



COLUMNISTS

ChessBase Cafe

Steve Lopez



Fritz 9 Game Analysis: Part One

This month's column dovetails neatly into [last month's](#), in which we discussed the reasons why good chess analysis from *Fritz* (or any other chess engine) takes time. This month we're going to look at *Fritz*' output when it analyzes a chess game and how to set up the analysis process. This was prompted by a reader's e-mail:

Can Fritz 9 analyze, find and explain (in his own way) simply, without many annotations on many moves - why I lost a game of chess?

I replied by saying that the annotations constitute the very means by which *Fritz9* explains why you lost a game. I then received the following comment:

I meant there is usually one move which led to a losing position. A move, which we would mark as ?? . Later it is not important so much, we could make more ?? moves, but the first one was the worst one (with a Fritz evaluation -3.00 at least).

Finding the "losing move" (or two) I consider more important than complete automatic game analysis. Maybe, if accepted, this could be an improvement add-on to Fritz analysis. The difference would be that the concentration of Fritz analysis would be only on the first worst move made, which deteriorated the position badly enough, so it can be considered losing.

There are several points in this reply which indicate that my correspondent has an imperfect impression of the way *Fritz9* (or any other chess engine) analyzes a game.

Let's start the ball rolling by looking at two types of game analysis in *Fritz9*: **Full analysis** and **Blundercheck**. They both do the same thing – each will analyze a complete game – but their outputs differ. Full analysis will provide verbal commentary of key points in the game, *Informant*-style symbolic commentary, as well as alternative variations:

6.d4 ♖e7 7.a3 Prevents intrusion on b4 ♜e4
 8.♜bd2 0-0 9.♜xe4 dxe4 10.♜d2 f5 11.c4 ♖f6
 12.♜b3 b6 Controls a5+c5 13.♜d2 ♜d7 14.♜c3
 ♜e8 15.♜c2 ♜g6 16.♜ad1 ♜e7 17.d5 White is in
 command exd5
 [17...♜xc3 18.dxc6 ♖f6 19.♜d7=]
 18.cxd5±
 [Not 18.♜xd5 a5=]
 18...♜xc3 19.♜xc3
 [19.dxc6 ♖f6 20.♜d7 ♜e8±]
 19...♜d8± 20.♜d4 ♜d6 21.♜e6 Do you see the
 mate threat? ♜xe6?
 [♜21...♜f7± would allow Black to play on]
 22.dxe6+- ♜e7
 [22...♜c5 23.♜xc5 bxc5 24.♜c4+-]
 23.♜d7 Threatening mate... how? ♜f6 24.♜xc7

