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## Inside Chess

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Vladimir Kramnik had been scheduled to begin a match in Bahrain in October against Deep Fritz, but world events caused the match to be postponed. It is now set for next month. We now revisit the last match played by a world champion against the then-reigning computer king. After a fine victory in Game 1, Kasparov had Black in Game 2. An extraordinary game, with a most peculiar finish indeed...

## 1997 Rematch: Garry Kasparov versus Deep Blue Game 2

As specified in the rules, Kasparov has the right of choice of the chess clock to be used during the match. Kasparov had the Swiss jeweler Audemars Piquet design a special clock that is sitting on the playing table. This Swiss clock, contrary to other digital timers, is not working on batteries but is connected with cables to a special computer.

The Equitable has three main rooms for this event. In the basement is the auditorium where the commentators entertain the audience. The podium has huge screens displaying the actual position, Garry Kasparov and a computer screen which displays the analysis made by the commentators. The actual playing venue is located on the 35th floor. It is not open to the public but three persons from Kasparov's team and five members of the Deep Blue team have seats to watch the game. The stage has been beautifully transformed into a study kind of set up with bookshelves, plants, nice wooden table. The press room is the

third room dedicated to this match and is located on the 49th floor of the Equitable Building. Around 300 journalists are registered to visit the match. The press room has the same three screens as the auditorium displays although images are not shown on huge screens but large television sets.

**White: *Deep Blue***

**Black: *Garry Kasparov***

**1.e4 e5**

Much debate has been made by the commentating team on how Kasparov had adapted his style to meet the raw computing power of Deep Blue. Already, his first move a classical King pawn defense is a case in point. Garry has long loved the Sicilian Defense (1...c5) which leads to extraordinary complexities. Positions the computer might also favor. Kasparov had also surprised us by using a Classical King pawn defense a year ago in the first Kasparov - IBM encounter - that was game five - a game that Kasparov won.

**2.Nf3 Nc6 3.Bb5**

The Ruy Lopez - the most explored opening in chess. In the above-mentioned game five, Deep Blue played 3.d4, initiating the Scotch Defense.

**3...a6 4.Ba4 Nf6 5.0-0 Be7 6.Re1 b5 7.Bb3 d6 8.c3 0-0 9.h3 h6?!**

There is a wealth of possible choices here: 9...Na5 (Smyslov's Defense), 9...Nd7 (Chigorin Defense), 9...Bb7 (Zaitsev Defense) and 9...Nb8 (Breyer Defense) constitute the most common. The text, also attributed to Smyslov, is an off-beat variation considered inferior to the above lines. Garry had prepared this unusual line in the hopes of catching Deep Blue out of its opening library. He was unsuccessful. Deep Blue's operator played the next ten moves or so quickly. With Kasparov matching the pace.

**10.d4 Re8 11.Nbd2 Bf8 12.Nf1 Bd7**

Kasparov avoids the well-known trap 12...exd4? 13.cxd4 Nxe4?? 14.Bd5 and White wins a piece.

**13.Ng3 Na5 14.Bc2 c5 15.b3!**

All standard theory. The purpose of Deep Blue's last move is to keep the a5-Knight out of the game. Kasparov immediately brings his Knight back into the game.

**15...Nc6 16.d5 Ne7 17.Be3 Ng6 18.Qd2**

Despite his choice of openings, I was in admiration for what Kasparov had managed to achieve. It is generally accepted that when playing against a computer the human player should seek closed, blockaded positions. Garry has done precisely that. The center pawns are interlocked which means that the game will be decided by

maneuvering on the flanks. However such positions contain some known risks. White's central d5-pawn provides White with a nice central pawn wedge that gives White a clear advantage in space. Behind the broad shoulders of his central pawns, White will have an easier time switching his pieces to either flank. Former World Champion Jose Raul Capablanca described these positions for Black as, "carrying the seeds of defeat." Through no further mistakes of his own, Black may lose the game. For the moment, Kasparov has achieved the blockaded, if cramped position, that he was aiming for.

**18...Nh7?!**

This move can and should've waited. Black should be more concerned about operations on the Queenside. Because he has so many pieces defending his King, it is unlikely that Black faces any dangers there. The preventive move 18...a5! was better. This will be clear in the moves ahead. In that case 19.a4 could be met by 19...b4 keeping the Queenside closed.

