

# Results of The Nineteenth ACM North American Computer Chess Championship

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In 1987, it was called CHIPTEST-M. In 1988, with tongue in cheek and after a major overhaul, it was renamed DEEP THOUGHT 0.02. Whatever it is called, it plays tough chess! DEEP THOUGHT 0.02 won three and drew one of its four games and captured first place at The 19th ACM North American Computer Chess Championship held November 13–15, 1988 at ACM SIGARCH/IEEE Computer Society's Supercomputing '88 in Orlando, Florida. Also finishing with three-and-a-half points was CHESS CHALLENGER X. DEEP THOUGHT 0.02 was awarded first place based on a tie-breaking scheme that considers how well each program's opponents performed. The two programs divided the \$2000 first-place prize.

DEEP THOUGHT 0.02 was developed at Carnegie Mellon University by a group of graduate students headed by Feng-hsiung Hsu which included Thomas Anantharaman, Mike Browne, and Murray Campbell. It uses special-purpose VLSI chess circuitry developed by Hsu, and it searches approximately 720,000 chess positions each second. In 1987, its predecessor, CHIPTEST-M won all four of its games in winning the championship. This year, the competition was stronger yet, and while DEEP THOUGHT 0.02 finished first, the road to the title was strewn with obstacles. In Round 1, it had to be happy to finish with a draw with CHESS CHALLENGER X. It had a rather easy victory against SUN PHOENIX in Round 2, and played a brilliant game against HITECH in Round 3. In Round 4, it looked as though it would be upset by MEPHISTO X in an exciting, grinding game, but the great power of DEEP THOUGHT 0.02's search finally overcame the excellent positional play of MEPHISTO X.

To put the strength of the programs into perspective, it is important to note that in the week following its success in Orlando, DEEP THOUGHT 0.02 finished in a first-place tie with Grandmaster Anthony Miles in the \$130,000 Software Toolworks Chess Championship in Long Beach, California. In doing so, it defeated Grand-

master Bent Larsen who holds a World Chess Federation (FIDE) rating of 2580. It finished ahead of five other Grandmasters, including former World Champion Mikhail Tal, Sammy Reshevsky, and Walter Browne. (A comprehensive report on this tournament appears in the March 1989 issue of *Chess Life*.)

It was expected that DEEP THOUGHT 0.02 would receive its stiffest competition from HITECH, also developed at Carnegie Mellon under the leadership of former World Correspondence Chess Champion Hans Berliner, and the team of Carl Ebeling, Gordon Goetsch, Murray Campbell, Andy Gruss, and Andy Palay. HITECH uses special-purpose circuitry connected to a SUN 4. It searches approximately 150,000 chess positions per second. HITECH had finished first in the Pennsylvania State Championship both in 1987 and 1988, and its rating appeared to be over the 2400 United States Chess Federation (USCF) level. Anticipating a showdown between his program and DEEP THOUGHT 0.02, Berliner prepared a special opening for their encounter. It involved an old variation where White (DEEP THOUGHT 0.02) was given the opportunity to make a pawn sacrifice in return for sustained attacking chances. The opening proceeded as Berliner expected, but DEEP THOUGHT 0.02 took advantage of several passive moves made by HITECH just after leaving its book and defeated the latter in elegant style.

DEEP THOUGHT 0.02's strongest test came, in fact, in its Round 1 battle with CHESS CHALLENGER X. DEEP THOUGHT 0.02 was at a disadvantage throughout much of the game but hung on for a draw. CHESS CHALLENGER X, written by Dan and Kathe Spracklen and Ron Nelson, is an experimental version of Fidelity International Inc.'s CHESS CHALLENGER series of products. It defeated CRAY BLITZ, the current World Champion, in the third round and HITECH in the final round showing that its success in the first round was far from an accident.

