

# ChessBase Cafe

Mig Greengard



## Fritz 9 Forecast

There might not be that many advantages to having a German sleeping on your sofa. But one of them – if that German is ChessBase co-founder Frederic Friedel – is that you can ask lots of questions about current and future chess software, and threaten to withhold food if you don't get answers.

I'm sitting here looking at a prototype of Fritz 9, the long-awaited next edition of the flagship program from ChessBase. Where do you go after you have already become a synonym for computer chess? The world will soon find out as Fritz 9 is expected in October or November of this year. The look and feel is approximately the same, but there are many new features and lots of work was done with regards to the Playchess.com playing server. We'll look at those features as the release date approaches, but we wanted to talk about the new direction of the Fritz engine.



Frederic is in New York for the match between FIDE champion Rustam Kasimdzhanov and the "AI Accoona Toolbar." That's an awkward name, to say the least, but behind that curtain is this latest prototype version of the Fritz engine, our topic of discussion. Fritz has taken a dramatic turn away from the usual "faster, faster, faster" ethos.

**Mig Greengard:** What's all this talk about the next Fritz being so different?

**Frederic Friedel:** The big difference with Fritz 9 is that for the past one and a half years we have stopped trying to tune it to play against other computers. We simply stopped. Instead, our goal became to put in as much chess knowledge as possible. [Fritz creator] Frans Morsch has redone the entire data structure of the program to make it easy to implement new chess knowledge and to keep adding more without significantly slowing down the program.

If you ask Frans how this is possible, he says there are "clever data structures"! This is his way of saying that we wouldn't understand. If you slow the search down significantly, the new knowledge would be almost completely cancelled out by tactical weaknesses that would slip in. These "clever structures" avoid that. Now Fritz is one of the most knowledgeable programs in the world.

**MG:** Why the changes?

**FF:** The reason we're doing this is that chess programmers have been working to make their engines to play against each other for years now. They spend up to 80% of their time on how to beat other machines. To do this they focus on tricks that are monumentally irrelevant in playing against humans. Humans don't benefit or even notice these tricks.

Chess programs would be much more useful today if chess programmers hadn't been spending so much time over the years trying to beat each other. Getting another 3-5% against Shredder or Junior has been the goal.

The danger was that if you stop tuning to play computers, you are going to lose against them; at least that's what we were concerned about. Everyone was worried about that, except for one person, Fritz co-programmer Mathias Feist. He was sure that more knowledge would also make it strong against other programs. Mathias has been proven right. Since we've switched to the new data structure it's still playing pretty well against other programs.



*Frans Morsch (left) and Mathias Feist*

**MG:** And the results against strong humans?

**FF:** It's very noticeable against humans. You just have to look at the Bilbao games. [A human-machine tournament played in October, 2004.] It was playing on a little notebook while Hydra was on this prodigious hardware with 16 processors. We bought a notebook at the local mall and installed this early prototype and it scored something like 3½/4. [Beating Topalov once, Karjakin twice, and drawing with Ponomarev.]

In Bilbao, Veselin Topalov and IM Silvio Danailov told us that it was clear

Fritz was playing completely differently. They said it was playing much more intelligent chess; that it looked like it knew much more. Even not knowing about the changes or new version at all they were asking Frans, “What did you do?! It’s completely different.”

**MG:** Why the switch?

**FF:** First of all, you get a more human-like playing style. It understands more and plays in a more strategic style.

**MG:** But didn’t it crush everyone anyway, like any fast brute-force program?

**FF:** Yes, but for analysis it’s a big difference. Instead of just clearing up tactics for you, it can actually suggest interesting plans, strategic ideas. Or at least moves that are positionally based, which is the foundation of planning. It looks more at key squares for its pieces and how to achieve these goals, which looks very much like planning in action. It is actually doing this. It will see that f5 would be a good square for its knight and the evaluation of lines where that happens will be valued higher, although it’s hard to explain.

**MG:** Will there be new training features to take advantage of this smarter Fritz?

**FF:** Yes, many new analysis and training features.

**MG:** Haven’t other programs taken this tack? Junior is more speculative, for example, and HIARCS is famous for being “slow” with a lot of knowledge but still being a great blitz program.

**FF:** I don’t know about the latest HIARCS, and Shredder is the other program that uses a large amount of knowledge. Frans is a purist. He doesn’t want to tweak a program to make it play more aggressively or in any specific style at all. He just wants it to be the strongest program possible, period.

