Agent BARGent_Covid19 Report

There was a lot of work at the beginning to understand the environment.

We understood the codebase and and all the aspects of it from top down:

How to run a tournament, get a debug output etc.

Then all the different classes in the game: trading, negotiation, production.

We couldn't defeat the base agent – so we use a known strategy if you can defeat them – join them!

The starting agent had a good amount of logic, so the next phase was reading their code and thinking of ways to improve.

We tried a bunch of stuff, adjusting hyperparameters, and made some little changes in the code that will make it more efficient. Most of our work was based on empirical results, but also theoretical understanding of the code and the strategy and discussing it together.

What gave us the improvement was the diagnosis that in the trading strategy,

The contracts were sorted just by their prices.

So the thought was to sort them by more reasonable way – distinguish between the cases that we are sellers (want higher price) and the cases that we are buyers (want lower price).

So, for each case that we were the seller, and the price of unit in the contract was *X*,

And the maximum price at all offers is *max_price*, We treated the price as

max_price – X

then we sorted the contracts from lower to higher.

Now the values make more sense, because high selling prices become lower prices.

The problem that might arise – if the max_price if off the roof then ->

(*max_price – X)* becomes very high - >

We choose buying contracts over selling contracts.

Solution – None! By the way the logic we used is designed,

Selling contracts are taken until we sell all our products, and

buying contracts are taken until we satisfy all our demands for our input products.