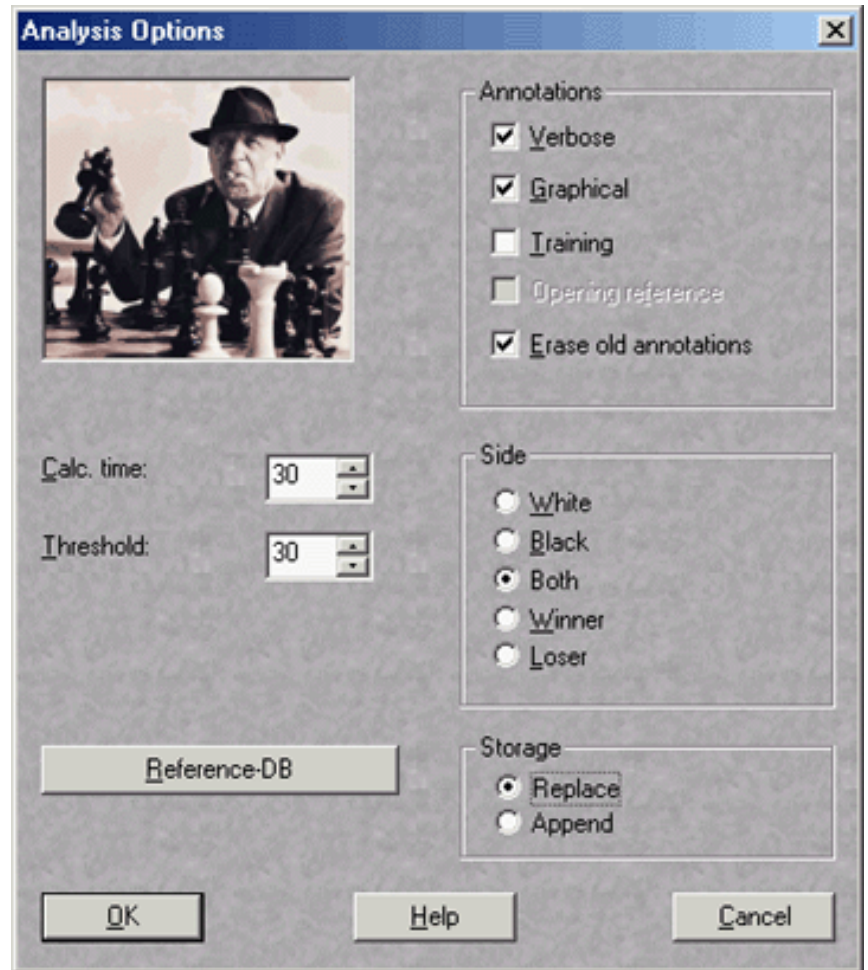
Blundercheck will also offer alternative variations, but will provide its commentary in numerical form (e.g. the “classic” computer format) in which the positional evaluation is expressed numerically (as was discussed in last month’s [column](#)):

16.♜ad1 ♜e7 17.d5 exd5
 [0.94 Fritz 9: 17...♜xc3 18.♜xc3 exd5 19.cxd5
 ♜d8 20.♜d4 ♜d6 21.♜c1 ♜a7 22.♜c4 0.44/13]
 18.cxd5 ♜xc3 19.♜xc3
 [0.59 Fritz 9: 19.dxc6 ♖f6 20.♜d7 ♜e8 21.♜xc7
 ♜c8 22.♜xc8 ♜xc8 23.♜c1 ♜f7 1.00/12]
 19...♜d8 20.♜d4 ♜d6 21.♜e6 ♜xe6
 [1.63 Fritz 9: 21...♜f7 22.♜xd8 ♜xd8 23.d6 b5
 24.♜c6 cxd6 25.♜xd6 ♜c8 26.♜xc8+ 0.53/14]
 22.dxe6 ♜e7 23.♜d7 ♜f6 24.♜xc7
 [1.44 Fritz 9: 24.e7 ♜fe8 25.♜xf6 gxf6 26.♜xc7
 ♜f7 27.♜c4+ ♜g7 28.♜c1 ♜f7 2.13/13]
 24...♜xc3 25.♜xc3 ♜fe8 26.♜fc1 ♜xe6
 [2.53 Fritz 9: 26...b5 27.♜c6 ♜ed8 28.♜c7 ♜e8
 29.e7 ♜d2 30.♜d1 ♜xd1+ 31.♜xd1 1.47/14]
 27.♜c4 ♜f7 28.♜xe6 ♜xe6 29.♜c6 ♜f7 30.♜xb6

To start an analysis mode in *Fritz9*, press F12 to open the game list window, use File/Open/Database to select the database in which the desired game resides, and single-click on that game in the database’s game list. Then go to the Tools menu, select “Analysis,” and then either “Full analysis” or “Blundercheck” from the submenu. I recommend this procedure rather than double-clicking on the game to load it and then selecting the analysis mode from the main chessboard screen; if you use this latter method you’ll need to manually replace the game to save the analysis after the engine has completed its work. If you use the method I

recommend (single-clicking on the game in the game list window), the program will automatically replace the game with the analyzed version.

