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NCTU6 WINS THE MAN-MACHINE CONNECT6 CHAMPIONSHIP 2009

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The Man-Machine Connect6 Championship 2009, sponsored by some organizations and industrial companies, was held in Hsinchu, Taiwan, on October 11, 2009. Four of top Connect6 players from Taiwan, listed in Table 1, attended this contest and played against NCTU6, the program developed by the team led by I-Chen Wu, including Ping-Hung Lin and Hung-Hsuan Lin.

Player	Player Points			NCTU6 Points		
	Round 1	Round 2	Total	Round 1	Round 2	Total
Wen-Ching Hsu	0	0	0	2	2	4
Cheng-Guo Chen	0	0	0	2	2	4
Wei-Han Chen	0	0	0	2	2	4
Shi-Wen Lee	0	0	0	2	2	4

Table 1: The participants and final standings.

The game Connect6, a kind of six-in-a-row game, was first introduced by Wu and Huang (2005) and then described in more detail by Wu, Huang, and Chang (2005). The rules of Connect6 are rather straightforward. Two players, henceforth represented as Black (designated as the first player) and White, alternately place two stones, black and white respectively; each stone is placed on one empty intersection of a 19×19 board; the start is an exception since Black 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 is drawn.

In this contest, four of the top Connect6 players from Taiwan, Wen-Ching Hsu, Cheng-Guo Chen, Wei-Han Chen, and Shi-Wen Lee, were invited to play against NCTU6. The first three belong to the top four in the Fourth Annual NCTU-Cup Connect6 Open Tournament (of which the web pages are in www.connect6.org); that tournament was held on August 23, in 2009. The NCTU-Cup Connect6 Open Tournament is the most important annual Connect6 tournament held in Taiwan that usually attracts about a hundred players each year. The winners in this tournament are usually programs of the top players in Taiwan. Shi-Wen Lee is the head of Taiwan Connect6 Club, who is assumed to be the first player who posted Connect6 openings and puzzles over the Internet (namely posted in November, 2005).

The Connect6 program, NCTU6, attended the 11th and 13th Computer Olympiad in both 2006 (Wu and Yen, 2006) and 2008 (Wu and Lin, 2008), and won gold in both Olympiads. NCTU6 also beat Chou Chun-Hsun (also transliterated as Zhou Junxun), an ever Go Champion, in invited competition events between NCTU6 and Chou, sponsored by National Science Council in Taiwan and some other organizations.

In the man-machine championship 2009, the games were played in two rounds. NCTU6 played first (i.e., Black) against each human player in the first round, while playing second (White) in the second round. In each game, every player freely played during the initial 80 minutes. After that period, each player had at most 10 times to play moves that took more than one minute; when the player failed he lost the game. For each game, the winner scored 2 points and the loser scored nothing. For a drawn game, both scored 1. NCTU6 won all games; the final points for the human players are listed in Table 1. The winner was awarded NT$6000, roughly US$180.

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This report comments four games between NCTU6 and the human players. First, two of the games of the first round are commented upon. Figure 1 shows the record of the game, NCTU6 (Black) vs. Shi-Wen Lee (White). Moves 2 to 5 are a popular opening that is also played in the game shown in Figure 2. Lee made a good shape at Move 8. However, NCTU6 also successfully made a counter move at 9 that forced White back to defend. After Move 9, NCTU6 continuously played aggressively, but Lee also defended well and grew better outside. Finally, NCTU6 won the game when Lee made a blunder at Move 26. Figure 2 shows the record of the game, NCTU6 (Black) vs. Wei-Han Chen (White), in the same round. In this game, Moves 2 to 5 are the same opening. Chen made a very good shape at Move 14. Thereafter, NCTU6 played well at Moves 15, 17, and 19 to resolve the good shape. NCTU6 won the game after Chen made a blunder at Move 22 which should have defended at G9 and H10.
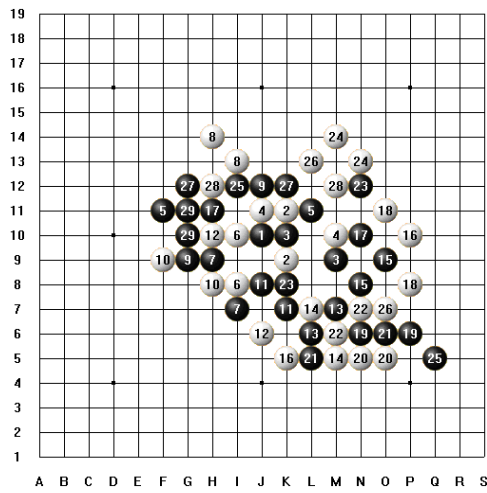
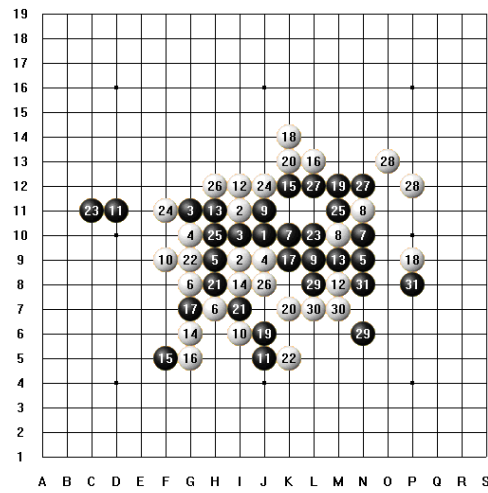**Figure 1:** Black: NCTU6, White: Shi-Wen Lee, Moves 1 – 29.

