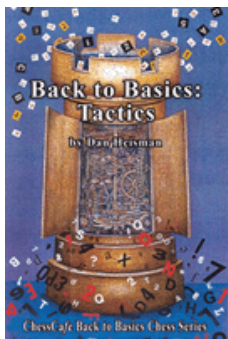




COLUMNISTS

Novice Nook

Dan Heisman



CHESSTHEATRE

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Bootstrapping Analysis Skills

Quote of the Month: *A chain is only as strong as its weakest link.*

This month's column resumes discussion of the key issue for improvement: [Improving Analysis Skills](#). To get everyone on the same page, let's review applicable definitions as used in *Novice Nook*:

Thought Process – The entire progression of thinking that takes place from the time a player sees a position until a move is made. The two main components are analysis and evaluation.

Analysis – The process of creating a move tree; this includes identifying candidate moves for both sides at all depths of the tree.

Calculation – The ability to analyze forcing sequences, e.g. "I take, he takes, then he has to move the knight..."

Evaluation – Determining in a given position which side stands better, by how much, and why. Evaluation is usually performed at quiescent nodes of the analysis tree.

Quiescent – ("Quiet") A position that contains no forcing moves (checks, captures, and threats) of any consequence for the player to move. Quiescence is one of two conditions that allow a position to be evaluated during analysis. The other is a speculative sacrifice, which, by definition, humans cannot analyze to quiescence. An example of a non-quiescent position occurs in the middle of a capturing sequence, e.g., when analyzing the capture of your opponent's queen, one cannot claim to be a queen ahead without considering the equalizing recapture.

Statics and dynamics – Statics are features of the position without regard to the movement of the pieces. Examples are open lines; the number of legal moves a piece has (*mobility*); weak squares; and all aspects of pawn structure. Dynamics are issues involved with "moving" the pieces during analysis, like tactics, maneuvers, visualization of possible positions, etc. Interestingly, mobility is a static and quantitative feature, while its cousin *activity* (what a piece can do) is more a dynamic and qualitative feature.

And the three types of "visions":

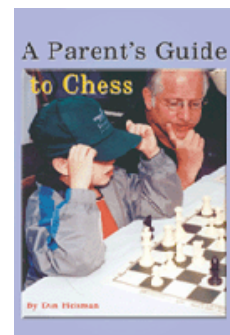
Visualization – The ability to keep track of where all the pieces are (and "see" them as a position) as you move the pieces in your head, analyzing future possibilities.

Board Vision – The ability to quickly and accurately recognize where all the pieces are and assess what they are doing in the present chess position.

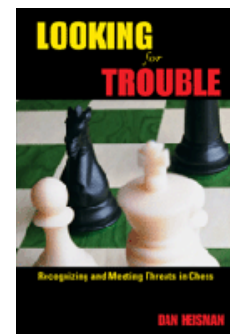
Tactical Vision – The ability to quickly and accurately recognize known tactical patterns and their likely consequences. Tactics include more than just winning material and checkmate, but also the defensive side: preventing material loss and checkmate.

It is possible to be very good at one type of vision and quite weak at another. I have students who are good at visualization but poor at tactical vision, while another may be good at board vision and poor at

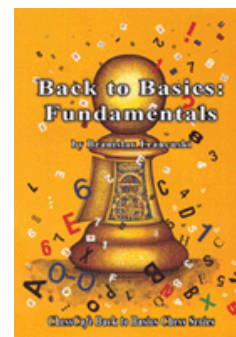
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visualization (because he can see everything on the present board, but has trouble imagining moves or keeping track of where a piece moved during analysis), etc.

In general, *for players rated below 2000, your playing strength is almost directly correlated with your analytical ability.* The amount of “chess knowledge” you have is much less important. Don’t believe me? I had a USCF 1900 rating after two years of play and was easily defeating 1600-1700 players who were much older than I and had been playing (and reading chess material) for 10-20+ years. In the post-mortems we would review lines and my opponent would say, “I thought you would do that, but I didn’t see that at the end you had another check...” And that’s how they often lost! You probably know other young players whose strength is similarly based on their analysis capabilities and not their extensive chess knowledge.

The following traits are aspects of a player’s analytical ability:

- *Will* to analyze the position correctly, move after move.
- *Patience* to analyze the position thoroughly (but keep in mind the clock – see “g”).
- *Analytical thought process* to know what steps to take.
- *Board vision* to see what is happening (statically) across the entire board quickly and accurately.
- *Tactical pattern recognition* – the ability to quickly and accurately recognize and assess basic safety issues.
- *Visualization* to keep the imagined patterns correctly in the mind’s eye when looking ahead.
- *Micro time management* determines the length of thinking time to take before one settles for a “best so far” move, assuming the “best” move is not found by then.
- *Deductive logic* to see which moves are candidates, and what is forced and what is not.
- *Quiescence recognition* to know when to stop analyzing lines and evaluate.
- *Awareness of danger/criticality* assessment, plus the recognition of [*The Seeds of Tactical Destruction*](#).