In the final round, DEEP THOUGHT 0.02 was paired with MEPHISTO X, programmed by Richard Lang. The program is an experimental version of the commer-

cially available series of programs developed by West Germany's Hegener and Glaser A.G., which use the name MEPHISTO. Hegener and Glaser's best commercial version of MEPHISTO is currently the World Microcomputer Champion. For most of the game, MEPHISTO X had a positional advantage, gradually constraining DEEP THOUGHT 0.02's pieces into a smaller and smaller space. However, DEEP THOUGHT 0.02 fought tenaciously and slowly turned the tables, emerging as victor on move 73. If there is one weakness which could be observed in MEPHISTO X's play, it was the inability to convert an opening or middlegame advantage into a decisive attack by opening up the position in the correct way.

As mentioned earlier, the current World Champion, CRAY BLITZ, lost to CHESS CHALLENGER X but it also could do no better than to draw with MEPHISTO X in Round 2. It had to settle for a fourth-place finish, much to the disappointment of its programmers Robert Hyatt, Bert Gower, and Harry Nelson.

A field of twelve programs participated. Even the

weakest, WAYCOOL, which managed only to pick up a half-point, played strong chess—apparently at the Expert level (2000 USCF). WAYCOOL used 256 processors of a 512-processor N-Cube, one of three multiprocessing systems to participate. SUN PHOENIX used a network of 28 SUN 3s, and CRAY BLITZ used a 4-processor Cray XMP.

Mike Valvo served as Tournament Director. It is interesting to note that following the tournament, Valvo and DEEP THOUGHT 0.02 entered into a two-game postal match via electronic mail. The games began in December and Valvo won both of them. Valvo has a USCF rating of 2481 and is also perhaps the best blind-fold player in the United States. His two victories may mean: (1) computers intimidate Valvo less than others less familiar with their play; (2) play by computers, in contrast with that of man, is relatively weaker as time limits are increased—the combinatorial aspects of the game become less acute for humans; (3) Valvo had observed DEEP THOUGHT 0.02 play a number of games and had some feeling for its weaknesses, while DEEP

Score Table and Computing System Information

Number, program, computing system and language, (programmers), book size, nodes/sec, (* indicates computer at site)	Cumulative Points of Rounds				Place/Tie Break
	1	2	3	4	
1 DEEP THOUGHT 0.02, SUN 4 plus 2 special processors, C+microcode, at CMU, (Thomas Anantharaman, Mike Browne, Murray Campbell, Feng-hsiung Hsu, Andreas Nowatzyk), 5K, 720K.	0.5 (W2)	1.5 (B6)	2.5 (W5)	3.5 (B3)	1/10
2 CHESS CHALLENGER X, 68030-based micro, assmb., (Dan Spracklen, Kathie Spracklen, Ron Nelson), NA, NA.*	0.5 (B1)	1.5 (W12)	2.5 (B4)	3.5 (W5)	2/8.5
3 MEPHISTO X, 68020 Mephisto machine, assmb., 128K ROM, 2meg RAM, (Richard Lang), 60K, 3-5K.*	1.0 (B11)	1.5 (W4)	2.5 (W6)	2.5 (W1)	3/9/35
4 CRAY BLITZ, Cray XMP, 4 proc's, Fort + C + assmb., 32Mw, 64 bits, 105 mips/proc., at Cray Research, Mendota Heights, Minn. (Robert Hyatt, Bert Gower, Harry Nelson), 50K, 80K.	1.0 (W8)	1.5 (B3)	1.5 (W2)	2.5 (B9)	4/9/32
5 HITECH, SUN 4 with hardware for search and pattern recog., assmb., (Carl Ebeling, Hans Berliner, Gordon Goetsch, Murray Campbell, Andy Gruss, and Andy Palay), NA, 110K.	1.0 (B12)	2.0 (W7)	2.0 (B1)	2.0 (B2)	5/9.5
6 SUN PHOENIX, 28 SUN 3s, C, at SUN Microsystems, Mountain View, Cal. (Jonathan Schaeffer, Marius Olafsson), 8K, 20K.	1.0 (B10)	1.0 (W1)	1.0 (W3)	2.0 (B8)	6/9
7 BEBE, SYS-10 Chess Engine, assmb., 65Kb, 16 bits, 10 mips, (Tony Scherzer, Linda Scherzer), 4K, 40K.*	1.0 (W9)	1.0 (B5)	1.0 (W8)	2.0 (B12)	7/5.5
8 NOVAG X, Novag-dedicated Super Expert, 6502 bit-sliced micro, 6502 assmb., 64Kb for program, 16Kb for search, 6 mips, (David Kittinger), 3.2K, 3K.*	0.0 (B4)	0.5 (W11)	1.5 (B7)	1.5 (W6)	8/7.5
9 BP, Compaq 386/20, C + assmb., 1Mb, 5 mips, 70Kb for program, 300 Kb for search, (Robert Cullum), 15K, 6K.*	0.0 (B7)	1.0 (W10)	1.5 (W11)	1.5 (W4)	9/7
10 CYRUS 68K, IBM PC with 68020 card, assmb., 256K RAM, (Mark Taylor, David Levy), 25K, 1K.*	0.0 (W6)	0.0 (B9)	0.5 (B12)	1.5 (W11)	10/5
11 A.I. CHESS! X, IBM compatible 80286 AT or 80386-based, assmb., 3-4mips, (Martin Hirsch), 8K, 2K.*	0.0 (W3)	0.5 (B8)	1.0 (B9)	1.0 (B10)	11/7
12 WAYCOOL, 512 processor NCUBE/10, 1/2 Mb RAM/proc., 1mips/proc., C, at Cal Tech. (Ed Felton, Steve Otto, Rod Morison, Rob Fatland), NA, NA.	0.0 (W5)	0.0 (B2)	0.5 (W10)	0.5 (W7)	12/9

