

Shochan: An agent submitted to the ANAC 2024 ANL league

Shota Takayama, s243395u@st.go.tuat.ac.jp

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Abstract

This template is provided *as a recommendation*. You are not required to use it for writing your report. The only requirement is that the report falls within two to four A4 pages with a font between 10 and 12 for the main text. You can and is encouraged to use figures to illustrate the general design and the evaluation of your agent. Submit the pdf file of your report.

1 Introduction

First of all, this agent's name is derived from his own name, Shota. Chan is a term of endearment often used in Japan. The agent's goal is to achieve success and to become a beloved agent in anl environment that will be moved to negmas.

2 The Design of Shochan

Shochan's basic strategy is to slow down the negotiation conclusion time to a maximum, but still have it concluded firmly. In addition to that, we will make proposals tailored to each scenario and each agent's strategy.

The most important part of this ANL rule is that the opponent's utility function is ascertainable and there is no discount rate based on time. Under this rule, it is important to wait until the very end of the time limit to conclude the proposal, even though it is a natural idea, in order to secure the maximum profit. Therefore, we aim to make the best proposal with only one last chance for both conclusion and proposal, and calculate the time when the proposal and conclusion will be made.

In addition, the win-win, conflict, or opposition scenario differs greatly depending on the scenario, so it is necessary to make detailed adjustments to each agent's strategy. Based on these considerations, the final proposal is decided.

2.1 Bidding Strategy

There are three main proposal strategies. The first is a basic agent that concedes in a time-dependent manner, the second is an agent seeking a Nash solution, and the third is a proposal strategy for scenarios in which concessions should be made.

2.1.1 time-dependent

2.1.2 nashseeker

2.1.3 scenario

2.2 Acceptance Strategy

The acceptance strategy is simple and time concessionary. Basically, it is set up to be firm, so it is not often accepted until the last conclusion. What is a little unique is that it is a little stronger at 0.95, which is the easiest time to conclude the contract. The following figure shows this.

2.3 Opponent Reservation Value Modeling

First of all, we believe that the prediction of the adversary's reservation price is impossible. However, we believe that the adversary's final concession price can be predicted by some adversary agents. The main material needed to predict the enemy's reservation price is the enemy's proposal history. However, since the rule does not allow the use of past proposal histories, it is difficult to distinguish whether the adversary is just firm or has a high reservation price if the information is ad hoc. Therefore, I made a final concession price prediction.

My strategy is to concentrate on the final proposal and conclusion, so I need to predict with certainty. However, when forecasts are made using regression such as scypy, the goal is to make sweet but reliable forecasts, as it has been found that there is a blur in forecast accuracy.

3 Evaluation

4 Lessons and Suggestions

Conclusions