**19.a4! Nh4 20.Nxh4 Qxh4**

Black has managed a favorable trade of pieces following the principle that the best way to ease a cramped position is to exchange pieces making it easier to move around. A further benefit of this trade is the possibility of creating a Kingside attack

by ...Nh7-g5 and a possible sacrifice against the h3-pawn.

## 21.Qe2!

A well-chosen, multi-purpose move. In case Black gets to active on the Kingside, White now has a defense with Qe2-h5 snuffing out the attack. White eyes the b5-pawn by making the move Bc2-d3, putting pressure on the Queenside.

21...Qd8 22.b4 Qc7



## 23.Rec1!

This move was the most revealing of the game. It is a move of extraordinarily refined sophistication. The move carries no immediate threat but is very annoying to have to face. Black is forced to worry about the possibility of c3-c4 when the c-file might be forced open leaving

Black's Queen on an exposed square. Garry now went into a long think and with a heavy heart decided to close down the Queenside further.

23...c4 24.Ra3!

Another excellent move by Deep Blue. Although it is an accepted stratagem to try and grab an open file by doubling Rooks, it is impressive how Deep Blue has used so many of the well worn positional motifs of this particular opening. An opening that Deep Blue's programmers could not have reasonably expected. Garry is forced to go into a defensive shell to protect the a-file.

24...Rec8 25.Rca1 Qd8 26.f4!

Again, simply superb. White can't win the game by continuing to drive an attack on the Queenside. For instance: 26.axb5 axb5 27.Ra7 Rxa7 28.Rxa7 Ra8 and Black successfully trades off the invaders. Therefore, White has to open up a second front and hits the center. Again, a well-known stratagem but well played just the same.



## 27...Nf6

During this phase of the game, Garry was seen shaking his head and pulling some gloomy faces. Clearly his choices aren't pleasant ones 26...f6 shoring up the center and hoping for a trade on e5 leaves Black's h7-Knight and f8-Bishop with nothing to do. Also

unsatisfactory was 26...exf4 (26...Qh4 27.Qf2 helps White as the a8-Rook lacks protection.) 27.Bxf4 Nf6 28.Be3 when White will use the newly acquired d4-square as an outpost. The idea behind the text is to bring the Knight back into the game and to use the d6-square as a blockade against White's d5-pawn.

## 27.fxe5 dxe5

After this swap of pawns, a new advantage for White has emerged: a powerful protected passed d5-pawn. This means that in any resulting ending, White will have the superior position.

## 28.Qf1?!

Funnily enough this inferior move looks very much like a human misstep! The text is crafty in that it doesn't reveal White's true intentions. A human player might have two ideas in mind: playing for the tactical sequence: 29.axb5 axb5 30.Rxa8 Rxa8 31.Rxa8 Qxa8 32.Bxh6 gxh6 33.Qxf6 snaring a pawn. The second, positional concept is to load up behind the a-file by Ra1-a2 and Qf1-a1 seizing control of the a-file. The text then is rather seductive. However, the superior 28.Qf2! would have made it impossible for Black to re-route his Knight to the d6-square: 28.Qf2 Ne8? 29.Bb6! and Black's Queen is dislodged from the protection of the a8-Rook. Due to the many positional trumps already established, the text doesn't hurt White's advantage.

## 28...Ne8 29.Qf2 Nd6 30.Bb6 Qe8 31.R3a2!?

An awkward move to explain. Somewhere in Deep Blue's billions of possibilities it may have calculated that on the a3-square the Rook was vulnerable to the f8-Bishop after a possible ...a6-a5 or more concretely, Deep Blue wants to play 31.axb5 and doesn't want to continue the sequence 31...Nxb5 32.Rxa6 Rxa6

33.Rxa6 Nxc3 with an unclear position.

### 31...Be7?!

An inferior move by Kasparov. He is anxious to produce some threats of his own and his f8-Bishop has played the role of spectator for a long time. It was much better to take the time to shore up the e5-pawn. Best was 31...f6 awaiting further developments.