The notation (W2) indicates the program played against #2 with the White colors.

THOUGHT 0.02 had no similar opportunity. This might have been particularly important in the openings and long-term strategically or structurally based positions.

The table lists the participants, information on their computing systems, their authors and basic information about the programs. It is interesting to note that all programs were written in either C or assembler, something that no one would have imagined in 1970 when the first ACM Championship was held.

The 20th ACM North American Computer Chess Championship is scheduled to take place at Supercomputing '89 in Reno, Nevada on November 12-15, 1989. Prizes for the first three finishers for this special 20th year edition of the championship will total \$5000. For information write to Professor Monty Newborn, School of Computer Science, McGill University, 3480 University St., Room 318, Montreal, Quebec, Canada, H3A 2A7.

## THE GAMES

Five outstanding games are presented. Overview comments are made about three games, while the Round 3 showdown between DEEP THOUGHT 0.02 and HITECH and the critical Round 4 game between CHESS CHALLENGER X and HITECH are annotated in detail.

### Round 1

Form held in the Round 1 with the exception of an outstanding performance by CHESS CHALLENGER X in drawing with favorite DEEP THOUGHT 0.02 although in the end the Fidelity program missed at least one clear chance to win. The opening was placid with a number of exchanges, but the isolated Black Q-pawn still offered White a long-term weakness to attack. DEEP THOUGHT 0.02 mishandled the position, however, looking for a tactical solution (16. c4) to exploit the weakness, only to emerge with a slightly disadvantageous ending of R+N against R+B. The resulting B versus N ending with pawns on both sides of the board and White's weakened, split Q-side pawns, clearly favored Black. A definite improvement was 34. . . . Ke4 when the BK could have become dominant. Instead, as more pawns were exchanged, Black's winning chances were eroded.

