



## COLUMNISTS

*The Kibitzer*

Tim Harding

## How Much Longer Can Man Match the Computer?

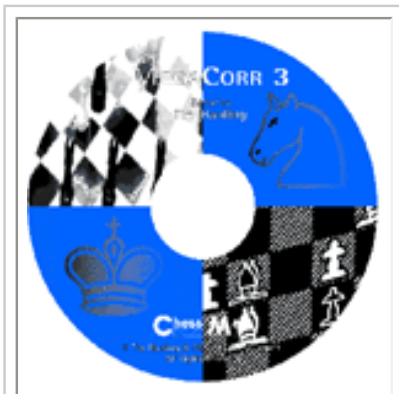
After Kasparov's scare in November against the X3D Fritz program in New York, the latest in a series of inconclusive matches, I wonder how much longer can Man match the computer at chess?

Of course there is no simple answer to the question because there are many different chess programs and modes of play. The time-limit makes a big difference. The faster a game is played, the bigger the machine's advantage because time trouble and short-range tactical blunders are much more likely to decide the game.

That was evident in Game 2 when Kasparov made a simple blunder when his position was quite good but time was running short. In case you don't remember what happened, here is the game.

***X3D FRITZ – Kasparov*****X3D Match, New York, November 13, 2003**

1 e4 e5 2 Nf3 Nc6 3 Bb5 Nf6 4 d3 d6 5 c3 g6 6 0–0 Bg7 7 Nbd2 0–0 8 Re1 Re8 9 d4 Bd7 10 d5 Ne7 11 Bxd7 Nxd7 12 a4 h6 13 a5 a6 14 b4 f5 15 c4 Nf6 16 Bb2 Qd7 17 Rb1 g5 18 exf5 Qxf5 19 Nf1 Qh7 20 N3d2 Nf5 21 Ne4 Nxe4 22 Rxe4 h5 23 Qd3 Rf8 24 Rbe1 Rf7 25 R1e2 g4 26 Qb3

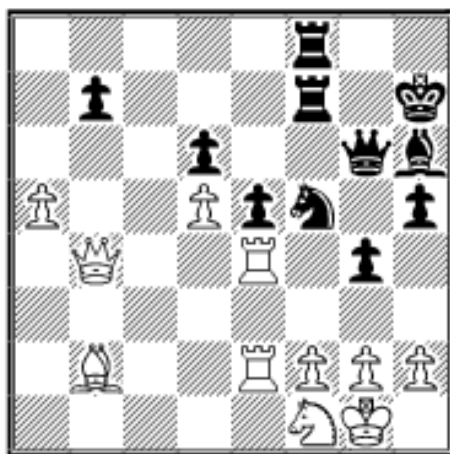


Order

***Mega Corr 3****Edited by Tim Harding*

**Raf8 27 c5 Qg6 28 cxd6 cxd6 29 b5 axb5 30 Qxb5 Bh6 31 Qb6 Kh7 32 Qb4**

**DIAGRAM \*\***



**32...Rg7??**

Black's position was fine but he was getting short of time.

Intending to double rooks on the g-file, he should have moved the other one first (32...Rg8) because now the rook on f8 is unguarded, allowing the kind of cheapo with which I used to win

school match games when I was a kid.

**33 Rxe5!**

Black has nothing for the pawn and is liable to lose a second one soon because his king becomes vulnerable too.

**33...dxe5 34 Qxf8 Nd4 35 Bxd4 exd4 36 Re8 Rg8 37 Qe7+ Rg7 38 Qd8 Rg8 39 Qd7+ 1-0.**

To Kasparov's credit, he tied the short match in the next game with a fine piece of opening preparation combined with deep strategy. We will see that later in the article.

I can distinguish between five different speeds of play for human-computer games. They can vary between fixed-time blitz (5 minutes per player per game), Fischer clock blitz (similar but with a time increment for every move made), rapid play (30-60 minutes per player per game), championship time-limits (at least 2 hours per game each) and correspondence chess time-limits (time per move measured in days).

At fixed-time blitz the computer is already king. It doesn't make crude errors and the human has the disadvantage that he must physically make his moves. Changing to a Fischer-clock mode at least gives the human player some chance: if he can reach a technically won endgame, he can finish it off without the flag falling.

At rapid rates the computer still has a big advantage but at least the human player has some chance to outwit the machine with some strategic planning or even deeper calculation.

However, the human master is very much at a disadvantage until the game is slowed to match/championship rates, i.e. at least 2 hours for the first 40 moves followed by a substantial amount of extra time for further moves. At this slower pace, the human grandmaster has a fair chance, especially with the white pieces, of obtaining a favourable position from the opening and cashing it in.

Finally at correspondence chess rates, a skilful human player can still definitely play stronger than the computer.

Following Kasparov's defeat by the IBM computer Deep Blue II under match conditions, the three most recent matches between top grandmasters and computers have been drawn. Two involved ex-world champion Garry Kasparov and the other the man whom I recognise as current world champion, Vladimir Kramnik.

Now let's go back and have a quick review in chronological order of early computer chess developments and the major human-computer matches.

### **The early days...**

Computer chess research in the 1970s and earlier was

largely, if not entirely, in the hands of university chess enthusiasts, who had access to computer time on laboratory computers. They pursued the ever-receding goal of “artificial intelligence”. Chess offered an area in which a limited amount of achievement could be demonstrated. If a computer could solve a mate-in-two problem and later it could tackle a mate-in-three problem, that represented progress.

The first master versus computer match was played in 1978 between the then computer world champion, an American program called CHESS 4.7, and British international master called David Levy. Levy was a relatively inactive I.M. but he did know more than most human masters about computer chess. In the first game, CHESS 4.7 reached an endgame one piece ahead, but it failed to win.