### 32.Bc5 Bf8?!



Following the game, the IBM Deep Blue team celebrated what was described as the very human-like play of the program. As that was true, Kasparov could equally be criticized for his own computer-like play. Indeed, this game almost appears as a complete role reversal. What I mean to say is that when a computer doesn't know what

to do in a given position, programs will often "pass" by making a waiting move and then "take the move back" by returning to the same position seen two moves before. Thus effectively losing two tempos. This is precisely what Kasparov has done. Perhaps he had studied the computers games too closely and some bad habits rubbed off?

I think the answer for the last two moves however are more concrete. Kasparov has altered his own fluid natural style to combat the computer. Unfortunately for him, Kasparov is in unfamiliar territory. Under pressure he errors. Once again 32...f6 is the suggested move.

### 33.Nf5!

A powerful and somewhat paradoxical move. Leaping into the fray is quite natural, so why the paradox? In comparing the various minor pieces, a crucial issue for White is what he intends to do with his c2-Bishop? At the moment, it is simply blocked behind the e4-pawn and is not performing an active role. Therefore the idea of 33.Bd1 intending Bd1-g4 trading this Bishop off seems quite suggestive. "Allowing" Black to trade off

his own passive d7-Bishop seems somewhat unnatural. But computers love space and what Deep Blue's program had realized is that after the text and a subsequent exchange, the influence of the c2-Bishop will be increased and the Bishop would become quite active. Furthermore, as we saw in game one of this match, the computer loves Bishops and this move forces Garry to part with one of his.

### **33...Bxf5**

Nearly forced, as the position after 33...Nxf5 34.exf5 is quite unpleasant.

### **34.exf5 f6?**

Bad luck for Kasparov. A move that would have been a goodie several turns ago fails to address the needs of the position now. Although it is important to prevent White from playing f5-f6 it was equally important to prevent an invasion on the Queenside dark squares by Qf2-b6. The only move to prevent both was 34...Qd8, also protecting the d6-Knight.

### **35.Bxd6 Bxd6 36.axb5!**

Deep Blue plays the precise sequence of captures. GM Lubosh Kavalek offered the interesting sacrificial line: 36.Qb6 Rd8 37.axb5 Rab8 38.Qxa6 e4 with counterplay on the dark squares as compensation for the two lost pawns.

### **36...axb5 37.Be4!?**

A controversial move. The text prevents any active ideas based on ...e5-e4 - as in the previous note - at the cost of failing to strike while the iron is hot. I considered 37.Qb6! Rxa2 38.Rxa2 Bc7 39.Qe6+ Qxe6 40.dxe6 as leading to a winning ending by force. Still, it must be argued that after the text, Black's endgame is simply miserable.

### **37...Rxa2 38.Qxa2 Qd7 39.Qa7 Rc7?**

When it rains it pours. This was simply not Kasparov's day. Clearly Black has a very difficult struggle to save the game, but, one thing is for sure, he can't save the game with Queens on the board as it is White's Queen that is far more powerful. In fact the text is based on an oversight. Garry had to put his hopes on an

endgame based on Bishops of opposite colors. While the endgame may be lost, Kasparov had to pin his hopes on 39...Qxa7 40.Rxa7 Rc7 41.Ra6 Rd7 42.Rb6 Kf7 43.Rxb5 Ke7 when Black has jettisoned a pawn in hopes of keeping a blockade.

**40.Qb6 Rb7 41.Ra8+ Kf7(?)**

In the post match conference, Deep Blue considered this to be Kasparov's fatal error. After 41...Kh7 Deep Blue thought that Black could still fight. I'd disagree, as Black's King would be far out of the game.

**42.Qa6 Qc7 43.Qc6! Qb6+ 44.Kf1! Rb8**

This was the position that Garry had been aiming for hoping for, the line: 45.Qd7+ Kg8 46.Ra7 Bf8 when Garry could aspire for ...Qb6-e3 with counterplay. He had simply missed Deep Blue's next move.

**45.Ra6!**

Now the auditorium's audience was a buzz. For some time the commentators, IM Maurice Ashley and IM Michael Valvo were quickly coming to the conclusion that 45...Qxc6 46.dxc6 Bc7 47.Ra7 Rc8 48.Bd5+ and Bd5-e6 was lost for Kasparov. The desperate attempt 45...Qe3 46.Qxd6 Qxe4 (46...Qf4+ 47.Bf3; 46...Qc1+ 47.Ke2 Qb2+ 48.Kd1 stops the perpetual) 47.Ra7+ Kg8 48.Qxb8+ picks up Black's Rook with check. What was Garry's Defense? He had none and extended his hand in resignation. The applause rocked the auditorium! Folks we have a match! A superb game by Deep Blue and its team, my hearty congratulations for a brilliant effort!