“Full analysis” mode is useful for beginning chess players who might not fully understand how to interpret the more precise numerical output provided by Blundercheck mode. If you select “Full analysis,” you’ll see the following dialogue appear on your screen:



An explanation of each of the items in this dialogue is in order. We’ll begin with the options under “Annotations”:

- **Verbose:** Checking this box will enable *Fritz* to insert verbal commentary at key points in the game, such as that seen in the first illustration above.
- **Graphical:** This option will enable *Fritz* to use colored arrows and squares on the chessboard, visible when the game is replayed, for further emphasis at key points.
- **Training:** *Fritz* will insert timed training (“quiz”) questions into the game that will appear when the game is replayed. This won’t occur with every analyzed game; judging by my experiences with the program, you can expect to see training questions inserted in one of every twenty to twenty-five analyzed games.
- **Erase old annotations:** This is useful when having *Fritz* analyze a

previously-annotated game. Checking this box will cause the program to erase any prior annotations so that you won't confuse *Fritz*' commentary with any existing annotations and variations. However, this erasure is *permanent* – there's no “undo” command for retrieving the old commentary – so exercise caution when using this toggle.

Your next set of options concerns which side's moves will be analyzed by *Fritz*. The program's analysis modes work best when “Both” is selected (for technical reasons which won't be discussed here), but it's often beneficial for you to see where your opponent might have improved his play, as this will often point out things you missed while you were playing the game. All of the “Side” options are self-explanatory.

“Storage” refers to the method by which the analyzed game will be added to the database after the program is finished examining it:

- **Replace:** The game highlighted in the game list will be replaced (overwritten) with the *Fritz*-analyzed version. This is the recommended method for storing games that haven't been previously annotated, so you won't have two versions of the game in the database.
- **Append:** The analyzed game will be added as a new additional game in the database and will appear at the end of the game list. This is useful when *Fritz* analyzes previously annotated games and you want to preserve the original annotated version (see “Erase old annotations” above).

The next stop is the “Reference DB” (Reference Database) button. Clicking it produces a dialogue that allows you to select any game database as a “Reference database” from which *Fritz* will extract opening references from other games, much in the manner of annotated games you see in chess magazines. This feature works best if you have a specialized database containing games that use the same opening as the game *Fritz* is analyzing. You can create such a database if you don't already have one, but that procedure is outside the scope of the present article.

Finally we come to the two most important toggles in this dialogue. The first is “Calc. time” (Calculation time), the number of seconds per move that *Fritz* will spend in analysis. Note that the average number of seconds per move will often be higher than what you set here (**Technical explanation:** when the specified number of seconds is reached, *Fritz* won't stop analyzing automatically – it will instead complete its analysis of the current ply depth before moving on. This means that the program may actually take several more minutes per move depending on the depth reached at the point the specified number of seconds is reached). For most users (i.e. people owning a Pentium III or faster computer) a setting of thirty to ninety seconds should be adequate for a club-level player. Setting

it lower means that the quality of analysis will suffer (no, you can't set it for five seconds per move and expect to get grandmaster-level analysis), while setting it too high may result in the process taking several hours to complete.

The "Threshold" setting controls the amount of feedback you'll receive from *Fritz* and requires a bit of explanation; it may be helpful for you to read last month's [column](#) before proceeding. When *Fritz* analyzes a move, it will assign a numerical value measured in hundredths of a pawn to the position resulting from the move actually played in the game; it will also assign a numerical value to the position at the end of the best variant line of play that it finds (i.e. assuming best play for both sides; see last month's column). "Threshold" refers to the difference required between these two numbers in order for a suggestion/variation to be displayed by *Fritz* at that point. For example, setting the "Threshold" value to "500" means there must be a difference of 5.00 pawns (the equivalent of a rook) between a player's actual move and the best line of play found by *Fritz* in order for the software to display a variation at that point. A "Threshold" value of "300" means a difference of three pawns (equivalent to a minor piece); the moving player must have blundered away a minor piece or the equivalent in pawns and/or positional considerations. A value of "100" means an equivalent of a pawn, and so on.

For beginning players I recommend a threshold value of "100"; when this value is used, *Fritz* will offer suggestions only on moves where a player blundered away a pawn (or its positional equivalent). For the average player (more advanced than a beginner, but still a non-titled player) I recommend a value of "35"; this means 35/100ths of a pawn and is roughly equivalent to a tempo.