A related skill: *Evaluation* at the nodes of the analysis tree (not part of analysis, but pertinent to the discussion; see [*Analysis and Evaluation*](#)).

The point I want to make about these skills is that you need to “bootstrap” them as a group. Concentrating on one or two will eventually result in diminishing returns on those skills and leave you woefully short on your overall analytical capability. Therefore, if you are especially weak at one or more of these areas, you will need to strengthen those areas before you can ever become a really good analyst.

Examples

1) Suppose you are an experienced player with good board vision, but have not extensively studied basic tactical patterns. Then you can see what is happening on the board, but instead of quickly and accurately recognizing basic tactical possibilities for both sides, you have to figure them out. This would be equivalent to knowing how to add, but not being able to recognize the answer to basic multiplication problems. For example, when presented with the problem 8×7 , you would have to add up seven eights or eight sevens, instead of just answering 56. Therefore, you are not only slower, but less accurate, because knowing the solution reduces error in trying to figure it out.

2) Suppose you are fairly good with deductive logic, but use it only to figure out what *your* pieces can do – your application of this skill to your *opponent’s* possibilities is minimal. That means you will be able to find good moves for yourself, but will consistently allow your opponents easy tactics. You can never become a good player until you give

approximately equal weight to both players' possibilities.

3) Suppose you neglect the area of evaluation and concentrate only on analysis. Then you will be able to figure out what might happen, but, since you don't know how good a particular position is, you will consistently choose the wrong move. Everyone knows how to evaluate positions where a king is being checkmated or there is a clear material imbalance, but it is evaluating positions where the material is even and both kings are equally safe that is key. Many weak players think that pawn structure is more important than other considerations, such as the future activity of the pieces or the advantage of the bishop-pair, but that is usually incorrect (see [Evaluation Criteria](#)). Take the following position, the eighth problem in [Evaluation Quiz](#):

White to play



In this position White's queenside pawn structure is ruined: his a-pawn is isolated and his c-pawns are doubled and isolated on a semi-open file (about as bad as it gets). White has three pawn islands to Black's two, and it looks like both sides have two pieces in play. Many intermediate players think that Black is better, but nothing could be further from the truth. White to play has a sizable, possibly winning, advantage, primarily

due to three factors: the bishop-pair; the presence of Black's weak dark squares, coupled with White's monstrous dark-square bishop; and Black's inability to castle while holding the d6-square. (Don't believe me? Have your computer play this position against itself or, if you are bold, with white against you!) This misconception illustrates a very important and often overlooked principle: *If one player is weak on a color complex (has no bishop of that color), and the opponent has that color bishop, and the queens are on the board, that weakness is likely worth more than one pawn.* In this example all those criteria are present, and that is the fuel for White's advantage.

Slow chess is all about taking your time and making decisions. You must decide what might happen after each alternative candidate move, and how much the resulting positions favor you. However, if you take the time to consider alternate possibilities and can't properly evaluate which ones are better, your decision making is ultimately flawed. *If, as black, you purposely go into positions such as the one above because you think you are better, then you will consistently find yourself defending bad positions, even if you were properly able to analyze all the possibilities.*

4) Suppose you are good at all the other skills, but your micro time management is terrible.

Good micro time management requires you to be aware of the time control, the time remaining on your clock, the move number (if not a sudden death time control), and the position. From this information you can determine an optimum maximum time you should spend on your move. (I call this "Trigger Two"; see [The Two Move Triggers](#).) The aspect of this skill that is position-dependent, and thus determines which positions should require more attention, is called criticality analysis. When you combine good criticality analysis and good clock management, you can consistently give each move the proper effort it deserves. Critical moves should be given more time, sometimes much more, than non-critical ones.

However, if we assume your micro time management is terrible, then you often take much less or much more time for a move than you should. This usually results in one of three problems:

- You play too fast and could have played much better if you had taken more time,
- You play too slow and get into unnecessary time trouble, whereupon you make hasty moves that cause you to lose, or
- You play inconsistently where your total time used (macro time management) is reasonable, but you spend too much time on non-critical moves and too little time on critical moves, the latter usually resulting in terrible mistakes that cause you to lose.

