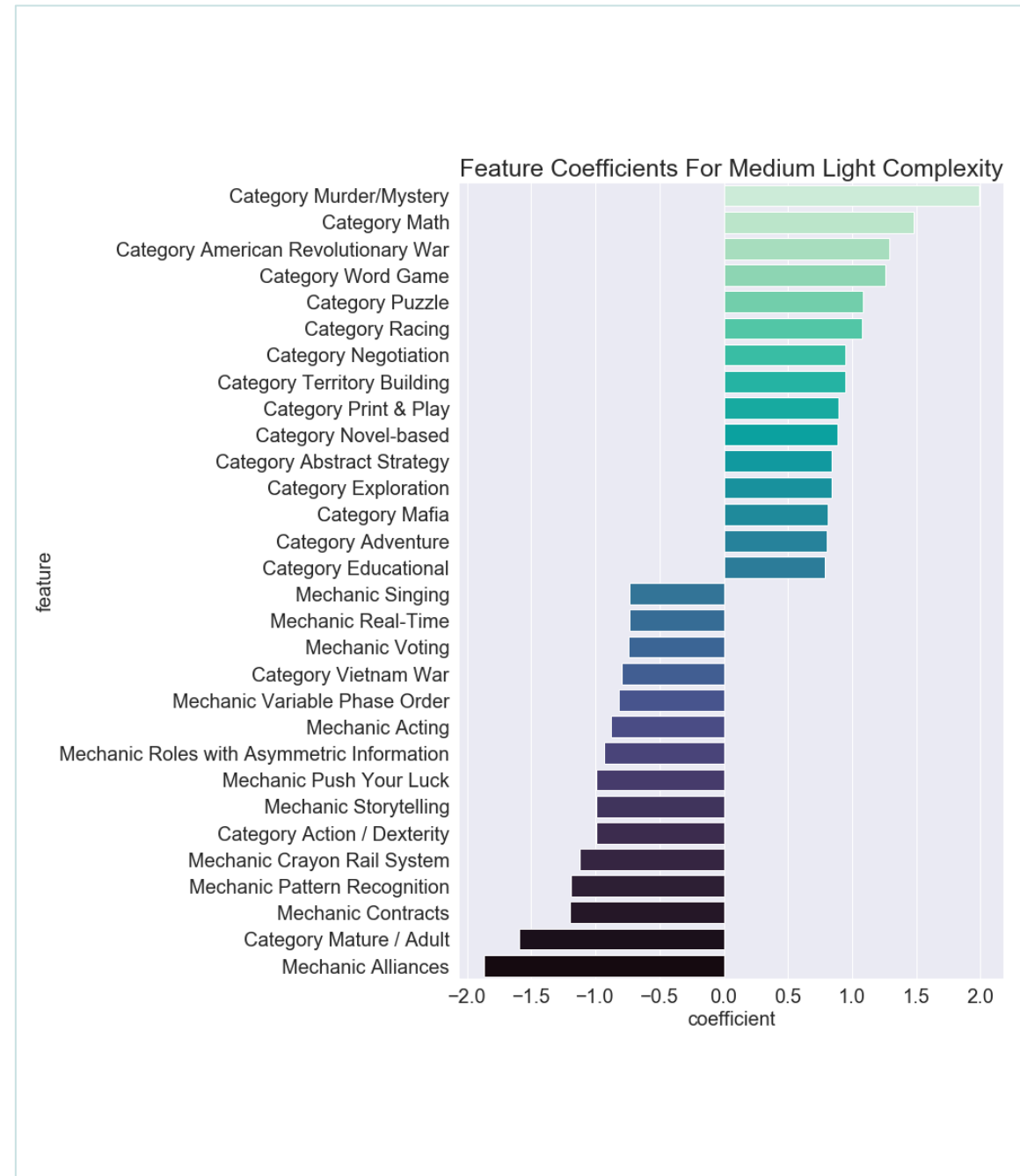
Logistic Regression: Light Complexity

- Mature/Adult is the biggest positive coefficient
- Napoleonic and Civilization the biggest negative coefficients