Levy then won games two and three with sound play, waiting for mistakes, but lost in game 4 when he experimented with a sharp defence, the Latvian Counter-Gambit. Levy then won game 5 to clinch the best-of-six match by  $3\frac{1}{2}-1\frac{1}{2}$ .

I first wrote about computer chess in 1981 when Pergamon Press commissioned *The Chess Computer Book*. The first commercial programs running on dedicated hardware (of which the strongest was one called Morphy, played very weakly in those days and personal computers were almost non-existent at the start of that decade.

By the time I had to write *The New Chess Computer Book* (1985), commercial chess computing was becoming big business, but this was still before the rise of ChessBase. Apart from the dedicated chess-playing machines, sold in large numbers at Christmas-time, the personal computer market was exploding and there were a range of programs that could be run on general-purpose PCs. However, the

limited speed of 1980s PCs meant that their performance compared with the specialist chess machines were poor. This changed during the 1990s as faster CPU chips and cheaper RAM memory greatly speeded up their move-generation and position-evaluation processes.

Nevertheless, at any given time, one would always expect a specially-built chess machine to perform better than a general-purpose computer, given that the programs they were running were of equal sophistication (which wasn't always the case). In fact, the results achieved in the late 1980s by Dr Feng-Hsiung Hsu's first chess computer, Chip Test, showed that fast specialist hardware with a fairly crude program and limited chess knowledge could outperform less powerful chess engines that "knew" more about chess, and could also pose more problems for human opponents.

### **Garry versus IBM**

In his book *Behind Deep Blue* (published by Princeton University Press about a year ago) Dr Feng-Hsiung Hsu describes his chess computer project in far more revealing detail than any other leader of a chess computer program has done in recent years. (The others are too busy making money and want to protect their trade secrets.) For the fascinating details, I recommend you read the book.

Starting in the mid-1980s at Carnegie-Mellon University, the Taiwanese computer scientist became interested in the problem of designing a specialist chip that would generate legal chess moves very quickly. With some fairly crude software tacked on, thanks to some team members who actually knew something about chess, Chip Test rapidly became one of the world's top chess-playing machines. It rapidly outstripped the more conventional programs that ran on conventional hardware, usually minicomputers but

sometimes on big mainframes. Their next effort was Deep Thought (named after the super-computer in a comic science-fiction novel by Douglas Adams); in 1988 it already had a US Chess Federation rating over 2500 and could sometimes beat grandmasters.

After completing his doctorate at Pittsburgh, Dr Feng-Hsiung Hsu and some of the Chip Test team were hired by IBM in 1989 to develop the Deep Thought project. Between 1991-95 they developed a Deep Thought II, which never played at full power an official match with a human grandmaster, but was involved in various tournament and exhibition games. The most important was a series of games with GM Bent Larsen and Danish national team members in 1993 but the computer was only running on 14 processors instead of its maximum 24.

Deep Thought II's evolution into the Deep Blue that played a 6-game match against Kasparov in 1996 is described in the book. New hardware was readied in haste and American GM Joel Benjamin was hired to take care of the opening book and give general GM advice. There was a rush to get things ready on time and the new IBM computer was "only two weeks old" according to *Behind Deep Blue*, but this was not known outside IBM. David Levy predicted a 6-0 win for Kasparov, but the world champion sensationally lost the very first game.

For Game 2, a new opening book was not uploaded properly and Deep Blue was on its own at move 2. However, it did have an "extended opening book" which used statistics based on master games in its database so that it did not have to entirely rely on calculation in such situations. A mistake by the computer at move 18 revealed a hidden software bug; Kasparov got the advantage and equalized the match in a long game.

There followed two more draws (in one of which the computer had winning chances) and finally two more wins for Kasparov. Humanity could be satisfied with the 4-2 victory but the IBM team were thrilled with that win and knew they could do better in a re-match.

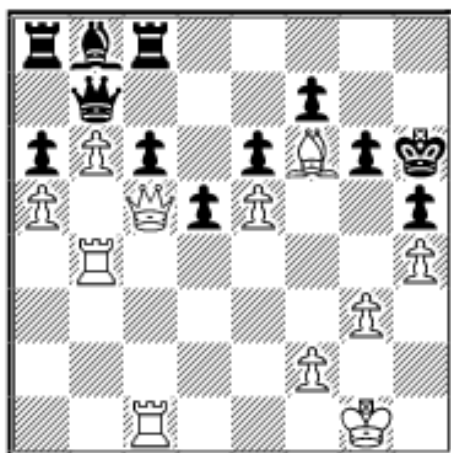
Here is the 6<sup>th</sup> game of the 1996 match in which Kasparov achieved a strategic “crush”. I give it without comments; the final position is comical.

### *Kasparov - Deep Blue*

#### 6<sup>th</sup> game, Philadelphia 1996

1 Nf3 d5 2 d4 c6 3 c4 e6 4 Nbd2 Nf6 5 e3 c5 6 b3 Nc6 7 Bb2 cxd4 8 exd4 Be7 9 Rc1 0–0 10 Bd3 Bd7 11 0–0 Nh5 12 Re1 Nf4 13 Bb1 Bd6 14 g3 Ng6 15 Ne5 Rc8 16 Nxd7 Qxd7 17 Nf3 Bb4 18 Re3 Rfd8 19 h4 Nge7 20 a3 Ba5 21 b4 Bc7 22 c5 Re8 23 Qd3 g6 24 Re2 Nf5 25 Bc3 h5 26 b5 Nce7 27 Bd2 Kg7 28 a4 Ra8 29 a5 a6 30 b6 Bb8 31 Bc2 Nc6 32 Ba4 Re7 33 Bc3 Ne5 34 dxe5 Qxa4 35 Nd4 Nxd4 36 Qxd4 Qd7 37 Bd2 Re8 38 Bg5 Rc8 39 Bf6+ Kh7 40 c6 bxc6 41 Qc5 Kh6 42 Rb2 Qb7 43 Rb4 1–0

**DIAGRAM** of final position \*\*



Here Black can only move his king without immediate loss of material. Then White's simplest is 44 Qe7, exchanging queens to lift the blockade of the b-pawn.

