

Team kenzi

info

- **Contest** 1st International Aiwolf Contest

Algorithm

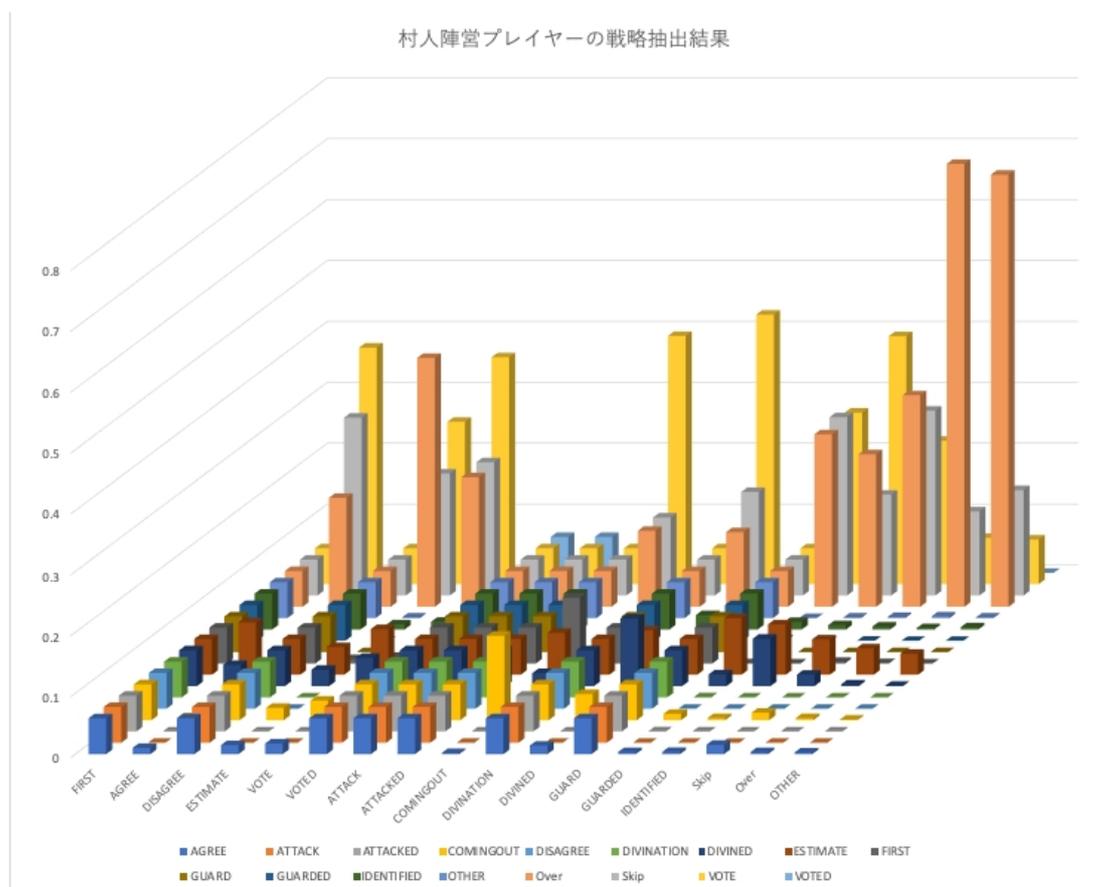
Inspired by the results of Poker AI "Libratus", this agent has attempted to apply it to Aiwolf.

This agent uses utility to select speech behavior.