Therefore, if you are proficient at all the other analytical skills except for this one, you will still end up making enormous mistakes that could have been avoided. *In my experience with teaching almost 1,000 intermediate players, this lack of skilled time management is one of the most underrated problems, and a leading reason why many of those players, who otherwise possess decent skills, play so poorly on occasion.*

I could present many more examples, but these four should be enough. The moral of the story is clear: your analytical chain is only as strong as its weakest link. To continually work on the same links and to neglect others will result in severely diminishing returns on your study time and – once again – explain why so many players keep doing “the same good things” and don’t make any progress.

The Fine Line

This line of reasoning brings us to an interesting mistake that many players make with respect to practicing chess. They perceive their practice activities are primarily black and white (“Is doing practice X good for my chess?”), when X is usually grey (“How good per unit time is X and would I be better off mixing X and Y or perhaps doing Y exclusively?”).

Part of the problem is that too much of a good thing can be bad, and recognizing good things is hard enough. Consider the following extensive list of practices; just as with positions (see [Similar Positions, Different Evaluations](#)), there is a fine line between what is good and bad, healthy and time wasting:

- Being fearful (bad) vs. being careful (good).
- Playing aggressively (good) vs. playing foolhardy (bad).
- Playing with confidence (good) vs. playing with overconfidence (bad).
- Understanding opening ideas (good) vs. memorizing opening lines (less good!).
- Preparing for serious over-the-board tournament play (good) vs. frozen into never starting serious play (very bad).
- Taking necessary risks (good) vs. taking unnecessary risks (bad).
- Making a threat just to make a threat (bad) vs. making a threat that results in some reward for the tempo, even after the best reply (good).
- Castling your king into safety (good) vs. castling no matter what the board situation (sometimes disastrous).
- Aggressive pawn play to gain space (good) vs. needless pawn play that creates weaknesses (bad).
- Playing slow enough to use almost all your time each game (very good) vs. playing slower than necessary and getting into time trouble (bad).
- Playing openings that suit your style (usually good) vs. avoiding openings that help you work on your weaknesses (bad if you are trying to improve).
- Complicating play when you are 1) losing (very good), 2) when you are even and need to win (good), 3) when you are even and stand to gain (good), vs. 4) when you are winning easily (usually very bad).
- Playing mostly higher rated players to push yourself to learn and

recognize your mistakes (very good) vs. playing almost all higher rated players so that you lose your confidence and start to play only for draws (very bad).

- Playing quickly by general principles in non-critical positions (good) vs. playing quickly by general principles in critical analytical positions (very bad).
- Giving up something (say, tempi) to win a small amount of material when otherwise even (often good) vs. giving up something to win a small amount of material when already far ahead (usually bad).
- Respecting your opponent's ability to see your threats and assuming during analysis he will find the best reply (good) vs. assuming your opponent's previous move was always safe (bad).
- Trying to win the game on each move (usually bad) vs. trying to do the very best you can on each move without taking too much time for the situation (very good).
- Being satisfied to play the first good move you see (usually bad) vs. trying to find the best move you can in the given circumstances, including the clock situation (good).
- Having a healthy goal of eventually increasing your playing strength and advancing in the chess world (good) vs. focusing only on winning and your rating (very bad, assuming your goal is improvement).
- Reading annotated master game books with the goal of memorizing games and understanding each to the *n*th degree (usually not a great use of time) vs. reading those same books with the goal of understanding what the authors are trying to teach you about those games, with the net effect that if you read dozens of authors and thousands (!) of games you will eventually learn a tremendous amount about how to play chess, even with a low retention rate per game (extremely good).
- Working on your specific knowledge skills like opening sequences and endgames (OK) vs. increasing your general skills like analysis, evaluation, and time management (much better).

This brings us full circle back to our primary subject. If you can improve each of your key analysis skills and also recognize which associated actions, attitudes, and approaches are the most effective, then your improvement rate will be noticeable. Neglecting just one or two of your biggest analytical weaknesses is often all it takes to hinder improvement. However, *even with the knowledge of how to proceed*, improving is a slow process. The inefficiency of most approaches partly explains why many players spend plenty of time working on their game, but don't reach anywhere near their potential. Quite a few players have determination, but not necessarily perseverance (See [Traits of a Good Chessplayer](#)).

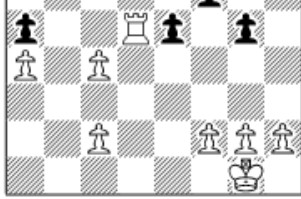
Interestingly, when a player asks me, "I have been playing for twenty years and have not made any improvement in the last fifteen. What should I do?" and I explain how to identify and work on some of the above skills, many reply with reasons why it won't be effective! Yet it does work for those players who have high perseverance and are proficient at [Breaking Down Barriers](#). This reminds me of a scene from *The Day The Earth Stood Still*, when the alien Klaatu is asked whether an equation is correct, he responds: "It gets me from one planet to another well enough." (That is to say, the proof is in the pudding.)