For the 1997 re-match, a new chess chip was designed and built with much more time to spare and GM Benjamin was

hired again to teach the computer more chess knowledge. (Benjamin's own view of these events was written up in a

book that was to have been published by Batsford, but the contract lapsed when that firm went into receivership in 1999. So far as I know, Benjamin's account remains unpublished. It's a pity that Dr Feng-Hsiung Hsu's book didn't at least include a chapter by him, because the very limited chess knowledge of Deep Blue's "father" would then have been compensated by a grandmaster view of what was really happening on the chessboard.)

## **The Fall of Man**

As is fairly well known, Kasparov decided on a fatal strategy for the 1997 match in which he would avoid his regular opening repertoire and try to exploit computer shortcomings. It may be he was misled by ChessBase programmer Frederic Friedel, who on a visit to IBM's labs in March 1997 said "Garry would win easily if he should play anti-computer chess, but he will never do it".

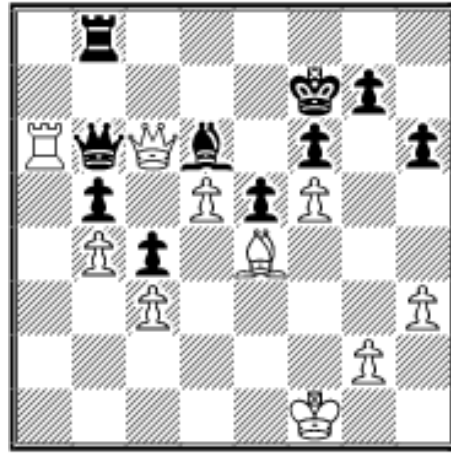
Possibly misled by Friedel, Kasparov did indeed play "anti-computer chess" and it backfired. Not once in the six games did he obtain a clear tactical advantage through opening preparation. In Game 1 Kasparov played slowly with the Réti opening (1 Nf3 d5 2 g3 Bg4 3 b3). He did get the better game after computer mistakes at moves 11 and 12, but later Kasparov came close to spoiling his advantage. However, he maintained tactical control and eventually won.

In Game 2, however, Kasparov defended a main line Ruy Lopez (Spanish Opening) and failed to equalize. Deep Blue 2 played a very mature-looking positional game thanks, according to Dr Feng-Hsiung Hsu, to a new function which enabled the computer to appreciate the significance of placing rooks on closed files which it had the option of opening later. Yet, with a winning advantage, Deep Blue played inaccurately in the tactical phase (the opposite of what one would expect from a computer). After Kasparov



resigned, it turned out that he could have drawn the final position!

DIAGRAM \*\*\*



White Kf1, Qc6, Ra6, Be4;  
pawns b4, c3, d5, f5, g2, h3

Black Kf7, Qb6, Rb8, Bd6;  
pawns b5, c4, e5, f6, g7, h6

Instead of giving up, Black  
should have played 45...Qe3!!,  
because after 46 Qxd6 Re8 47  
Bf3 (or 47 h4 h5) 47...Qc1+ 48

Kf2 Qd2+ Black can achieve perpetual check, although the  
analysis is complex.

In the next three games, Kasparov achieved advantages which at times seemed close to winning, yet all these games ended as draws. The world champion had underestimated the capability of Deep Blue II in the endgame phase which perhaps, before the match, he had reckoned to be his best chance of winning games.

Game 6 was unbelievably poor, as Kasparov played into a known losing opening variation with his sixth and seventh moves. He was thrashed in under 20 minutes, letting down the human race very badly.

### *Deep Blue – Kasparov*

**New York match (Game 6), 11<sup>th</sup> May 1997**

**1 e4 c6 2 d4 d5 3 Nc3 dxe4 4 Nxe4 Nd7 5 Ng5 Ngf6 6 Bd3 e6? 7 N1f3 h6? 8 Nxe6! Qe7 9 0-0 fxe6 10 Bg6+ Kd8 11 Bf4 b5 (A new move but Black is still lost) 12 a4 Bb7 13 Re1 Nd5 14 Bg3 Kc8 15 axb5 cxb5 16 Qd3 Bc6 17 Bf5**

**exf5 18 Rxe7 Bxe7 19 c4 1-0.**

This defeat had very serious implications for the game of chess, which lost a lot of prestige as a result. For example, the Japanese representative for one of the junior world championships that year (I think it was the Under-18s) had his permission and funding withdrawn on the grounds that chess was no longer a serious game ("It is well known that a computer can easily defeat the world champion"). Kasparov's bad-loser behaviour certainly did not help matters. After that, there was no question of a revenge match.

Between 1997 and 2002 there were no major human-computer matches. Had Kasparov drawn the 1997 match, IBM would perhaps have sponsored its programme for another year or two, but having defeated the world champion, what was left to prove?

