

Werewolves!

DEI

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Werewolves of Miller Hollow

- Roleplaying game with two teams , werewolves versus peasants in a hamlet
- Gameplay divided into two phases : day and night
- During the night, only werewolves act and kill a peasant
- During the day all the players vote to lynch someone, hoping it's a werewolf
- The voting system plays a key role in the game

Game rules

- All the werewolves are fully aware of the role of the players, since they share the knowledge on the first night
- All the peasants ignore who is a werewolf due to them being awake only in the day
- The peasants suspect that someone could be a werewolf according to the noises he may have done during nighttime
- The game ends when either there are no werewolves left or there are no peasants left

Voting model

- This example was chosen in order to pinpoint the issues in Bourda Count for voting
- The Bourda Count voting scheme assumes that all the people voting are expressing preferences and not trying to manipulate the result
- A classic Bourda count system with 4 candidates is used, the weight for the votes are $[3 \ 2 \ 1 \ 0]$
- In the game under exam, werewolves will try to subvert the outcome of the election through exploiting the weakness in the voting system

Implementative choices

- Every player is modeled with a single agent
- A coordinator acts as the game master, regulating time and elections
- The game starts on the first night with the werewolves killing someone
- The player are sitting in a line side by side
- The noises made by the werewolves halven once for each player between the one hearing and the werewolf

Voting strategies

- The suspects among players are modeled with a value between 0 (surely peasant) and 1 (surely werewolf)
- The suspect grows if the player hears something from one of his sides and the estimate is related on the strength of the sound
- Voting a player increases (or decreases) the suspects towards him according to the reputation of the voter
- Peasants simply vote the 4 higher suspected people in their list
- Werewolves never change their suspicion vector and vote in order to avoid a werewolf being lynched through putting him at the end of the list if it was already voted