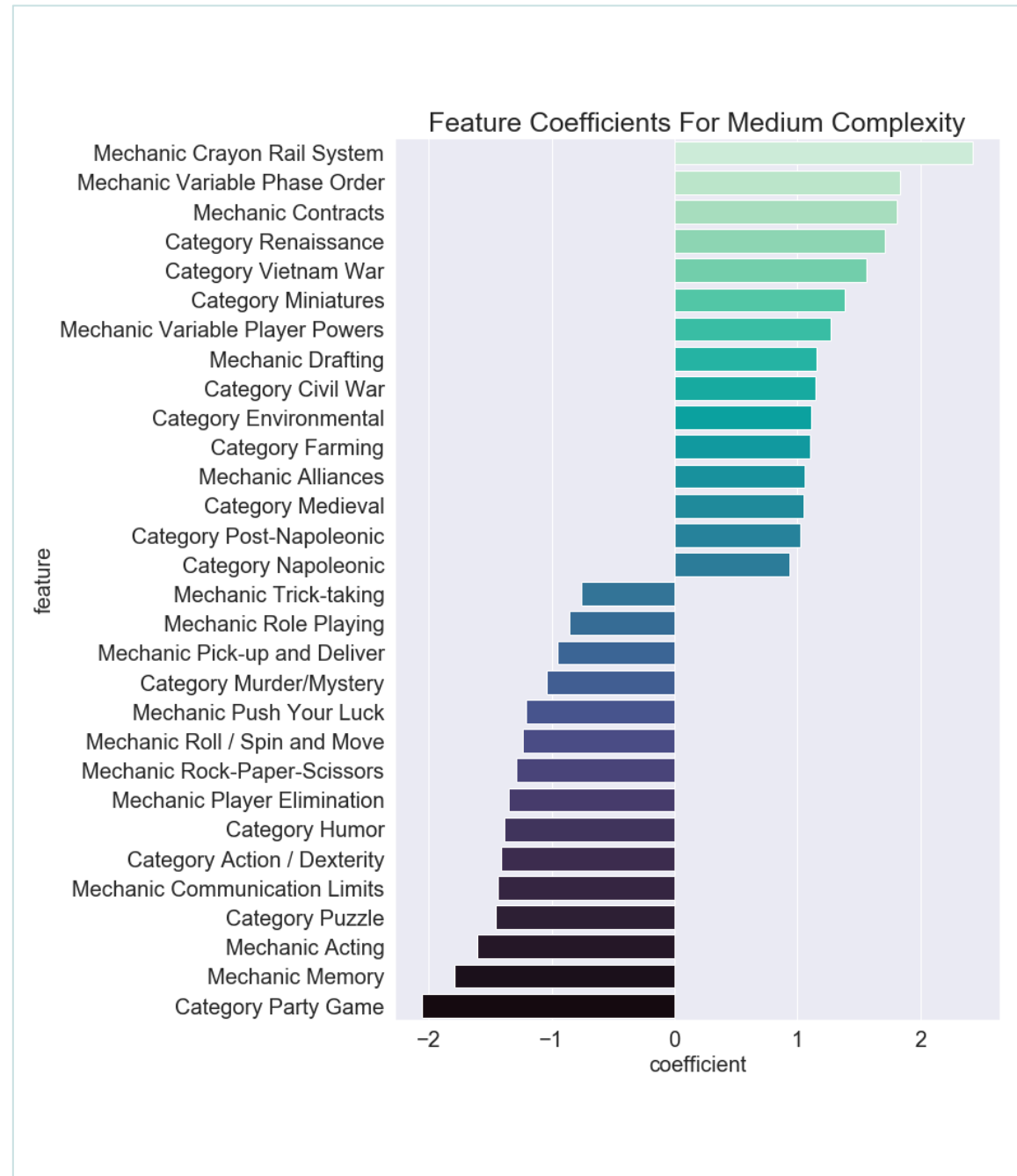
Medium Light

- Murder/Mystery biggest positive coefficient
- Alliances and Mature/Adult biggest negative coefficients