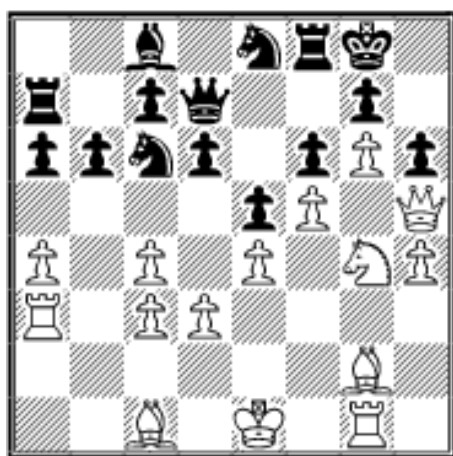
With IBM's specialist hardware dismantled, there was for a time no chess machine that could challenge the top human grandmasters. While regular programs running on normal computers could give masters a tough match, in the 1990s it needed the extra edge of fast move-generation by hardware to really put the top grandmasters under serious pressure. Several years on, we are now perhaps back to where we were in 1997. It's possible to make a computer with Deep Blue II's physical advantages cheaper and even normal (single-processor) PCs are much faster now than they were in 1997.

The most interesting human-computer encounter in the intervening years was the participation of a version of Fritz in the 2000 Dutch Championship. Some of the Dutch players refused to play the computer and some did not fare so well, but both Loek van Wely and John van der Wiel scored nice wins with White.

*Van Wely - Fritz SSS*

Rotterdam, 2000

1 c4 e5 2 g3 Nf6 3 Bg2 Nc6 4 Nc3 Bb4 5 a3 Bxc3 6 bxc3  
 0-0 7 e4 a6 8 a4 d6 9 d3 Bg4 10 f3 Bd7 11 Ne2 Qc8 12 h3  
 b6 13 f4 Be6? 14 f5 Bd7 15 g4 Ne8 16 Ng3 Qd8 17 g5 Bc8  
 18 h4 f6 19 Qh5 Na5 20 Ra3 Qe7 21 Nf1 Nc6 22 Ne3 Qd7  
 23 g6 h6 24 Ng4 Ra7 25 Rg1 1-0

**DIAGRAM of final position \*\*\***

Black resigned because White will play Bf3 and then sacrifice the other bishop on h6 for a mating attack. The slow build-up, suffocating counterplay and not unleashing combinations until the result is beyond doubt, is classic computer-killing. However, it takes a very strong player to do it and it can only be accomplished occasionally.

Van Wely played a four-game rapid match with Fritz6 later the same year, at the rapid rate of 25 minutes plus 10 seconds added per move. The result bears out what I said above about time-rates. With Black, the Dutch grandmaster lost twice and with White he could only get draws.

## The recent matches

In the matches played in the last 15 months, Kasparov and Kramnik faced programs which were similar to commercially available programs (Fritz and Junior) — but with some extra features and no doubt special preparation. Whether these program/hardware combinations are stronger than Deeper Blue II was in 1997, I am unsure. Probably

they do have more chess “knowledge” but might be inferior to the final IBM machine in some respects.

October 2002 saw a slight improvement (from the human point of view) on the 1997 result: Kramnik 4 Deep Fritz 4. (This match, played in Bahrain, had originally been scheduled for several months earlier but was delayed because of the invasion of Afghanistan.) Kramnik took a two-point lead early on, exploiting poor openings by the computer to get the queens off early, and winning a nice ending in Game 2. However, he could not hold the lead and in the last two games Kramnik had clearly settled for a tied match.

Kramnik’s technique for beating the computer was different from Kasparov’s. In the second game, his first with the white pieces, he exchanged queens in the opening

***Kramnik - Deep Fritz***

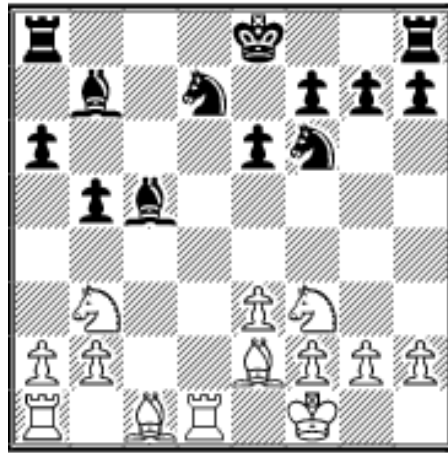
**Game 2, Bahrain, October 6, 2002**

**1 d4 d5 2 c4 dxc4 3 Nf3 Nf6 4 e3 e6 5 Bxc4 c5 6 0–0 a6 7 dxc5 Qxd1 8 Rxd1 Bxc5 9 Kf1**

The symmetrical pawn structure and absence of queens creates a strategic situation where White can play for a slight initiative and wait for mistakes.

**9...b5 10 Be2 Bb7 11 Nbd2 Nbd7 12 Nb3**

DIAGRAM \*\*\*



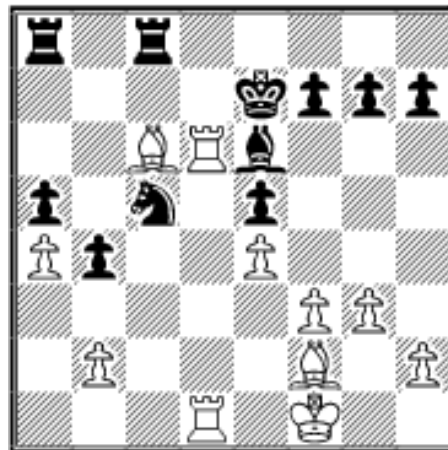
## 12...Bf8?!

This is a very strange move. Apparently the computer believed White should fianchetto the queen's bishop and therefore that White's best move now was 13 Nb3-d2; it intended to reply 13...Bc5, possibly leading to a draw by

repetition. Kramnik, of course, has other plans!

