Golois wins Phantom Go Tournament

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1. THE TOURNAMENT

A Phantom Go tournament was held as part of the 2008 International Computer Games Championship, on October 3rd, in Beijing, China. Phantom Go is Go played without seeing the opponent's moves. A referee tells the players when they play an illegal move, they are then able to choose another move.

Three programs participated to the competition. BIT STRONGER was written by Wangyi Xie, Yushuai Liu and Kai Ding, students from the Beijing Institute of Technology. CHINA DEEP was written by Hao Cui, Liang Li, Ruijian Wang and Siran Lin, also students from the Beijing Institute of Technology. GOLOIS was written by Tristan Cazenave.

Both CHINA DEEP and GOLOIS used a Monte-Carlo framework similar to the one described in (Cazenave, 2006). BIT STRONGER used a different approach, instead of randomly placing opponent stones, it played as if the opponent had played a good move given by a pattern. In order to choose its moves it also used patterns.

The tournament consisted in playing four games against each other program. GOLOIS won all of its games and CHINA DEEP won three games against BIT STRONGER. The results are given in table 1.

Table 1: Results of the tournament

Rank	Program	Origin	Score	Games	Title
1	GOLOIS	France	8	8	Gold medal
2	CHINA DEEP	China	3	8	Silver medal
3	BIT STRONGER	China	1	8	Bronze medal

2. GAMES ANALYSIS

However, the tournament was not as one sided as it seems looking at the results. GOLOIS had trouble in some games against BIT STRONGER and could have lost them. I will try to explain why. Figure 1 gives two positions related to the third game against BIT STRONGER. GOLOIS is Black and BIT STRONGER is White. The left board is the board known by GOLOIS, the right board is the real board of the game (i.e. the referee board).

We can see that GOLOIS has not guessed many White stones. As its policy is to randomly put the opponent stones before the playouts (i.e. the White stones), it believes the position is a very sure win for Black. We can see on the referee position that it is not the case, the game is quite close. As the komi is 7.5, it is enough for White to play at E1 to win the game. It is also enough for Black to play at E1 to win the game. However as GOLOIS thinks Black is far ahead, it plays the Black move at C3 and thinks it is a very safe move. Fortunately for GOLOIS, BIT STRONGER did not play at E1 but at F1, then GOLOIS played at E1 leading to a win for Black.

This position shows that randomly putting opponent stones before the playouts may not be an optimal strategy for Phantom Go. I would rather advise Phantom Go programmers to put opponent stones where they are the most likely to annoy your program.

A possible policy would be to keep statistics for every possible place of an opponent stone, and then to favor

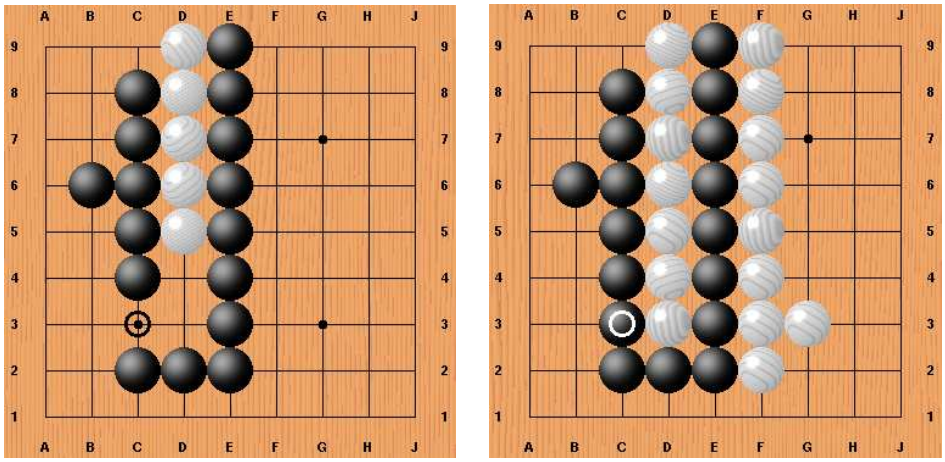

Figure 1: Board of GOLOIS before its move and board of the referee after GOLOIS move

putting the opponent stones where the statistics for the opponent are the highest.

After the tournament, Hiroshi Yamashita (4 kyu player and Go/Shogi programmer) played a game against GOLOIS. The game is depicted in figure 2. We can see that GOLOIS applied a very safe strategy and won the game.

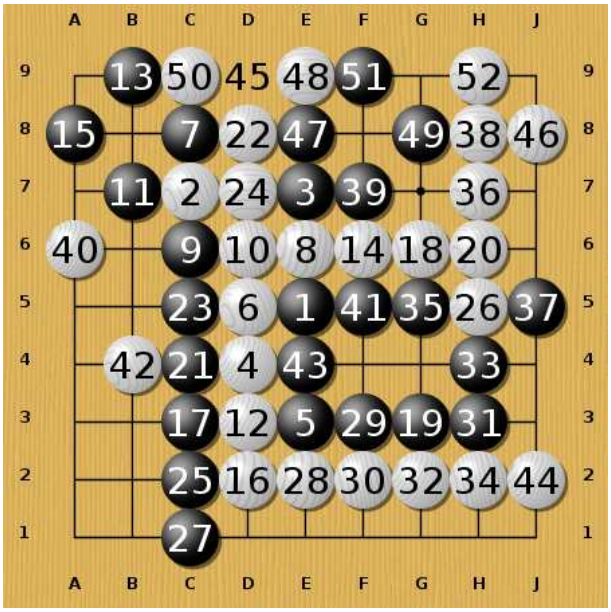

Figure 2: The game GOLOIS as White versus Hiroshi Yamashita as Black

3. REFERENCES

Cazenave, T. (2006). A Phantom-Go program. *Advances in Computer Games 2005*, Vol. 4250 of *Lecture Notes in Computer Science*, pp. 120–125, Springer.