Let's put your analysis skills to work. What should White do in the following position?

White to Play



The first question to ask (and a correct answer is very helpful!) is "Am I playing to win or am I playing to draw?" In this position White is ahead a pawn, so normally White would be playing to



win.

On this assumption, the next thing you should *always* ask in such positions is, “Can I simplify by exchanging rooks to win the king and pawn endgame?” If the

answer is 100% yes, you should go ahead and do it. But you must be 100% sure you are winning. *Don't trade down into a king and pawn endgame where you are not sure that you are getting the result you want*, unless not doing so would clearly give you even fewer chances. The corollary is that unless you have some trivial checkmate, *you should always trade into a winning king and pawn endgame, since that is the easiest endgame to win*. In amateur games it is amazing how often the player who is worse trades or offers to trade into a losing king and pawn endgame, and often players who have an easily winning king and pawn endgame refuse to enter into it (especially if that trade involves a “sacrifice”). Coincidentally, after having penned this paragraph, I received an email from a student telling me how often he sees players erroneously trade down into losing king and pawn endgames and how helpful it would be if the players who make this mistake were aware of this disastrous trait!

Therefore, in the diagram, the first move you should analyze is 1.Rxd8 Kxd8. One could argue that perhaps the first move you should examine is winning material “free” by 1.Rxa5, but *almost always a winning king and pawn endgame is even better/easier than a rook and pawn endgame where you are ahead an extra pawn*. Of course, in this case, 1.Rxa5?? is met by 1...Rd1#, so the question about taking the pawn becomes moot.

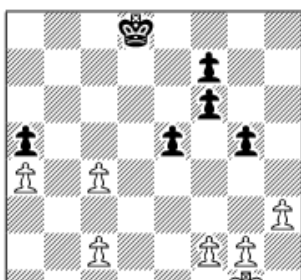
It is important to note that trading rooks cannot be played quickly on general principles. Although White is ahead a pawn, his crippled pawn structure means that you can't just rely on a weak guess, such as “White is ahead a pawn so he should trade rooks.” A king and pawn endgame is usually deterministic, even for humans: either White wins or he doesn't. Endgame books don't contain king and pawn endgames where one side is a little better; one can have the better side of a draw, but that's about it.

Returning to our analysis, after 1.Rxd8 Kxd8, what should White do? The most obvious try is to activate the king, so 2.Kf1 makes sense. After 2...Kd7 3.Ke2 Kd6 4.Kd3 Kc5 5.Kc3, White's king arrives in time to prevent Black from either capturing on c4 or winning the a-pawn, but now which side can make progress?

It turns out that Black's potential passed pawn is on the e-file, so 5...f5, with the idea of ...e4, ...f4, and then possibly ...e3 to create a passed pawn is thematic. Similarly, White's potential passed pawn – on the outside! – is possible after 6.h3 (but not 6.g3? g4! making the h-pawn backward) and then g3 and h4.

But wait! This should ring a bell, courtesy of your deductive logic skill. Why does the white king have to go to c3 at all? Can't White just create unstoppable passed pawns on the c- and h-files immediately after the rook trade? Indeed, he can! The one difference is that Black's king is now free to wreak havoc on the queenside. So now you just have to count tempi to see if Black can counterattack by capturing on a4 and getting his own passed pawn: 1.Rxd8 Kxd8 2.h3!

Black to Play



2...Kc7 3.g3 Kc6 4.h4 Kc5 (or 4...gxh4 5.gxh4 first with the same relative tempi) 5.h5 Kb4 6.h6 Kxa4 The race is not even that close, but, unless you are in time trouble, it never hurts to confirm! 7.h7 Kb4 8.h8Q a4 9.Qxf6 a3 10.Qxe5 and White wins easily. Again, 2.g3?,



trying to save a tempo, fails miserably to 2...g4! when, because of the backward h-pawn and the possibility of *en passant*, White cannot create a passed pawn on

the h-file.

Since White wins with 1.Rxd8, there is no need to find a better move. Therefore, we should make one last analysis check just to be safe. *This extra caution is justified since the proposed move is critical, a potential winner, and after it there is no turning back.* Finally, after double checking, our move is 1.Rxd8.

Dan welcomes readers' questions; he is a full-time instructor on the ICC as tutor.

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