**13 a4 b4 14 Nfd2 Bd5 15 f3 Bd6 16 g3 e5 17 e4 Be6 18 Nc4 Bc7 19 Be3 a5 20 Nc5 Nxc5 21 Bxc5 Nd7 22 Nd6+ Kf8 23 Bf2 Bxd6 24 Rxd6 Ke7 25 Rad1 Rhc8 26 Bb5 Nc5 27 Bc6**

## DIAGRAM \*\*\*



Kramnik thought he stood clearly better but was surprised by the tactical resources that the computer now found.

**27...Bc4+! 28 Ke1 Nd3+ 29 R1xd3 Bxd3 30 Bc5 Bc4 31 Rd4+**

Kramnik saw a perpetual check starting 31 Rg6+ Kd8 32 Bb6+ but decided he could continue probing for winning chances.

**31...Kf6 32 Rxc4 Rxc6 33 Be7+ Kxe7 34 Rxc6 Kd7 35 Rc5**

A human grandmaster might be able to draw this inferior endgame, but it is too difficult for a computer against a player of Kramnik's class. Fritz tries to maintain material

equality and defends passively.

**35...f6 36 Kd2 Kd6 37 Rd5+ Kc6 38 Kd3 g6 39 Kc4 g5 40 h3 h6 41 h4 gxh4 42 gxh4 Ra7 43 h5 Ra8 44 Rc5+ Kb6 45 Rb5+ Kc6 46 Rd5 Kc7 47 Kb5 b3 48 Rd3 Ra7 49 Rxb3 Rb7+ 50 Kc4 Ra7 51 Rb5 Ra8 52 Kd5 Ra6 53 Rc5+ Kd7 54 b3 Rd6+ 55 Kc4 Rd4+ 56 Kc3 Rd1 57 Rd5+ 1-0**

In game three, Kramnik got the queens off before move 10 for the third game in a row.

### Deep Fritz – Kramnik

Manama, October 8, 2002

**1 e4 e5 2 Nf3 Nc6 3 d4 exd4 4 Nxd4 Bc5 5 Nxc6 Qf6 6 Qd2 dxc6 7 Nc3 Ne7 8 Qf4 Be6 9 Qxf6 gxf6 10 Na4 Bb4+ 11 c3 Bd6 12 Be3 b6 13 f4 0-0-0 14 Kf2 c5 15 c4 Nc6 16 Nc3 f5 17 e5 Bf8**

**DIAGRAM \*\*\*\***



**18 b3? Nb4!**

Kramnik prevents Nd5, which White should have played last move. Now he steadily outplays the computer.

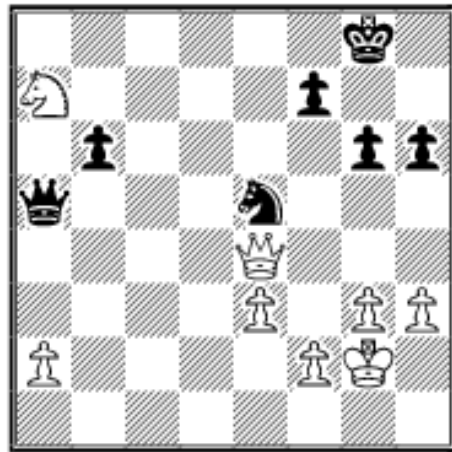
**19 a3 Nc2 20 Rc1 Nxe3 21 Kxe3 Bg7 22 Nd5 c6 23 Nf6 Bxf6 24 exf6 Rhe8 25 Kf3 Rd2**

**26 h3 Bd7 27 g3 Re6 28 Rb1 Rxf6 29 Be2 Re6 30 Rhe1 Kc7 31 Bf1 b5 32 Rec1 Kb6 33 b4 cxb4 34 axb4 Re4 35 Rd1 Rxd1 36 Rxd1 Be6 37 Bd3 Rd4 38 Be2 Rxd1 39 c5+ Kb7 40 Bxd1 a5 41 bxa5 Ka6 42 Ke3 Kxa5 43 Kd4 b4 44 g4 fxg4 45 hxg4 b3 46 Kc3 Ka4 47 Kb2 f6 48 Bf3 Kb5 49 g5 f5 50 Kc3 Kxc5 0-1**

Deep Fritz's performance so far had not been impressive. In Game 4, the computer managed to keep queens on until move 18 and managed to draw a slightly inferior endgame. It seems that Fritz's programmers were tinkering with the program, or at least with its opening book, and in Game 5 at last they managed to get a more tactical open sort of game with queens on.

Kramnik reached this position after White's 33<sup>rd</sup> move.

DIAGRAM \*\*\*



WHITE Kg2, Qe4, Na7; pawns a2, e3, f2, g3, h3

BLACK Kg8, Qa5, Ne5; pawns b6, f7, g6, h6

The objectively correct continuation is 33...Qxa7 34 Qxe5 Qxa2 35 Qb8+ Kh7 36 Qxb6 Qd5+ 37 Kh2 Qf3.

Defending this queen endgame with three pawns against four would have been painful but ultimately would probably have secured the half point and (with two white games to come) the match victory.

He looked for a simpler, quicker way to draw.

**33...Qxa2 34 Nc8 Qc4??**

He could still have headed for the queen endgame by 34...Qe6, but instead he had what he called a "blackout", blundering a piece.

**35 Ne7+ 1-0.**

This is what makes playing a series of games against a computer so hard, even for the top grandmasters. There is no relief when the program gets pressure, and the machine never blunders.