### DEEP THOUGHT 0.02 (White) vs. CHESS CHALLENGER X (Black) Sicilian Defense,

#### c3 Variation

1. e4 c5 2. c3 e6 3. d4 d5  
4. exd5 exd5 5. Nf3 Nc6  
6. Be3 cxd4 7. Bxd4 Nxd4  
8. Qxd4 Nf6 9. Bb5+ Bd7  
10. Bxd7+ Qxd7 11. O-O Be7  
12. Nbd2 O-O 13. Ne5 Qf5  
14. Ndf3 Bd6 15. Rae1 Rfe8  
16. c4 Ne4 17. Qxd5 Bxe5

18. Kh1 Rad8 19. Qxe4 Qxe4  
20. Rxe4 Bxb2 21. Rxe8+ Rxe8  
22. Rd1 Ba3 23. Rd7 Re2  
24. h4 h5 25. Rd8+ Kh7  
26. Rd2 Rxd2 27. Nxd2 Kg6  
28. g3 Kf5 29. Nb3 Bb4 30. f3 f6  
31. Kg2 g5 32. Nc1 Bd6  
33. Kh3 Ke5 34. Ne2 Bc5  
35. f4+ Kf5 36. fxg5 fxg5  
37. hxg5 Kxg5 38. Nc3 Bb4  
39. Nd5 Bd6 40. Kg2 Be5  
41. Kf3 b6 42. a4 Bd6  
43. Nc3 Bc7 44. c5 bxc5  
45. Ne4+ Kg6 46. Nxc5 Kf5  
47. Nd3 Kg5 48. Nb4 a5  
49. Nd5 Be5 50. Ne3 Bf6 (Drawn by agreement) (1/2-1/2)

### Round 3

When Round 3 began, HITECH was the only program with a perfect score. DEEP THOUGHT 0.02, CHESS CHALLENGER X, MEPHISTO X, and CRAY BLITZ followed with 1.5 points.

### DEEP THOUGHT 0.02 (White) vs. HITECH (Black) Alekhine's Defense (ECO B, Section 04, Row 3)

Hans Berliner, the head of the programming team that developed HITECH, prepared a risky line in the Alekhine's Defense which involved an effort by Black to ensconce a pawn, but the program had to pay the price in terms of pawn structure, development, and king safety. This ploy backfired due to DEEP THOUGHT 0.02's ingenious tactical skills. Although the game was protracted, it was virtually decided by the twentieth move.

DEEP THOUGHT 0.02 was searching between eight and ten plies on most moves. Hsu provided us with a printout of the log of the game created by DEEP THOUGHT 0.02, and the following analysis of the game uses data from the log. On

each non-book move, DEEP THOUGHT 0.02 prints out the first eight moves of the principal continuation and the score of that continuation.

1. e4 Nf6 2. e5 Nd5 3. d4 d6  
4. Nf3 Nc6

Black can avoid the ensuing gambit with 4. . . . Bg4 which is the move usually seen at the Master level in this position.

5. c4 Nb6 6. e6 fxe6

Berliner had anticipated the game would follow this path, and he assumed his program was capable of gaining a positional advantage after accepting the pawn sacrifice. DEEP THOUGHT 0.02 responds strongly, however, and according to Robert Byrne of the *New York Times*, the game followed "known analysis" until Black's questionable tenth move.

7. Ng5

This is the sharpest move, threatening simply Bd3, but more preparation with 7. Nc3 is also possible, although theory then gives 7. . . . e5 8. d5 Nd4 9. Nxd4 exd4 10. Qxd4 e5 with equality. Another principal alternative is 7. h4 when White keeps an edge (as with the text move) after: 7. . . . e5 8. d5 Nd4 9. Nxd4 exd4 10. Qxd4 e5 11. Qd1 according to Boleslavsky in the *Encyclopedia of Chess Openings*, Vol. B, Section B04, pp. 32-34.

7. . . . g6

DEEP THOUGHT 0.02 leaves its opening book. If 7. . . . e5 then the *Encyclopedia* cites 8. Bd3 Nxd4 9. Bxh7! Rxh7 10. Nxh7 Bf5 11. Na3 Bxh7 12. Qh5+ Kd7 13. Qxh7 e6 as in *Ciric-Zuidema*, Belgrad, 1964, when White maintains an advantage.