**1-0**

***Postscript by Yasser***

In a match that is so compelling as to attract the attention of the world's media, fuel has been added to the fire when controversy of an unprecedented nature has erupted. *Inside Chess* readers sent inquiries why Garry Kasparov resigned the second game. At first I was in a complete state of denial. I thought Garry appropriately resigned, well, because he was lost.



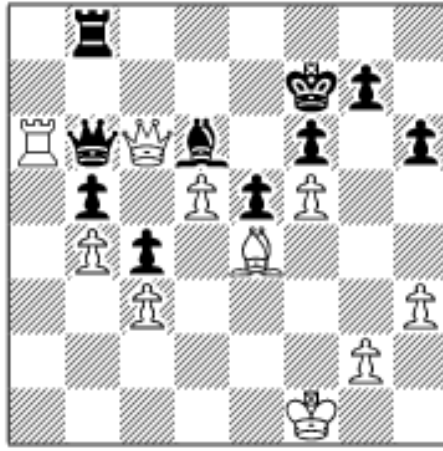
At the moment of his resignation on Sunday, May 4th, none of the assembled 20 or so grandmasters questioned his decision. I had written my report correctly - or so I thought. This same mass hypnosis pervaded all the GM's filing their stories. The redoubtable GM Robert Byrne writing for the *New York Times* also explained the appropriateness of Kasparov's resignation.

When the first e-mail messages started filling my mailbox, I tried to patiently explain the winning method for Deep Blue. The quizzing inquiries piqued my interest time and time again. Suddenly doubts started to creep into my mind, but, I did my darndest to ignore these doubts. I mean it was unthinkable! How could Garry Kasparov, the world's highest rated chess player resign a drawn position?? It was ridiculous! Absurd! Of course Deep Blue had played a sensational game. A deserved victory was the correct and gratifying result. But my darned pesky readers kept up the pressure.

By the time I had squeezed several hours of analysis into my chess set I was shaken. Gosh darn it! I couldn't find the win for Deep Blue! I tossed and turned the variations but to no avail. The final position does indeed appear to be drawn! Absolutely stunning but true. Boy oh boy! How to explain this one?

Well, let's start with the obvious - Kasparov had been under pressure throughout the game. Disgusted with his own play, mesmerized by the "precision" of Deep Blue's moves, Garry had realized himself to have a lost position for some time. He simply resigned in a position which seemed most appropriate. Unlike the computer, he was carrying the emotional baggage from the previous moves. Given that Garry was seeing the final position for the first time, he would have found the draw within seconds. The fact that he was disgusted with his previous play proved to be a costly load to carry.

Let's take a look at the variations:



In the final position Garry has the miracle shot 45...Qe3 abandoning the protection of the d6-Bishop. White has two tries: a) **46.Qxd6** and b) **46.Qd7+**. I had refused to believe in chessic miracles due to 46.Qxd6 when I thought the win was straight forward: 46...Re8! 47.Bf3 and now with a little nifty King and Bishop two-step, White's

King waltzes to safety. Due to the threat of Bf3-h5+, Black has to keep up a series of checks:

a) **46.Qxd6** Re8! 47.Bf3 Qc1+ 48.Kf2 Qd2+ 49.Be2 Qf4+ 50.Ke1 Qc1+ 51.Bd1. Now comes my mistake in my original analysis. Convinced that Black had to keep up the continuous stream of checks I had concluded that 51...Qe3+(??) was necessary and this indeed does lead to a win for White after 52.Kf1 Qf4+ 53.Kg1 Qe3+ 54.Kh1! and White wins.

However, Black need not play 51...Qe3+ but instead has the continuation 51...Qxc3+! 52.Kf1 Qc1! when there is no way for White to avoid the perpetual check.

So are things that simple? Not quite. After 46...Re8! White can try to avoid perpetuals with the inspired move 47.h4, the idea being that in some lines White can run his King to the g3-square and not face the cold blooded ...Qf4 checkmate as a response. Black should not be bluffed and by responding 47...h5! the same type of perpetual checks exist and the game again is drawn. In this line, it is important that Black avoids capturing the e4-Bishop as can be seen: 47.h4 Qxe4?? 48.Ra7+ Kg8 49.Qd7 Qf4+ 50.Kg1 Qe3+ 51.Kh2 Qf4+ 52.Kh3 Qe3+ 53.g3 and White secures his victory.

