Probabilistic Graphical Models

Bayesian Poker Agent

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Current standing of the project after Part 1

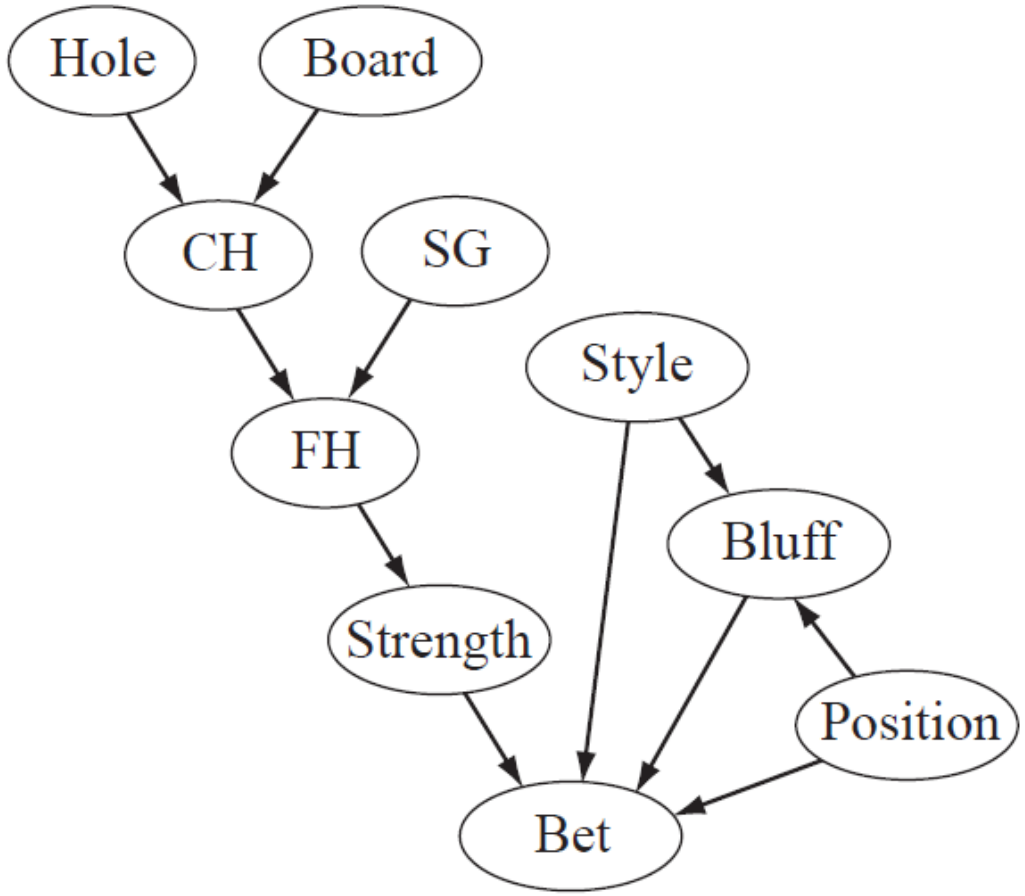
- PredictWin function
- Based on the open cards, we sampled unknown cards for both our agent and all opponents.
- Using this sampler -> calculate Probability of win.
- Using P(win), we calculate RAISE and CALL thresholds using Eq2 in the project description of Part 1.

Current Implementation

- We calculate Style of each player in UpdateOpponent_Default based on his historical data of betting.
- We use this Style as an evidence to create a biased random sampler that generates unknown cards at any stage of a game.
- We then sample the opponent’s final hand based on open board cards at that stage of game.
- Using the above information, we calculate the probability of winning.
- We include the implementation of PredictHoleCards function requirement in our MakeDecision itself.

Model description

- We follow the same model for our implementation with minor modifications.
- We do not consider factors of Bluff and Position in our implementation.
- We incorporate Style in our function to calculate Strength of our hand.
- Based on this change, we then calculate th Bet and the winning probability.



Evaluation of the model – without Bias

The most consistent results came with T=0.0, with profits around 7000 on an average. Log shown below –

Our agent came at position-1 with earnings 10175

Our agent came at position-1 with earnings 7330

Our agent came at position-2 with earnings 8010

Our agent came at position-1 with earnings 10643

Our agent came at position-1 with earnings 6660

Evaluation of the model – With Bias

The most consistent results came with profits around 6000 on an average. Log shown below –

Our agent came at position-5 with earnings 5051

Our agent came at position-4 with earnings 6060

Our agent came at position-2 with earnings 6700

Team Members:

- Both worked together on the project with equal contributions.


Thank you