**8. Bd3**

DEEP THOUGHT 0.02 predicts 8. . . . Nxd4 9. Nxf7 Nf5 10. Nxf8 Rxf8 11. Nd2 e5 with a score of -.77 pawns.

**8. . . . Nxd4 9. Nxf7 Nf5 10. Nxf8 Rxf8**

This seems to have been an error by HITECH. It may have been better to have captured with the rook. In any case, for the extra pawn Black pays the price of a shattered pawn structure around the king and weakened dark squares in the absence of his KB.

**11. O-O c5**

This seems overly ambitious. Black might better have played either Nd7 or e5 here, gaining some control of important center squares and giving his pieces a bit more freedom. Understandably, however, on 11. . . . e5 12. f4 may have been feared.

**12. b3**

An enterprising move when after Bb2 White's bishop will be impressive on the open long diagonal.

**12. . . .d5 13. Nd2 Qd6 14. Nf3 Nd7**

Although the deployment Bb2 has been discouraged, the weakness of Black's e-pawn is a permanent target which White can focus on.

**15. Re1 d4 16. Ne5!!?**

A brilliant move from many perspectives except for one: see note to Black's 17th move. DEEP THOUGHT 0.02, of course, realizes that this is not a real sacrifice. If 16. . . . Nxe5, then White plays 17. Bf4 pinning the Black knight to its queen. White also threatens 17. Nxf6. Thus Black is forced to continue:

**16. . . . Nxe5 17. Bf4 Rh7**

HITECH misses the opportunity to effect some exchanges and release some pressure with the queen sacrifice 17. . . . Nxd3 18. Bxd6 Nxd1 etc. with good compensation for the queen.

**18. Rxe5**

DEEP THOUGHT 0.02's scoring function goes positive for the first time, expecting the game to continue as follows: 18. . . . Qb6 19. g4 Nh4 20. Bg3 Bd7 21. Rh5 Rxh5.

**18. . . . Qb6 19. g4 Nh4 20. Bg3**

White has a won position highlighted by the blockading and splitting effect of the R/e5 on the Black position. DEEP THOUGHT 0.02's analysis gives 20. . . . Kg8 21. f4 Bd7 22. Qe2 Kg7 23. Rg5 Rg8. But HITECH thinks otherwise.

**20. . . . Bd7**

(See figure.)

**21. Rh5**

An elegant move that caught Tournament Director Valvo and the audience by surprise. DEEP THOUGHT 0.02's scoring function now believes White is ahead by approximately one pawn. However White could also win more routinely with 21. Bxh4 Rxh4 22. Qf3+ etc.

**21. gxh5 Bxh7**

DEEP THOUGHT 0.02 sees: 22. . . . Kg7 23. Qd3 e5 24. Bxh4 Rh8 25. Bf5 e6, and assigns the continuation a score of +2.69 pawns.

**22. . . . e5**

A good move giving Black's queen some room to maneuver.

**23. Bxh4**

This time, DEEP THOUGHT sees: 23. . . . xhg4 24. Bg3 Qf6 25. Qd3 b6 26. Re1 Kf7, leading to a score of +2.79 pawns.

**23. . . . Bxg4 24. Qd3 Rc8 25. Re1 Qe6 26. f3 Bh3 27. Qg6**

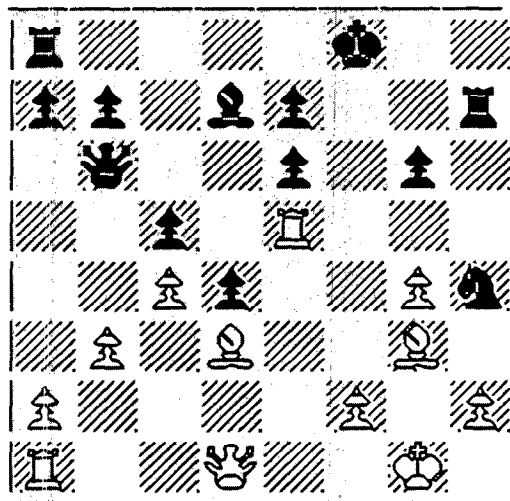
DEEP THOUGHT 0.02 sees: 27. . . . Qxg6 28. Bxg6 Rc6 29. Bxh5 Re6 30. Bg3 d3 leading to a score of +3.32. A human might prefer to win with a K-side attack starting with 27. Bg3.