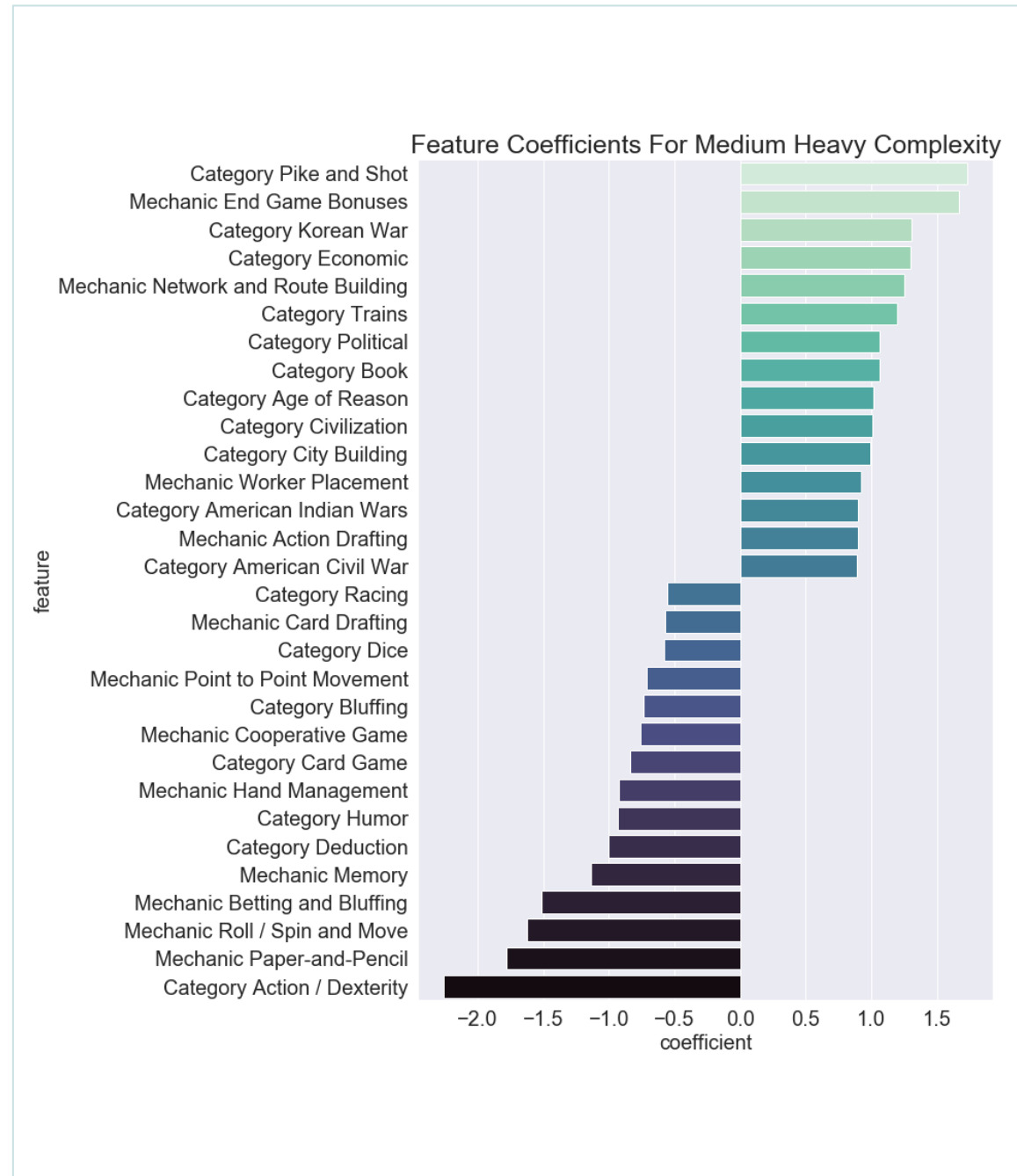
Medium Complexity

- Crayon Rail System is biggest positive coefficient
- Party Game and Memory are biggest negative coefficients