So, in fact after 46.Qxd6 Re8! the game is drawn. Murray Campbell of IBM's Deep Blue team confirmed the above and stated that the final position was a draw. Besides, these variations there is the second try for White:

b) **46.Qd7+** (Instead of capturing the d6-Bishop) 46...Kg8! (After 46...Be7?? 47.d6 Qxe4 48.Qe6+ Kf8 49.dxe7+ leads to checkmate by force.) 47.Qxd6 Rf8 and once again we have variations that are very similar to the "a)" lines listed above

leading to perpetual checks.

Shocking and true!

How did Kasparov react to this news? Well, according to one of his helpers, Frederic Friedel, he accepted the news surprisingly well. No cursing or hysterics simple acceptance that ... bad things happen. I don't know if Frederic does publicity work for Garry, but let's be clear, my reaction would have been a groan of agony heard down the whole of Broadway! And that's putting things mildly...

But just as we were trying to tie up the strings of the unprecedented incident of a world champion resigning a drawn position, a second even sharper controversy emerged!!

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Following game three, Garry Kasparov and the Deep Blue Team addressed the auditorium audience. I had slipped up to the press center to be interviewed by CNN and watched Garry's comments by direct video feed to the press center. It was by no means the usual exchange of respectful pleasantries.

Apparently over the course of the free day, Garry had spent a great deal of time deeply analyzing the play of Deep Blue in game two. He had come to some mind-bending conclusions. Let us follow Garry's thought patterns as he himself described them:

1) A fabulous game by the computer, extraordinary positional and strategic moves that showed an astonishing amount of sophistication. The first indication of something truly sensational, the move Re1-c1. (And indeed this was a special move.)

2) An extraordinary decision by Deep Blue to play Bc2-e4 when Qf2-b6 forces the win of material AND keeps all the positional advantages. Garry, working with several PC-programs had analyzed Qf2-b6 to an astonishing depth of 25 ply and could find no way to save the game. How could a computer refuse the win of material which leads by force to a winning position in favor of a positional move. Garry opined that only, "...Anand, Kramnik, Ivanchuk and but a few others" would have taken the same course as Deep Blue and eschewed the win of material. (Again, I too was befuddled by this decision. How could the computer decline the win of material?)

3) How could Deep Blue "blunder" a winning position into an "elementary" draw by perpetual check which was only 8 or 10 ply deep?

Garry was very animated and it is correct to describe him as simply working himself up into an agitated or rather angry state.

Maurice Ashley then asked a logical question which was the only way of interpreting Garry's comments. He asked Garry whether he felt there to be "intervention." An interesting euphemism for "cheating." Garry didn't cross this line and simply repeated his questions. C. J. Tan explained that he was "honored" that Deep Blue had played moves superior to that chosen by other programs and that he himself could not understand why Deep Blue chose a particular move over others. C. J. Tan tried to make light of Garry's questions and simply stated that Deep Blue was a very sophisticated program.

Garry was deeply disturbed by what he felt to be evasive answers to his legitimate questions. And asked whether or not the IBM team understood his questions and to stop making jokes...

After some further comments from IBM's Team to the effect that they were proud of Deep Blue, Garry, very angrily stomped off the stage. I felt the vacuum left on the stage while standing in the Press Center 49 floors away!

While I trust a good rest will help cool Garry's fiery temperament, we have one unhappy camper. For the rest of ourselves, we could only feel a sense of consolation for Garry. Absolutely no one can possibly imagine anything but the finest sportsmanship by IBM - how could it be possible for them to "cheat" anyway? Did GM Joel Benjamin outplay Garry Kasparov in game two? I certainly don't think so, but, until Garry receives some satisfying answers to his questions, he has expressed his doubts.

Oh boy! Can anything else happen in this match? We've seen incredible upheavals in the short space of three games. It's hard to believe that the match is only half over! The excitement and energy are palpable.

With a tied match it seems that nearly anything is possible. I still believe that Garry will win the match but he has to regather himself for the challenge that lies ahead.

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