**27. . . . Qxg6 28. Bxg6 Rc6 29. Bxh5 Re6 30. Bg3 Ra6**

HITECH finds a way to ruffle DEEP THOUGHT 0.02.

**31. a4 d3 32. Rxe5 Rd6 33. Re1 Rb6 34. Bf4 a5**

HITECH has nothing better to do. Black's only chance now is somehow to trade off all material, winning the lone White pawn in the process. That would leave White with a single bishop, insufficient to mate Black. White, however, is a bit too strong to be led into this scenario. It has too many ways to win and knows that a lone bishop is a drawn game.



Position after 20. . . . Bd7

35. Be3 Rxb3 36. Bxc5 d2  
 37. Bxe7+ Kg7 38. Rd1 Re3  
 39. Bh4 Ra3 40. Be8 Rxf3  
 41. Bg5 Rf4 42. Bb5 Kg6  
 43. Be3 Rf3 44. Bxd2 Rd3  
 45. c5 Rd5 46. c6 bxc6  
 47. Bxc6 Rd6 48. Bf3 Rd4  
 49. Bxa5 Rxa4 50. Rd6+ Kf5  
 51. Bc3 Ra2 52. Rh6 Bg4  
 53. Bd5 Rc2 54. Rc6 Re2  
 55. h4 Kf4 56. Rc4+ Kg3  
 57. Ba5 and Black resigns.

DEEP THOUGHT 0.02 sees the game going as follows: 57. . . . Re7 58. Bc7+ Rxc7 (not 58. . . . Kxh4 because of 59. Bd8 pinning the rook) 59. Rxc7 Kxh4 60. Rg7.

#### CRAY BLITZ (White) vs. CHESS CHALLENGER X (Black)

##### Sicilian Defense,

##### Accelerated Dragon Variation

In the Accelerated Dragon Variation of the Sicilian Defense essayed by CHESS CHALLENGER X against CRAY BLITZ, Black appeared to be in some trouble in the middlegame.

11. Qf3 was a short-sighted move, but so was Black's reply 11. . . . Ne5. White should have capitalized with 13. f4, while 13. . . . b5 was a viable alternative. Black's position after 13. . . . Qa6!? allowed isolated doubled pawns, however, but this was not as bad as the pawn structure might suggest. It should have followed with 19. Nd5 with unclear play. Instead CRAY BLITZ gravely mishandled the resulting bishops of opposite color ending by permitting Black's passed pawns to become decisively advanced while White's were blocked.

1. e4 c5 2. Nf3 Nc6 3. d4 cxd4  
 4. Nxd4 g6 5. Be3 Nf6 6. Nc3 Bg7  
 7. Bc4 Qa5 8. O-O O-O 9. Bb3 d6  
 10. h3 Bd7 11. Qf3 Ne5  
 12. Qe2 Rac8 13. Rad1 Qa6  
 14. Qxa6 bxa6 15. f4 Nc4  
 16. Bxc4 Rxc4 17. e5 dxe5  
 18. fxe5 Nh5 19. Nf3 Bc6  
 20. Rd4 Rxd4 21. Nxd4 Bb7  
 22. e6 Bxd4 23. Bxd4 fxe6  
 24. Rxf8+ Kxf8 25. Ne2 g5  
 26. c3 Kf7 27. Kf2 Kg6  
 28. Bxa7 Nf4 29. Nxf4+ gxf4

