



COLUMNISTS

ChessBase Cafe

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Fritz 9's Evaluation Profile

This month's column was inspired by a reader's e-mail that asked about the various features of Fritz9's evaluation profile. The profile is a handy tool for obtaining an overview of a game's "ebb and flow." My two previous columns on Fritz' analysis features ([Part One](#) and [Part Two](#)) tie directly into the information displayed in the analysis profile.

There are two ways in which to generate an evaluation profile: "on the fly" while a game is being played against Fritz (or any of the modular chess engines that work in the Fritz9 interface) or as part of a chess engine's post-game analysis of an existing game. The means of creating these profiles, as well as the final output, differ between the two, so we'll consider them separately.

Generating an evaluation profile while a game is being played

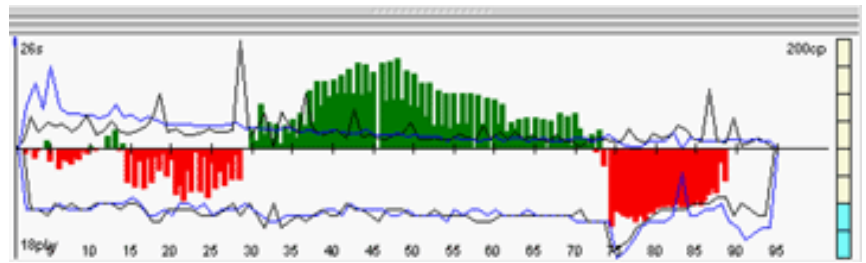
The first thing you'll need to do is select the proper display options to ensure that the requisite information is included as part of the game. Go to the Tools menu, select "Options," and then click on the "Clocks+Notation" tab. Make sure to check the boxes next to "Store thinking times" and "Store evaluations." (You can also check "Store expected moves" to see what move the engine was expecting to be played at a particular moment, but this has no bearing on the evaluation profile. The expected moves will be displayed as part of the gamescore in the Notation pane).

Then play a game against Fritz (or another chess engine), and you'll see extra information added to the Notation pane as you play:

```
6. ♖a4+ -0.38/9 10 (e3) ♜d7 -0.20/10 6 (♟c6)
7. ♖xc4 -0.23/10 8 ♜f6 -0.30/9 4 (b5) 8. ♜c3
-0.17/10 6 0-0 -0.22/10 6 (♟c6) 9. e4 -0.05/10 8 (e3)
♜b6 -0.10/10 8 (♜f4) 10. ♜d3 0.11/10 8 ♜c6 -0.04/9
```

The blue values display the evaluations (given in the form positional evaluation/ply depth; see the last two ChessBase Café columns for details). The purple numbers are the thinking times, displayed as the number of seconds each player took to make a move. You'll also see moves given in parentheses; these are the "expected moves" mentioned above.

When the game is finished, go to the Window menu, select “Panels,” and click on “Evaluation profile” from the sub-menu (you can also display the evaluation profile while the game is being played). You’ll see a display similar to the following appear on your screen:



Now comes the fun part: explaining the wealth of information displayed in this graph. The center line represents the number of moves in the game, which provides you with a reference point for the other information contained in the graph. The numbers along the bottom of the evaluation profile indicate move numbers within the game and show you the points at which the events depicted in the graph occurred. In the above illustration, we see the numbers run in five-move increments from “10” to “95.” This graph was generated during a ninety-four move game between two chess engines, which explains why all information in the graph ends at the center line just before the tick mark for “95.”

The colored bars above and below the center line indicate whether White or Black was ahead. If a green bar appears above the center line, this indicates that White was leading at that point, while a red bar below the line shows that Black was ahead. The relative heights of the bars show a higher or lower positional evaluation; in other words, the larger the bar, the bigger the lead. The number in the upper right-hand corner of the evaluation profile tells you the quantity that the largest bar signifies; in the above illustration, the amount is 200 c.p. (centi-pawns, or 1/100ths of a pawn – 200 c.p. in this example means the equivalent of two full pawns). In this particular example, a bar that runs the whole way to the top of the profile (for White), or the bottom of the profile (for Black) means that player was ahead by two full pawns, in the computer’s estimation.

The c.p. figure is also represented by the blue “thermometer” on the far right side of the evaluation profile. Each block is equal to 100 c.p. (one pawn) and the blue tint shows a graphic representation of the c.p. value. In this case, two full blocks are colored blue, meaning that a bar running to the top/bottom of the graph displays a two pawn advantage.