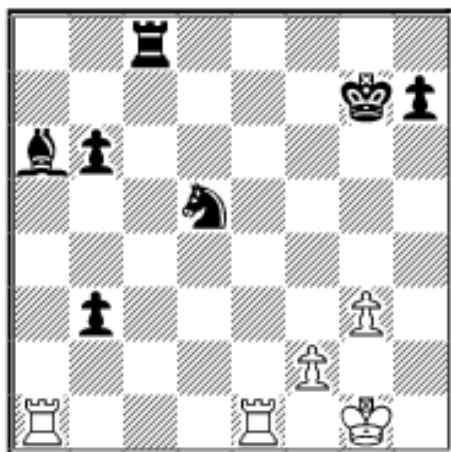
After that came Game Six in which Kasparov achieved a good position but tried to take on the computer in its greatest strength: short-range tactics. He miscalculated a piece sacrifice and was soon in a lost position. Yet at the end he made the same mistake that Kasparov had done in Game 2 in 1997.

### *Kramnik - Deep Fritz*

**Manama, October 15, 2002**

**1 d4 Nf6 2 c4 e6 3 Nf3 b6 4 g3 Ba6 5 b3 Bb4+ 6 Bd2 Be7  
7 Bg2 c6 8 Bc3 d5 9 Ne5 Nfd7 10 Nxd7 Nxd7 11 Nd2 0-0  
12 0-0 Rc8 13 a4 Bf6 14 e4 c5 15 exd5 cxd4 16 Bb4 Re8  
17 Ne4 exd5 18 Nd6 dxc4 19 Nxf7 Kxf7 20 Bd5+ Kg6 21  
Qg4+ Bg5 22 Be4+ Rxe4 23 Qxe4+ Kh6 24 h4 Bf6 25  
Bd2+ g5 26 hxg5+ Bxg5 27 Qh4+ Kg6 28 Qe4+ Kg7 29  
Bxg5 Qxg5 30 Rfe1 cxb3 31 Qxd4+ Nf6 32 a5 Qd5 33  
Qxd5 Nxd5 34 axb6 axb6 0-1!?**

### **DIAGRAM \*\*\***



White resigned but Fritz's main line went 35 Rxa6 b2 36 Ra7+ Kg6 37 Rd7 Rc1 38 Rd6+ Nf6 39 Rdd1 b1Q 40 Rxc1 Qf5 41 Rc6 b5 42 Ree6 b4 43 Rb6 Kf7 44 Rxf6+ Qxf6 45 Rxb4 and White has a fortress draw because his rook will shuttle between f4 and h4.

“Never resign early against a computer!” used to be a



golden rule when playing the early machines of the 1980s and it can still be true sometimes today.

After this debacle, which leveled the match at 3-3, Kramnik still had to play two more games. To his great credit, he maintained his concentration and drew Game 7. It probably helped that his team had managed to keep from him the news of his premature resignation until the press conference that followed Game 7.

Before Game 8 Kramnik looked tired and it seems the Fritz programmers had settled for a drawn match too. The program played into a very solid opening line and the draw took only 21 moves.

### **Kasparov-Deep Junior**

Kasparov's FIDE-sponsored match with Deep Junior had originally been scheduled to take place at the same time as Kramnik's but eventually it was delayed until early in 2003. For the first time since his 1997 debacle, Kasparov faced a tough computer specially prepared for him and there was a lot of interest in whether he could do better. Deep Junior is more tactically-oriented than the program Kramnik had faced, but probably a weaker opponent overall.

The outcome was inconclusive, with a win apiece and four draws.

#### *Kasparov-Deep Junior*

#### **Game 1, New York, January 26, 2003**

**1 d4 d5 2 c4 c6 3 Nc3 Nf6 4 e3 e6 5 Nf3 Nbd7 6 Qc2 Bd6**

In Game 3, the computer book was switched to 6...b6. Kasparov obtained a good opening, missed a couple of chances to establish a clear advantage and then blundered in time trouble at move 32, when he could have forced a draw.

He had also missed a chance to have a clear advantage in Game 2.

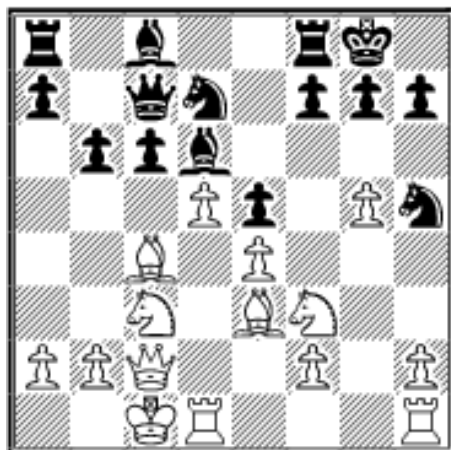
## 7 g4

The tricky Shabalov Gambit. Junior decides — or, more likely, was ordered by the programmers of its book — not to play N×g4.

**7...dxc4 8 Bxc4 b6 9 e4 e5 10 g5 Nh5 11 Be3 0–0 12 0–0–0 Qc7 13 d5!**

Kasparov improves on theory and previous games. The computer reacts badly.

DIAGRAM \*\*\*



**13...b5? 14 dxc6! bxc4 15 Nb5 Qxc6 16 Nxd6 Bb7 17 Qc3 Rae8?**

17...Rab8!? was better according to GM Lutz in *ChessBase Magazine* 94.

**18 Nxe8 Rxe8 19 Rhe1 Qb5 20 Nd2 Rc8 21 Kb1 Nf8 22 Ka1 Ng6 23 Rc1 Ba6 24 b3 cxb3 25 Qxb3 Ra8 26 Qxb5 Bxb5 27 Rc7 1–0.**

The last three games were drawn. A large American TV audience was disappointed by a premature draw agreement in the last game.