30. Bd4 Kf5 31. Bc5 Kf6  
 32. c4 e5 33. b4 Bc6 34. Bb6 e4  
 35. Bd4+ e5 36. Bb2 e3+  
 37. Kg1 Kf5 38. c5 e4 39. Bc1 Bb5  
 40. Kh1 Ke6 41. Kg1 Kd5  
 42. a4 Bxa4 43. g3 e2 44. Kf2 f3  
 45. Bd2 Kd4 46. g4 Bc6  
 47. Bf4 Kd3 48. b5 axb5  
 49. Bh6 b4 and White Resigns (0-1)

#### Round 4

Going into Round 4, three programs were tied for first place with 2.5 points: DEEP THOUGHT 0.02, CHESS CHALLENGER X, and MEPHISTO X. HITECH was fourth with 2.0 points. CHESS CHALLENGER X upset HITECH in a relatively fast game lasting 54 moves. The DEEP THOUGHT 0.02/MEPHISTO X game lasted much longer with MEPHISTO X in the lead for most of the game. For a long time it looked like the two microcomputers would finish 1-2; as it turned out they finished a most impressive 2-3.

From the opening, which appears to be DEEP THOUGHT 0.02's weakest phase of play, Black is worse. The game, which followed through White's 6th move SUN PHOENIX-DEEP THOUGHT 0.02 from Round 2, transposes into an Indian structure whereby White's spatial advantage and superior pieces (especially Q and B) reign superior for many moves. White tries to organize a breakthrough, but DEEP THOUGHT 0.02 defends well. MEPHISTO X's apparent weakness, which was alluded to earlier, namely the inability to find correct time (or way) to open up an advantageous position, proves costly. Around move 38 White should have tried to improve the position of its N by Ne2 and Nd4, heading for e6 or c6 with a decisive infiltration for which Black had no answer to while the BQ was tied to the defense of the bishop on b7.

Nonetheless, White maintains the same kinds of advantages for many moves as the position gradually transforms. 44. a4? was an error in ceding Black an outside passed

pawn for no apparent reason. Much stronger would have been the sequence 44. Qh8+ Kg6 45. Qg8+ Ng7 (not Kh5 46. Bxg5) 46. Bd4 as given by Grand Master Raymond Keene (*ICCA Journal*, Vol. 11, No. 4, p. 191), when Black is tied up in knots. Still MEPHISTO X had a trap: if 45. . . . Nxe4? 46. Qd1+ Kg6 (Kh6 47. Qe2) 47. Qe2 and wins. But DEEP THOUGHT 0.02 continued to regroup, as on 48. e5+ Bf5 49. exf6? Qe1+ wins for Black and soon there was no win in the offing for White. MEPHISTO X's final error was 60. Nb5? (instead of Nxe4) after which DEEP THOUGHT 0.02 was able to gradually take over the center and K-side for an overwhelming onslaught.

#### MEPHISTO X (White) vs.

#### DEEP THOUGHT 0.20 (Black)

1. c4 e5 2. Nc3 Bb4 3. Nd5 Ba5  
 4. b4 c6 5. bxa5 cxd5 6. cxd5 Qxa5  
 7. e4 d6 8. Bb2 Nf6 9. Bc3 Qd8  
 10. Bb5+ Nbd7 11. d3 a6  
 12. Bxd7+ Bxd7 13. Ne2 Rc8  
 14. O-O O-O 15. Qd2 b5  
 16. Ba5 Qe7 17. f3 Nh5 18. Rac1 f5  
 19. Rxc8 Rxc8 20. Rc1 Nf6  
 21. Bb4 Qd8 22. Rxc8 Bxc8  
 23. Ba5 Qe7 24. Qc1 Bb7 25. Ng3 g6  
 26. Bb6 Kf7 27. Ne2 Kg7 28. Ba5 h5  
 29. Kh1 Kf7 30. h3 Kg7  
 31. Qe3 Kh7 32. Qb6 Ne8  
 33. Nc3 Qd7 34. Kg1 Kg7 35. d4 exd4  
 36. Qxd4+ Kf7 37. Qb6 fxe4  
 38. fxe4 Qe7 39. Bb4 Kf6  
 40. Ba3 h4 41. Bc5 Kg5  
 42. Be3+ Kh5 43. Qd4 g5  
 44. a4 bxa4 45. Qxa4 Nf6  
 46. Bd4 Kg6 47. Qc2 Bc8  
 48. Qd3 Kf7 49. Qf1 Bd7  
 50. Qf3 a5 51. Qe3 Kg6  
 52. Qd3 Kf7 53. Qf3 a4  
 54. Qe3 Kg6 55. Qd3 Kh6  
 56. Qb1 a3 57. Kh2 a2  
 58. Qxa2 Nxe4 59. Qe2 Bf5  
 60. Nb5 Qf7 61. Qc4 Bd7  
 62. Kg1 Qf4 63. Na3 Nd2  
 64. Qd3 Bf5 65. Qc3 Bxh3  
 66. Bg7+ Kh5 67. Qd3 Bxg2  
 68. Kxg2 Qg4+ 69. Kh1 Ne4  
 70. Qc2 Qh3+ 71. Kg1 Qe3+  
 72. Kh1 Qe1+ 73. Kg2 and White resigns (sees mate in seven against itself) (0-1)