The rule of thumb here is that the lower you set the "Threshold" value, the more feedback (variations) you're likely to receive from *Fritz*. However, if you set this value **too** low (lower than "25") you'll get feedback on nearly every move, you might get bogged down in "information overload," and the suggestions might not be *significantly* better than what was actually played in the game. And, as the Help file indicates, setting this value to "0" means that every move will be annotated, even if there's really nothing to say.

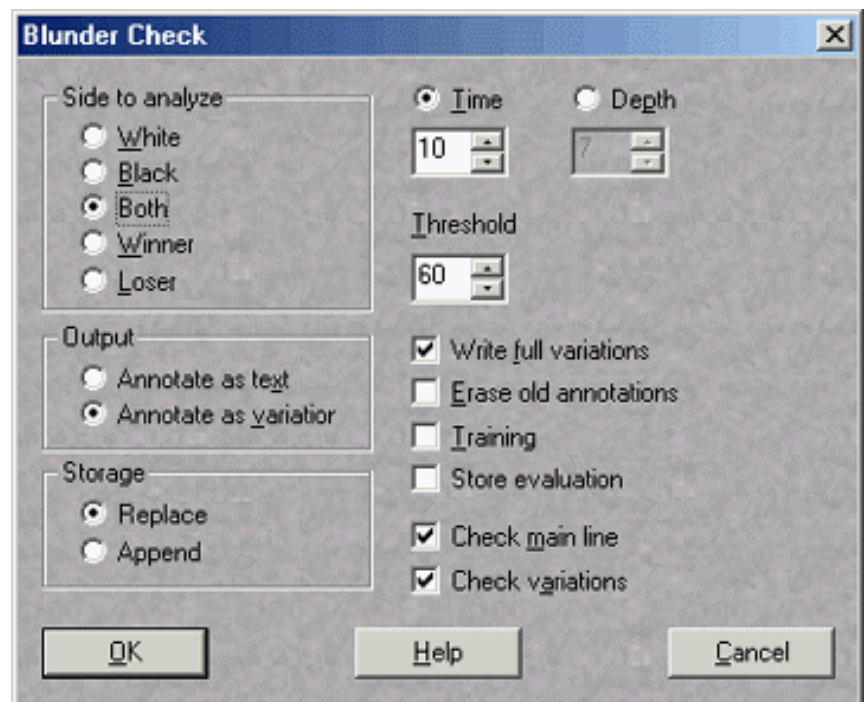
After you've finished setting the various toggles in this dialogue, click "OK" and *Fritz* will begin to analyze your game. How long it takes depends on the speed of your processor and the "Calc. time" setting you selected, but in general it's not unreasonable to expect *Fritz* to take 2-3 hours to analyze a game. That's why I often refer to the process of analyzing games as "overnight analysis." It's best to run any full game analysis mode while you sleep and won't need your computer for other purposes. If you're someone who's expecting/demanding instant grandmaster full-game analysis from *any* piece of chess playing software, you're being *extremely* unrealistic and are doomed to disappointment – sorry, but that's the hard

truth.

You'll see *Fritz* begin analyzing the game and, curiously, it will start with the last move of the game and work backwards. There's a technical reason for this; simply put, it's easier to analyze a game when you know what's coming (**Technical explanation:** these future positions are stored in *Fritz*' hash/transposition tables and accessing these allows *Fritz* to analyze positions more deeply than if it worked forward through a game).

If you launched the analysis process from the game list window (as I recommended above), you'll know that *Fritz* is finished analyzing the game when the program returns to the game list. You'll see either a replaced version of the game in the game list or a new version appearing appended to the bottom of the game list (depending on which "Storage" option you selected; see above). You can open a game by double-clicking on it and you'll see the game annotated with variations, symbols, and commentary (if you selected "Verbose"; see above) in a manner similar to the first illustration in this article.