The c.p. value will vary from game to game, depending on the greatest numerical material/positional advantage that occurred during the game, and will always be a maximum of 900 c.p. (or the equivalent of a queen). If a player’s advantage should go higher than 900 c.p. (because of one player losing a massive amount of material), the green or red bar will be replaced by a yellow one, meaning that the positional evaluation has gone “off the

scale.”

In the above illustration, we can see at a glance the ebb and flow of the numerical evaluations during the game, as displayed by the evaluation profile. The advantage slightly swung back and forth prior to move fifteen, with Black mostly having the best of it. Then Black took the advantage and held it until move thirty. By the height of the bars we see two “peaks,” at moves twenty-one and twenty-three, at which point Black had an advantage of between two-thirds and three-quarters of a pawn. White suddenly turned the tide at move twenty-nine, grabbing an advantage that lasted nearly to move seventy, with one interesting break at move forty-five, where the position leveled to dead even, hence the lack of a colored bar. White’s peak here came at move forty-eight, at which time the lead was about one and three-quarters pawns. Black then took the lead back and, aside from another dead-even position at move seventy-four, held it until the positional evaluation leveled off again at move eighty-nine. Finally, a draw was agreed at move ninety-four.

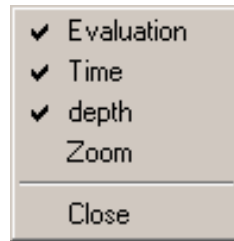
You’ll also notice colored lines (black and blue) appearing on the graph. The significance of these lines depends on whether they appear above or below the center line, but the color scheme remains the same regardless. Blue lines refer to the White player, while black lines refer to the player of the black pieces.

The colored lines refer to thinking time when they appear above the center line. The higher the location of the line, the more thinking time was used on that move. The number at the upper left-hand corner of the evaluation profile displays the number of seconds indicated by a line that reaches the top of the evaluation profile. This, too, will change from game to game. The “longest think” taken by a player during a game will always be the number shown at the upper left. In the above illustration, we see that the highest “peak” indicates that Black took twenty-six seconds at move twenty-eight, while White’s longest “think” was twenty seconds at move five.

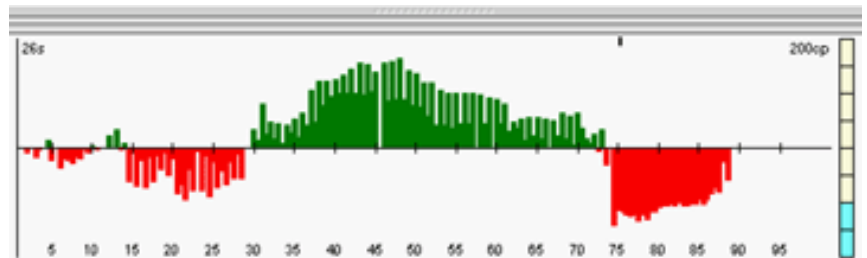
Finally, we come to the lines displayed below the center bar. These indicate the ply depth (the number of half-moves) of a computer program’s search during the game. If you’re playing a game against a chess engine, you’ll see just one line displayed (blue or black depending on whether the computer was White or Black). However, the above illustration comes from a game contested by two chess engines, which is why you see colored lines for both players. The number displayed in the lower left-hand corner of the evaluation profile tells you the ply depth that a line reaching the bottom of the graph signifies; in this case an eighteen ply search (or nine full moves). The deepest search in this game was by White at move seventy-five, although we also see a long “think” for Black around this same time (seventeen plies on the previous move).

That’s a tremendous amount of useful information displayed in one

relatively simple graph; you can easily identify many interesting points (even “turning points”) in a game with just one quick glance. However, the amount of information packed into the profile can be confusing, so the programmers have included some useful tools for turning “off” some of the information in the evaluation profile. These are just temporary – they don’t “delete” information from the game permanently – so feel free to use them at your whim. All you need to do is right-click in the evaluation profile pane to get a popup menu that allows you to display or remove features from the profile:



Click on an item to turn it “on” or “off,” if an option is checked, it’s “on.” Let’s turn off the “Time” and “Depth” to see how it alters the evaluation profile display:

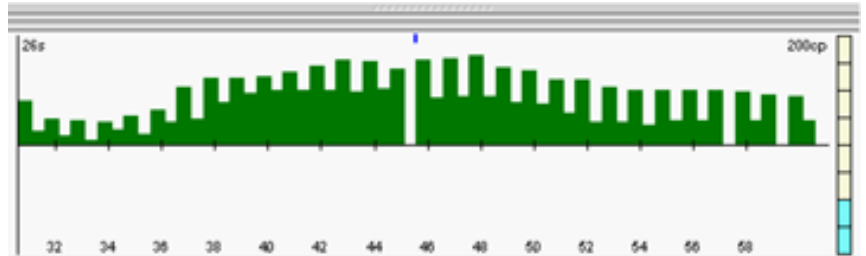


Assuming that we’re interested in only the positional evaluations, and not the time used or search depth achieved by the players, this is a much simpler “cleaned up” profile, which provides us with just the information we need, without the extraneous information we don’t want. If we later want to see the time and depth info again, we can just right-click in the evaluation profile and check these two options to display them in the graph.