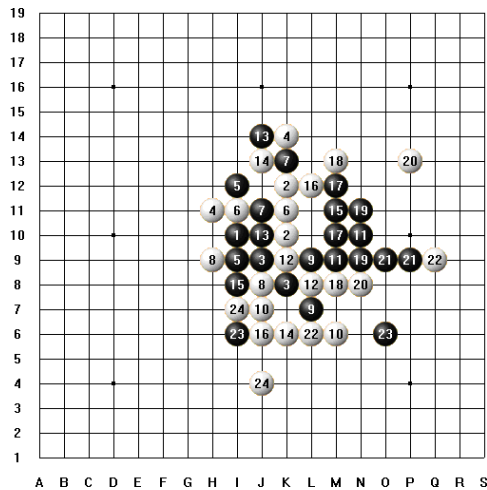**Figure 2:** Black: NCTU6, White: Wei-Han Chen, Moves 1 – 31.

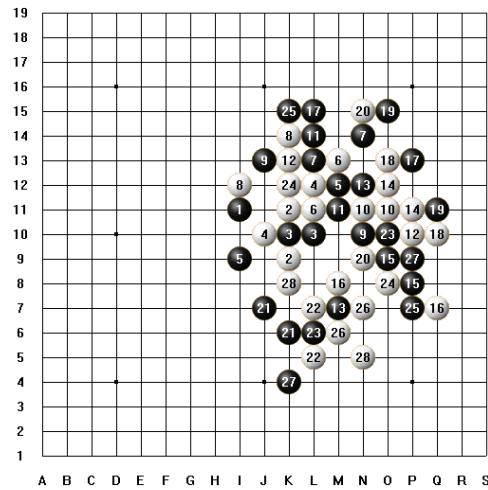**Figure 3:** Black: Wen-Ching Hsu, White: NCTU6, Moves 1 – 24.

Figure 4: Black: Cheng-Guo Chen, White: NCTU6, Moves 1 – 28.

For the two games of the second round, we first comment the record of the game, Wen-Ching Hsu (Black) vs. NCTU6 (White), as shown in Figure 3. Although the opening played by White is not common and slightly better for Black, NCTU6 still chose this opening since it is more robust when the opponents do not start playing in the centre. From Move 3 to Move 19, Hsu played very aggressively and controlled the game. However, Hsu made a blunder at Move 21 that should have defended at L6, and NCTU6 thus won this game. In the other game, Cheng-Guo Chen (Black) vs. NCTU6 (White) shown in Figure 4, NCTU6 made a bad shape at Move 18. NCTU6 still won when Chen neglected a winning move by White at Move 24.

In general, human players are good at making good shapes to win games. Therefore NCTU6 needs to be improved to make better shapes. In contrast, human players do not search winning moves as accurately as NCTU6 does, especially under time pressures. NCTU6 can easily catch any blunders made by human players. Unanimously, the four players thought that they might be able to win some games, if played with more time. After the games, a common agreement that was reached is to allow much more time in the championship next year.

F.l.t.r. Ping-Hung Lin, Shi-Wen Lee, Cheng-Guo Chen, I-Chen Wu, Wei-Han Chen, Shun-Ji Guo (the referee), and Wen-Ching Hsu.

References

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