"Full analysis" mode is fine for beginners. But more advanced players will likely want to use "Blundercheck" mode to get more specific (and consequently more useful) information from *Fritz*. To launch "Blundercheck" mode, highlight a game in the game list by clicking on it; go to the Tools menu; select "Analysis," and then "Blundercheck" from the submenu. You'll see the following dialogue:



Several of these toggles work in exactly the same way as the toggles in "Full analysis" mode. These are:

- **Side to analyze**
- **Storage**
- **Training**
- **Threshold**
- **Erase old annotations**

These are described for “Full analysis” above. However, there are some new, different options in “Blundercheck” mode. One of these is a section called “Output”:

- **Annotate as text:** *Fritz* will store its variations as move orders displayed in an annotation window (just as though someone had typed them in a text annotation box); note that this does *not* refer to some sort of text “commentary” or explanations by *Fritz*. It merely means that the best variation/line of play that the computer finds will be displayed as non-replayable moves. See the Help file for suggestions on when you might want to use this toggle.
- **Annotate as variations:** *Fritz* will store variations in replayable form, meaning that you can use the mouse, cursor keys, or VCR buttons to play through these moves on the chessboard on the screen. This is infinitely more useful than “Annotate as text” to most players and is the option I wholeheartedly recommend.

There is also a series of “on/off” toggles available:

- **Write full variations:** Selecting this will cause *Fritz* to display variations as complete lines of play (i.e. a series of moves for both sides). Unchecking it means that *Fritz* will display only a single move at the points where it finds an improvement over the players’ actual moves.
- **Store evaluation:** *Fritz* will show the numerical evaluation for the move actually played in the game as well as for the variation it suggests – this allows you to see exactly how much better is *Fritz*’ suggestion over the move actually played. Unchecking this makes *Fritz* omit the evaluation of the moves actually played.
- **Check main line:** *Fritz* will analyze the moves actually played in the game. This should always be checked, with one exception (see the next entry below).
- **Check variations:** *Fritz* will check any replayable variations in previously-commented games. This toggle is extremely useful to chess annotators who would like to have *Fritz* “double-check” their annotations for errors; such people would likely turn *off* “Check main line.”

Finally there are two mutually-exclusive toggles for “Time” (given in seconds) and “Depth” (given in plies); you can set either one of these, but not both. For most players, you should set “Time” instead of “Depth”; this will result in longer variations being provided in instances of checks and

other forcing move sequences. And for most users a “Time” setting of “30” to “90” should be sufficient (see last month’s [column](#) for important information on time settings).

After you’ve finished setting the parameters: click “OK” to begin the analysis process. See “Full analysis” above for more information on how the process works and how to know it’s complete.

Once a game is analyzed in Blundercheck mode, you can double-click on it to see the variations and numerical position evaluations (as displayed in the second illustration in this month’s column).

Now let’s return to the second e-mail which prompted this month’s column:

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I almost totally disagree with what’s been said by my correspondent. Sometimes there’s a single losing move, but not always and really not even frequently. An awful lot of games, maybe even most games, are won or lost by a single pawn. While it’s true that the pawn’s promotion will result in a material difference higher than 1.00 after the promotion, the root cause [pre-promotion] is still that one pawn. If a single move leads to a material difference (or positional equivalent) of 3.00 or more, that “??” move would be such an obvious blunder that it wouldn’t require a *Fritz* to find it – even a beginner would be able to spot such an enormous blunder.

And the only way for *Fritz* (or any other chess program) to spot a turning point in a game is for it to analyze the whole thing; it can’t just “glance” at a game to spot even the grossest of blunders (the way a human could as described in the last paragraph) – it has to look at the whole thing.

All of which assumes there’s a single “turning point” in a chess game. Many times positions gradually deteriorate, often by fractional amounts when expressed in numerical terms (as a computer displays its analysis): a quarter-pawn here, a third of a pawn there. That type of “slow crush” constitutes the very core of the playing style of some very important chess players (Steinitz and Karpov among them).

However, this e-mail does lead directly to an important question: how exactly does a human player use computer-generated analysis to identify flaws and weaknesses in his own game? That will be the subject of next month's *ChessBase Café*; until then, have fun!

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