BIT WINS CONNECT6 TOURNAMENT

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The computer Connect6 tournament was held as part of the 14th Computer Olympiad, which took place in Pamplona, Spain, from May 11th to 12th, 2009. Six teams participated in the Connect6 tournament. Table 1 lists the participants and the final standings. We would like to mention that we were pleased with the participation of MEINSTEIN, of which the author Theo van der Storm passed away in January 2009 (see ICGA Journal, March 2009, p. 60). As a courtesy to Theo, Jan Krabbenbos was prepared to act as operator for the program. He did so successfully. We respectfully thank him for playing in the tournament.

Ranking	Program	Author	Points
1	BIT	Li Liang, Cui Hao, Wang Ruijian, and Lin Siran	18
2	MEINSTEIN	Theo van der Storm (operated by Jan Krabbenbos)	13
3	BIT2	Zhifeng Tang, Zhenghan Li, Haiying Liu, and Jie Bing	12
4	KAGAMI	Shun-Shii Lin and Yun-Ching Liu	9
5	KAVALON	Jung-Kuei Yang, Shi-Jim Yen, and Shun-Chin Hsu	8
6	NOMI6	Shunsuke Kamiya, Tsuyoshi Hashimoto, and Junichi Hashimoto	0

Table 1: The participants and final standings.

The game Connect6, a kind of six-in-a-row game, was first introduced at the 2005 ACG11 Conference in Taipei, Taiwan by Wu and Huang (2006) and then described in more detail by Wu, Huang, and Chang (2006). The rules of Connect6 are very simple. Two players, henceforth represented as B (designated as the first player) and W, alternately place two stones, black and white respectively, on one empty intersection of an 19×19 board, except for that B places one stone initially. The player who first obtains six consecutive stones (horizontally, vertically, or diagonally) wins the game. When all intersections on the board are occupied without connecting six, the game draws.

In the tournament, the games were played according to a round-robin system in which one program played twice against all the other programs. In each game, every program had to complete all of its moves in 30 minutes. For each game, the winner scored 2 points and the loser scored nothing. For a drawn game, both scored 1 point.

Program	BIT	MEINSTEIN	BIT 2	KAGAMI	KAVALON	NOMI6	Total
BIT	x	4	4	4	2	4	18
MEINSTEIN	0	x	2	3	4	4	13
BIT2	0	2	x	2	4	4	12
KAGAMI	0	1	2	x	2	4	9
KAVALON	2	0	0	2	x	4	8
NOMI6	0	0	0	0	0	x	0

Table 2: The cross table.

BIT, the winner ot the silver medal of the 13th Computer Olympiad, won in Pamplona the gold medal in the 14th Computer Olympiad by scoring 18 points (out of 20 possible points). MEINSTEIN, that landed at the second place in the 2007 Computer Olympiad in Amsterdam, scored 13 points and won the silver medal. BIT2, a new program, won 12 points and the bronze medal . KAVALON, the fifth in the tournament was the only program that was able to win a game against BIT. The cross table is given in Table 2.

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Below we provide comments on the two games between BIT and MEINSTEIN, as well as on the game that BIT lost against KAVALON. In the first game, shown in Figure 1, MEINSTEIN (White) played a well-known opening at Move 2 and BIT (Black) replied correctly at Move 3. However, MEINSTEIN made a weak move (blunder) at Move 4 and BIT immediately caught the weak move by playing at Move 5, later verified as a winning move by NCTU6, the program developed by the team led by Wu (2006, 2008). Figure 2 shows the record of the second game, MEINSTEIN (B) vs. BIT (W). In this game, MEINSTEIN played again a weak move, now at Move 7. It should have defended at K8 and M9. BIT caught this weak move and correctly played a winning move at move 8 to win this game. In general, strong Connect6 programs need to play aggressively to win as many games as possible in a tournament. Indeed, judging from game records, BIT played aggressively. However, the aggression of BIT sometimes also helps the opponent to build a potentially stronger structure, if the opponent defend correctly. For example, Figure 3 shows such a game that BIT (W) lost against KAVALON (B). In contrast to BIT, KAVALON, the fifth in this tournament, played conservatively. In this game, BIT still played aggressively, while KAVALON defended correctly for most of the moves. Consequently, starting from Move 6, BIT gradually helped KAVALON to build a potentially strong outside structure. For Move 6, it would be better if BIT had played at M10. For Move 10, BIT should have played conservatively, say, at L8. After Move 19, KAVALON had a sure win.
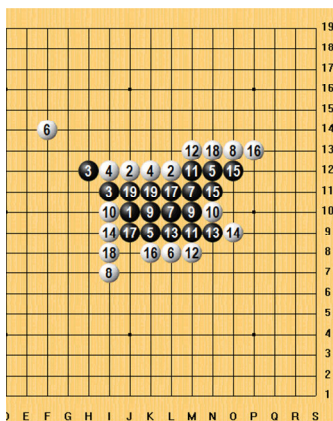

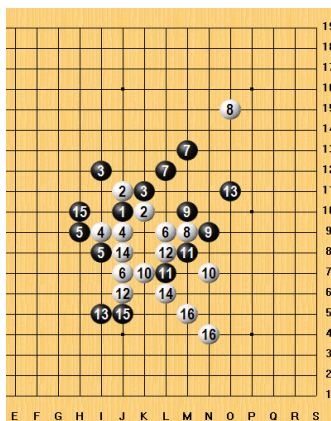**Figure 1:** Black: BIT, White: MEINSTEIN, Moves 1 – 19.

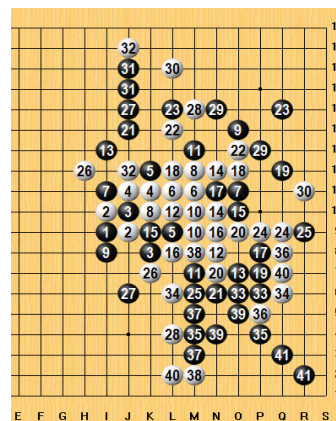**Figure 2:** Black: MEINSTEIN, White: BIT, Moves 1 – 16.

Figure 3: Black: KAVALON, White: BIT, Moves 1 – 41.

F.l.t.r. Hong Huang, Ruijian Wang, Hao Cui (BIT), Jan Krabbenbos (MEINSTEIN), and H.J. van den Herik.

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