An interesting feature of the display is that you can left-click within it to “jump” to a particular move in the game. The on-screen chessboard will change to display the move you clicked on, and the cursor bar in the Notation pane will jump to the new point to indicate the current move. The currently-displayed move is indicated in the evaluation profile by a tiny blue line along the top of the profile’s display. In the illustration immediately above, you can see this line at the top of the graph around move seventy-five.

It’s hard, though, to accurately click on a single move when dealing with games as long as this one. That’s why there’s an additional “zoom” command in the popup menu, activated by right-clicking within the evaluation profile. This will “zoom in” on the profile, making the bars and lines bigger, allowing you to more accurately click on a particular point in the game. This display won’t “scroll” in the classic sense (there’s no scroll bar at the bottom of the display), but you can easily navigate forward and

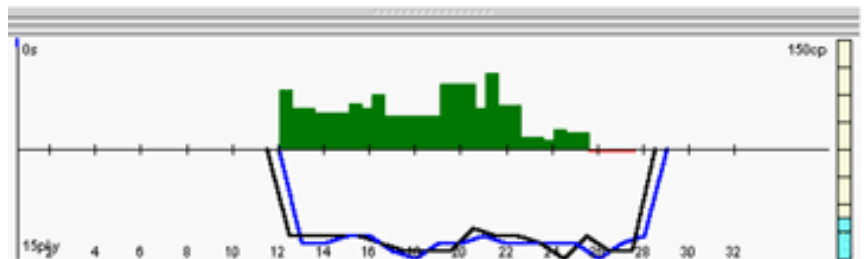
backward through the game simply by clicking on moves within the evaluation profile. The profile will shift to adjust to the point at which you've clicked. As an example, let's say that we want to investigate that interesting point in the game at move forty-five, where the evaluation suddenly returned to dead even. We just zoom in on the evaluation profile, click to adjust the display so that the place we want is visible, and then click on it to jump to that spot:



To “unzoom” the display, just right-click and again select “Zoom” from the popup menu; the evaluation profile will return to its default state.

Generating an evaluation profile during post-game analysis

You can also create an evaluation profile by having Fritz (or another engine) analyze a game that's already been played. To do this (and this option will appear only in Blundercheck mode, not in Full analysis or Compare analysis modes), you just need to check the “Store evaluation” box in the dialogue, which lets you select the engine's thinking time and other analysis options. Here's a display from a database game between two human players that was analyzed after the fact by Fritz9:



The evaluation profile is fundamentally the same as what we've previously seen, but there are a few notable differences.

We still see the colored bars above and below the center line (look closely and you'll see a red line, indicating a very slight Black advantage starting at move twenty-five) indicating which player had the best of things in the computer's estimation. The number in the upper right corner shows that a bar reaching the top or bottom of the graph indicates a 150 c.p. (one and a half pawn) advantage, and this is also shown on the “thermometer” by one and a half blocks being colored blue.

However, the “seconds” display in the upper left-hand corner shows “0.” This is because we're dealing with a game analyzed after the fact, not a

game in which the program was able to keep track of thinking times while the game was in progress. That's why there are no blue or black lines appearing above the evaluation profile's center line. (I occasionally receive e-mail complaints that a databased Capablanca-Alekhine game from the 1920's doesn't show the players' thinking times in a post-game evaluation profile; this explains why they're not shown – the program has no means to determine this).

We do still see two lines below the center line, which indicate how deeply the chess engine searched when analyzing the moves (White is shown by a blue line and Black by a black one). The value shown in the lower left-hand corner of the display illustrates the search depth reached when a line has hit the bottom of the evaluation profile's graph (fifteen plies in this example illustration).

Fritz9's evaluation profile can give you a wealth of information readily displayed in a visual form. This column should serve to “demystify” the process, and help you to make full use of this valuable informational tool.

Until next time, have fun!

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

Steve 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 Steve!](#)



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