## Kasparov-Fritz 3XD

One of the problems that chess programmers have is producing an “opening book” that is not only sound and

incisive but also suited to the program's style of middle game play. Deciding which opening variations a program should play with White is not so problematic because the choice of a second-best move will at worst usually only concede equality but the opening book for the black pieces is a potential Achilles' Heel for chess engines.

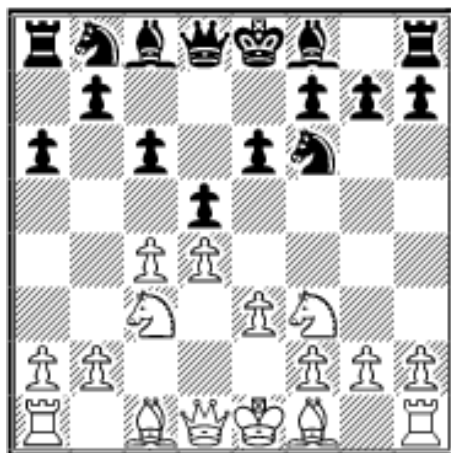
The opening book programmer may tell the program to play a move because it is fashionable, though it may subsequently be refuted. Of course this is less of a problem for special matches like Fritz X3D v Kasparov, because a special book can be prepared just before the match, than it is for a commercial version to go on sale. Even a special match book, however, can cause problems when the computer has to defend with the black pieces.

### *Kasparov - X3D FRITZ*

**X3D Match, New York, November 16.2003**

**1 Nf3 Nf6 2 c4 e6 3 Nc3 d5 4 d4 c6 5 e3 a6?!**

**Diagram \*\***



This does not look to me like a move that plays to the strengths of a computer. Maybe Fritz's programmers wanted to get a Meran or Queen's Gambit Accepted type position without allowing Kasparov to employ the line with which he had beaten Deep Junior in the game given above.

**6 c5**

Did they forget about this move? Euwe had already played

it several times in the 1930s and of course Kasparov has been studying all the world champions' games for his series of books on "my great predecessors".

### 6...Nbd7

6...b6 is sometimes played but White won in the 8th Euwe-Alekhine game of 1935. In Euwe's book, *From My Games*, he wrote that Black has two possible plans (...b6 or prepare ...e5) but it is questionable whether either equalizes.

### 7 b4 a5?!

I haven't seen expert discussion on this among chess programmers but I understand that Fritz would probably not make this move if it was calculating for itself instead of following an opening book planned for it by humans. 7...Qc7 and 7...g6 are also possible.

### 8 b5 e5

Alekhine lost with 10...Ne4 in the 10<sup>th</sup> game of the 1935 World Championship match.

### 9 Qa4 Qc7 10 Ba3 e4 11 Nd2 Be7

### DIAGRAM \*\*\*



### 12 b6

Kasparov varies from 12 Be2 of Reshevsky-Keres, World Championship tournament, Moscow 1948. Black won that game and the result of it may have misled X3D Fritz's programmers.

Kasparov doesn't develop this bishop until move 32 and then it goes to g2! As the computer opponent for the next 20 moves is probably analysing on the basis that White's plan includes Be2 and O-O, the non-development of the bishop represents a more sophisticated anti-computer strategy than Kasparov has employed in the past.

**12...Qd8 13 h3 0-0 14 Nb3 Bd6 15 Rb1 Be7 16 Nxa5 Nb8 17 Bb4 Qd7 18 Rb2 Qe6 19 Qd1**

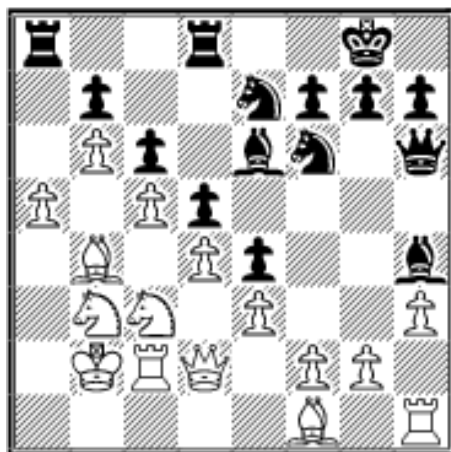
The queen withdraws from the pin, having successfully digested a pawn.

**19...Nfd7 20 a3 Qh6 21 Nb3 Bh4 22 Qd2 Nf6 23 Kd1**

The king will be safe on the queenside where Black cannot bring force to bear in support of the a8-rook.

**23...Be6 24 Kc1 Rd8 25 Rc2 Nbd7 26 Kb2 Nf8 27 a4 Ng6 28 a5 Ne7**

### DIAGRAM \*\*\*



**29 a6!**

White returns the extra pawn to secure a protected passed b-pawn.

**29...bxa6**

The black pawn on a6 helps to shield the white king. Now

Kasparov transfers his forces to break through at a6 or c6 when he is ready.

**30 Na5 Rdb8 31 g3 Bg5 32 Bg2**

The bishop was well-placed on f1 but it has to step aside to let the king's rook be developed.

**32...Qg6 33 Ka1 Kh8 34 Na2 Bd7 35 Bc3 Ne8 36 Nb4 Kg8 37 Rb1 Bc8 38 Ra2 Bh6 39 Bf1 Qe6 40 Qd1 Nf6 41 Qa4 Bb7 42 Nxb7 Rxb7 43 Nxa6**

For the second time in the game, White grabs an a-pawn and then unpins.