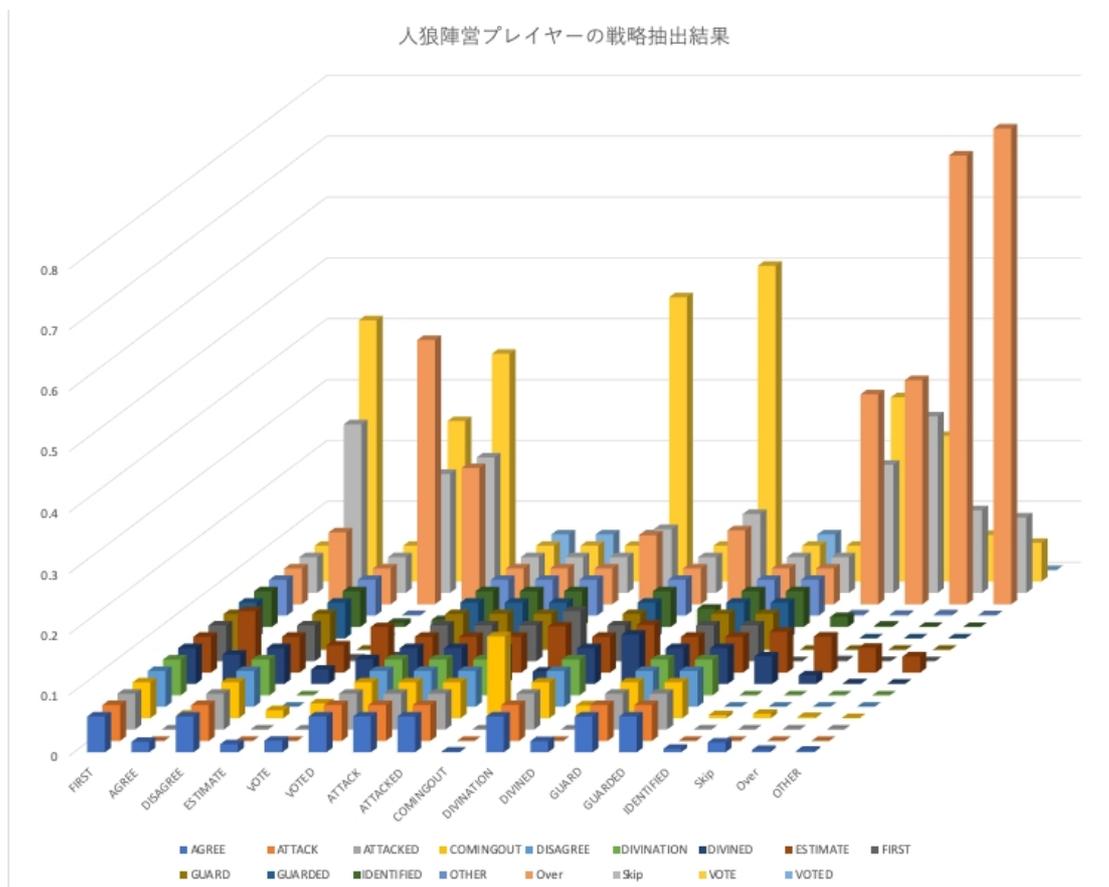
To calculate the utility, I used a log of past game and accumulated the desirability of votes by situation. For example, if you were a player in the village, the higher the wolf vote, the better it would be, so you would accumulate the number of votes for the wolf player.

The situation used here is the topic of the previous utterance. Based on that topic, I designed the probability to select the most useful topic for the next utterance.

The utility was calculated as follows



This is the result of the villagers.



This is the result of the werewolves.

In the learning result, the topic of the previous utterance is expressed by color, and the topics of the next utterance are listed in each row.

The others behavior use algorithms from Romanesco, the finalist agent from the previous year.

Counterfactual Regret Minimization

Counterfactual Regret Minimization is an algorithm for finding correlation equilibrium. The correlation equilibrium is the equilibrium obtained by combining the optimal behavior with the "Information" of a third party in a game. When acting along a correlation equilibrium, no further benefit can be expected from changing the correspondence between "Information" and optimal behavior. For correlation equilibrium, Counterfactual Regret Minimization determines the "desirability" of all possible behaviors when a certain "Information" is obtained. It then uses the "desirability" it finds to calculate the "regret" it does not select for possible actions.

Counterfactual Regret Minimization: The larger the "regret", the more corresponding actions are taken. become smooth. Then, the learning is advanced by updating the value of "regret" using the previously calculated "regret" and the result.

Agent Romanesco

Romanesco, the agent in the last year's Rugby World Cup finals, uses the framework of last year's champion, cndI, and an algorithm to estimate the position, with random number varying behavior. For an explanation of the framework and job title estimation algorithms, see Werewolf Intelligence 2017 @ CEDEC 2017: Finals Team Source Code: cndI Algorithm Overview.