**CHESS CHALLENGER X (White)  
vs. HITECH (Black)  
Vienna Opening**

1. e4 e5 2. Nc3 Nf6 3. f4 d5  
4. fxe5 Nxe4 5. Nf3 Be7  
6. d4 Nxc3 7. bxc3 O-O  
8. Be2 c5 9. O-O Nc6  
10. Be3 Qa5 11. Qd3

After an opening where White has no great prospects, this awkward move does not inspire confidence that White knows what is going on. However, the move does guard the c-pawn and prevents Bf5. Perhaps Black should play 11... g6!? when Bf5 can indeed follow.

11. ... Bg4 12. Kh1 Bh5  
13. Rfb1 Rab8 14. dxc5

Now White's pawn structure becomes rather ugly, although the tripled c-pawns do maintain a vice-like grip on the Q-side.

14. ... Bxf3 15. gxf3 Nxe5  
16. Qxd5 Nc6 17. Bd4 Qd8!

Necessary and good. Not 17... Rfd8 18. Qe4 Bxc5 19. Rb5 winning. The resulting ending is rather equal.

18. Bc4 Qxd5 19. Bxd5 Bg5  
20. Rg1 Bh6 21. Rab1 Rfd8  
22. Bxc6 bxc6 23. Be5?!

A stronger way for White to try to make headway might be 23. Rb3 when White may gain control of the b-file or straighten out its pawn structure to mobilize the Q-side.

23. ... Rxb1 24. Rxb1 Re8  
25. f4 a5 26. c4 f6 27. Rb8 Rxb8  
28. Bxb8 a4 29. Kg2 g6  
30. Kf3 Kf7 31. Bd6 Ke6  
32. Ke4 Bg7 33. Kd4 f5+  
34. Kd3 Bf6 35. Ke3 Bg7

Clearly if Black wants to win, a passed pawn should be created with 35... g5 or by trading bishops with 35... Be7 when Black cannot be worse in the king and

pawn ending with a potential passed pawn on the K-side. Unfortunately, HITECH shows no inclination to create a passed pawn until it is too late.

36. Kd2 Bf6 37. Kd3 h5  
38. Ke2 h4?

Not a particularly significant move in the ensuing play, but the pawn does become a fixed target on the color of White's bishop.

39. h3 Bb2 40. Bc7 Kd7  
41. Ba5 Bd4 42. Bb4 Ke6  
43. Be1 Bf6 44. Bd2 Be7  
45. Be3 Bd8 46. Kd3 Kf7  
47. Kc3

Black has been drifting and now suddenly its a-pawn is in serious danger.

47. ... Bc7 48. Kb4 g5  
49. fxg5 Kg6 50. Kxa4 Bh2  
51. Ka5 f4 52. Bxf4 Bxf4  
53. Kb6 Kf7 54. Kxc6 and  
Black resigns (1-0)

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