**43...Qd7 44 Qc2 Kh8 45 Rb3 1-0**



Although there seems to be a lot of play left, Fritz's programmers resigned. A game like this is hell for a computer: blocked centre, material disadvantage and no piece play.

I think this is the best game Kasparov ever played against a computer and if there had been two more games in the match, he would probably have won again with White. But he just had one more game with Black, which was drawn to tie the match.

The key to White's victory in the game with Deep Junior was a specific opening innovation in a variation that probably did not suit the computer's style of play. The essence of the win against X3D Fritz was not any particular move or tactical combination, but a total strategic dominance, of a type that Kasparov never achieved in his 1997 match with the IBM computer Deep Blue II but which Van Wely and Van der Wiel managed in their games in the 200 Dutch Championship.

When the human player succeeds in demolishing the

computer so utterly, one can be deceived into thinking that the era of machine dominance is still decades away. However, such cases are rare (rarer still with the black pieces) and usually depend on exploiting a dubious opening choice or mistake — which the programmers will not allow their engines to make when the next version is released.

The window for human victory is narrowing all the time. As the computers get faster and their programmers become more skilled at instilling endgame knowledge, the time will come when no human will ever be able to beat the top computer programs at a time limit measured in hours and minutes.

Correspondence chess is a somewhat different cases, because with a time limit measured in days the human player can (at least in theory) analyse even deeper than the computers. The human player can consult opening books and databases while playing the opening in correspondence chess and may even use a computer himself to check his own analytical conclusions.

Just how well a computer can perform against a correspondence chess grandmaster is being tested right now in a six-game match at [www.chessfriend.com](http://www.chessfriend.com). Berlin CC-grandmaster, who recently won a major email tournament, is playing three games with White and three with Black simultaneously against six different engines identified only by the names of Roman gods. He doesn't know which program is playing which game.

So this is a topic to which I will return next year.

---

## **Appendix**

More about the *City of London Chess Magazine*

I have written in articles 48 and 49 of this series (May and June 2000) about the *City of London Chess Magazine* which was edited in London in the years of 1874-5 by William Norwood Potter with no little assistance from his friend Steinitz.

The bound volumes that I possess include, as I thought then, all the issues of the magazine that were ever published. This was a natural assumption since in his final two issues (December 1875 and January 1876) Potter announced the closure of the magazine, and I was also misled by the statement in Harry Golombek's 'The Encyclopaedia of Chess' (page 247) that Potter was the "sole editor". I have now discovered that this was not in fact the case.

At the start of this month, I had the chance to do some research in the magnificent British Library at St. Pancras in London. Browsing for chess items in the catalogue, I spotted that they had an additional issue, numbered 25 and edited by J. Wisker, so I sent for this item.

It makes a somewhat sad epilogue to the former articles.

The bound volume in the British Library contains all 25 issues, in sequence, followed by their covers. My own copies lack the covers. The 25<sup>th</sup> issue bears the date March 1976 and the statement "published the 15<sup>th</sup> of every month" and gives the name of the new editor, Wisker. There was no February issue.

Issue 25 maintains the style of the former editor so far as possible. It starts with the customary account of 'The Month' followed by a report on the Steinitz-Blackburne match, which began on February 17 and ended on March 2. Poor Joseph Blackburne was overwhelmed 7-0 by the future world champion; Steinitz's feat puts me in mind of Fischer's triumphs against Taimanov and Larsen in 1971.



The magazine also included some other games and news.

The last page bears the Wisker's note "To our readers" saying:

"It was to the last moment doubtful whether the *City of London Chess Magazine* would be continued or not. The negotiations in respect of the change of editorship are the cause of the delay for which we have now to apologise. Subscribers may rely upon the punctual appearance of the magazine in future".

However, a pencilled note from a librarian states that: "further issues are wanting... presumed no more published".

John Wisker, like Potter, was an I.M. strength player and an experienced magazine editor. I suppose that he did not obtain enough subscribers as a result of the split in the City of London Club (over a rules dispute), which was described dispassionately by Potter in his final issue. A Special General Meeting of the club was held on November 12, 1875. Wisker was on the majority side in that argument, whereas both Steinitz, Zukertort and Blackburne were on the minority side and (along with some others) resigned from the club. Potter declined to get involved though his sympathies were clearly with the minority.

Part of the reason for Wisker's failure to revive the magazine is perhaps that without the classy input of leading players who had contributed for Potter, readers did not have confidence that the former quality would be maintained. Wisker's ill-health may have been a contributory important reason; he suffered from tuberculosis and died in 1877 after emigrating to Australia under doctor's orders (if Golombek can be believed on that point).

If any reader has any more definite information about why the magazine did not continue, I should be interested to hear the evidence. I will try to find out more next time I visit the British Library.

---

Finally, I wish to conclude with a message to my readers. Most of you, I expect, will be reading this article before December 25 or at least before the beginning of 2004. To those of you who celebrate one or more of these festivals, I wish you a Very Happy Christmas and a prosperous New Year. The Kibitzer will return, refreshed I hope, on the second Wednesday of January with the traditional look back to chess a century ago.

Copyright 2003 Tim Harding. All rights reserved.

---



[\[Chess Cafe Home Page\]](#) [\[Book Review\]](#) [\[Bulletin Board\]](#) [\[Columnists\]](#)  
[\[Endgame Study\]](#) [\[Skittles Room\]](#) [\[Archives\]](#)  
[\[Links\]](#) [\[Online Bookstore\]](#) [\[About The Chess Cafe\]](#) [\[Contact Us\]](#)

Copyright 2003 CyberCafes, LLC. All Rights Reserved.

"The Chess Cafe®" is a registered trademark of Russell Enterprises, Inc.