**MG:** So how did you convince him to make this radical change?

**FF:** We went for a long walk and I asked him how much time he spent tuning his programs to play against other programs. He said 60-80% of his development time. Then I asked him how much we, ChessBase, profited from this time. He said, well, we beat most of the other programs. Finally, I asked what would happen if we spent all that time teaching it how to play against human beings. Frans thought for a minute and said, “I think we should be doing that.”

Of course he asked if that was something ChessBase should really be doing, because we could get worse results against other engines. I answered that this was no longer the most commercially relevant thing. Scoring a few more points against Shredder and Junior isn’t going to drive sales. Making a better training partner will.

**MG:** But what if those few points are in a world championship? You would still put “world champion” in big letters on the side of the boxes, right?

**FF:** Really we don't. If you win the world championship you're going to mention it, but it's not such a big deal commercially. It's a short tournament with mostly amateur programs and how it does in long training matches against other programs is more accurate and useful. And it still does quite well.

Playing against other programs is required as a benchmark because you can play so many games. But it turns out you don't have to tune it specifically for anything. Adding knowledge has made it stronger against humans *and* computers. That's the good news, the pleasant surprise (to everyone but Mathias Feist.)



*Frederic Friedel*

**MG:** All this new knowledge, where does that come from and how is it tested?

**FF:** Chess programs traditionally have as much knowledge as a 1400-1500 player. Even a 2000 player putting all his knowledge into a chess program would make it much stronger. You can't do that because it would be too extensive and the program would slow to a crawl. There are tens of thousands of books. Thousands of people have explained chess concepts. We can call a strong grandmaster, we can look things up. Then you try and implement it in a program. We have much more knowledge at our disposal than we can fit. The problem is how to implement it into the code, how to mine it, refine it, and process it into the search.

**MG:** And that refining process is handled by Frans and Mathias? What to put in and what to leave out?

**FF:** Yes, and with the people they consult. They are both around 2000 or so, but they have books and some very high-rated friends. After every

implementation we test the program extensively.

**MG:** Games against programs, kind of tests?

**FF:** We have extensive test suites. If a GM, if Kasparov, has said that X is a good move in a certain position we know what we are looking for. It's been tested and proven that there is a best move in each of these hundreds of positions we have collected. So then we see how the new version scores on the test compared to the last one. Where and why it did better or worse.

It has to be statistical, taking the big view of how the program does overall. If you start looking at how it does on specific positions you end up training it to solve specific things. So we look at the numbers and if it improves we know it has learned something.

**MG:** But you have to look at the positions at some point, right? Or you could be getting good results for the wrong reasons. You could be making it stupider but faster and that might, by coincidence, give it a better score on a given suite.

**FF:** We rely on the sheer quantity of problems to solve that. That might happen on a few, but over the course of many hundreds of specially selected positions the statistics will show you the truth. First you teach it something and then have it go through a thousand positions and check the score. You want to see if it is having any detrimental effect, first of all. You keep making small gains that eventually add up to a vastly superior engine.

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Thanks to Frederic for his time. I'm glad to see the knowledge bandwagon picking up speed. A select crowd of computer chess fanatics will always care about which program beats which program, but weak humans who want help with their game are the huge majority of the audience for this software. Smarter programs will do a better job of teaching people how to play "people" chess instead of playing inimitable computer moves.

## The E-mailbag

**Question** Is it possible to use the JavaScript replay in the Chessbase light version? – **Mark Verbeek (Belgium)**

**Answer** No. The new ChessBase Reader, based on CB9 and included with new training software, doesn't include the ability to export JavaScript replay pages. But it can export HTML, RTF, and print training sheets.

**Question** If a game has a number of moves and then skips 20 or so moves how do you put a diagram and then continue playing out the game from the added diagram. – **John Blackstone (USA)**

**Answer** You can't. (Feeling negative today.) You can't embed a different position into a gamescore. This is similar to why CB can't handle shuffle chess (a.k.a. Fischerandom, Chess960) gamescores in a single game. You have to create two games, one for before and one for after the jump. If you put them one after the other in the game file you can jump to the continuation by pressing F10, which opens the next game in the list in the same board window.

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All the ChessBase software described by Mig in this column, as well as many more ChessBase programs, are available in the [ChessCafe Online Catalog](#).

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***Mig wants your questions!! Send it along and perhaps it will be answered in an upcoming column. Please include your name and country of residence. [Yes, I have a question for Mig!](#)***

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