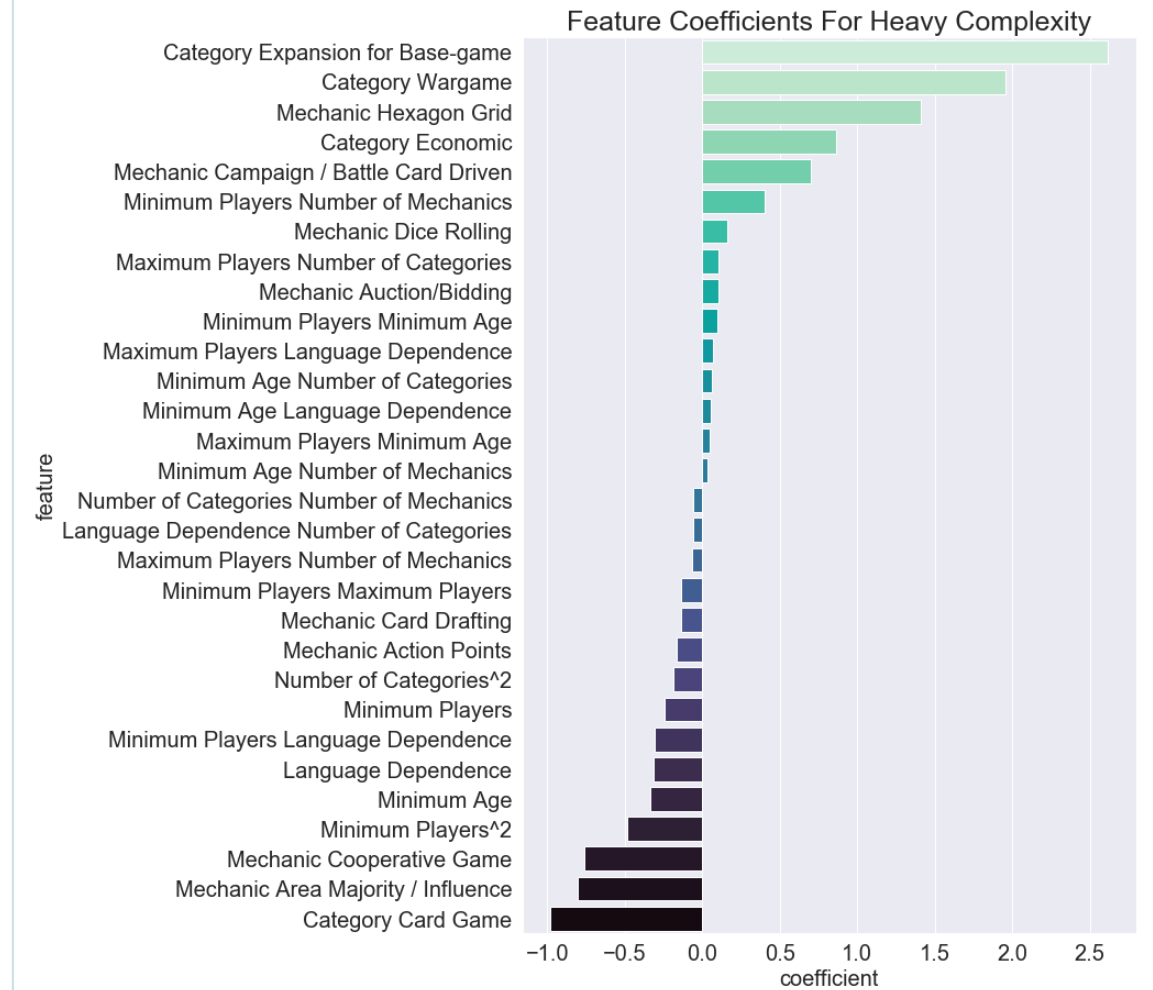
Medium Heavy Complexity

- Pike and Shot and End Game Bonuses are biggest positive coefficients
- Action/Dexterity and Paper-and-Pencil are biggest negative coefficients



Heavy Complexity

- Expansions and Wargames are the biggest positive coefficients
- Minimum Number of Players Squared and Cooperative Games are biggest negative coefficients





Production Model

- [Live demo of deployed model here](#)



Recommendations

- Use Natural Language Processing on descriptions
- More game information (number of pieces, size of rulebook, etc.)
- Image recognition on game boards