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King + Pawn vs. King

Quote of the Month: *“Some say ‘Start with the endgames; they are easier’. And when you do study endgames, start with the ones with the least pieces, so that in more complex endgames you know when to simplify toward your goal (draw or win) and when you should not.”*

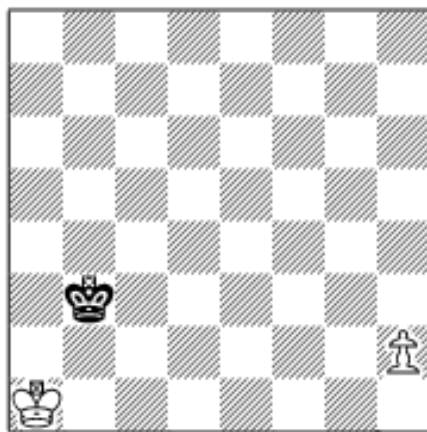
COLUMNISTS

Novice Nook

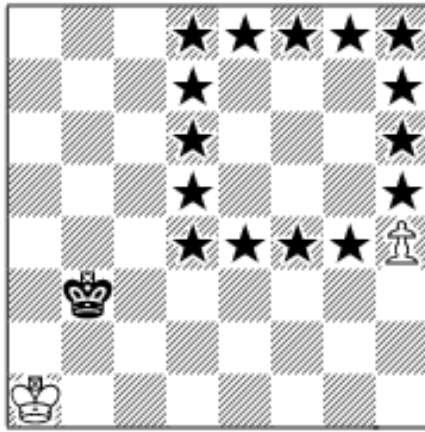
Dan Heisman

A few months ago I wrote a *Novice Nook* “K&P&? vs. K”, covering endgames where one has a King and pawn and another piece versus a King. But some positions assumed that a reader knew what to do when there were much simpler cases of just King and pawn against a King. Of course you, dear reader, knows those endgames perfectly, but others occasionally err, so I thought it might be a good idea to cover the simpler cases for those “others”.

In the following examples we will call the King with the pawn the “offensive King”; in these White will always be the offensive player. In all endgame positions there are always two evaluations, one with White to move, and one with Black to move (each either win, lose, or draw). The first case we will consider is where the offensive King cannot help its pawn. Consider the following position:



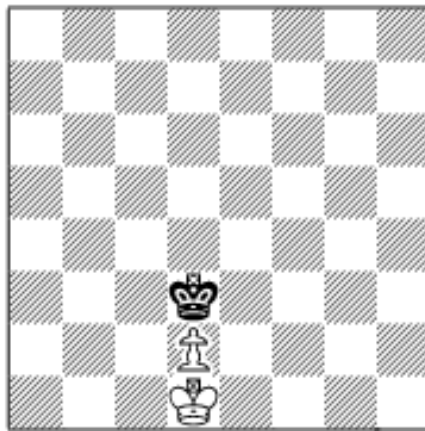
The key to evaluating this kind of position is to calculate whether the defensive King can get within the promotion "square". With White to move, *before* you draw the square first move the pawn **1.h4**. Then draw a line to the promotion square. Complete the square by making all sides equal, with the square extending toward the defensive King:



See if the defensive King can move "inside" the square, *including the edge*. In this case it cannot get into the edge d4-d8, so it cannot stop the pawn from promoting, e.g., **1...Kc4 2.h5 Kd5 3.h6 Ke6 4.h7 Kf7 5.h8=Q** and White wins. Some call the square a "triangle" using only the d4-h8 and the bottom-right part of the square, but that does the same thing - I like the concept of a "square".

If in the original diagram Black is to move, then **1...Kc4** is played and after **2.h4** Black can move within the square, so it is a draw: **2...Kd5 3.h5 Ke6 4.h6 Kf7 5.h7 Kg7 6.h8=Q Kxh8**.

So that was easy! - Now let's consider cases where the offensive King *can* help its pawn. For the moment we will ignore cases with rook pawns. A typical case where the offensive King is behind the pawn might be:



As always, there are two evaluations, one with each player to move. What are they?

If you said White to move draws and Black to move loses...you are wrong! With proper play it is a draw no matter who moves first. Can Black lose if it is played wrong? Of course! *In any position where the opponent has mating material if you play wrong you can lose!* But when studying you want to know *what would happen if both players play correctly!* Here the defensive King

needs to follow just two rules to draw:

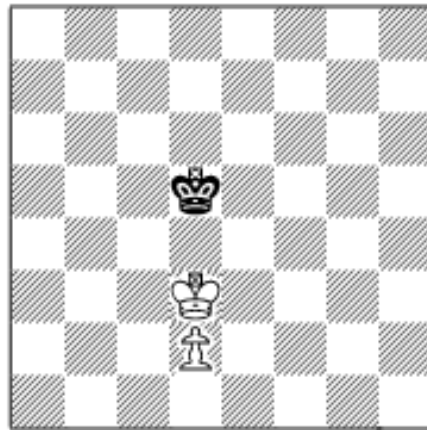
- 1) Do not let the offensive King in front of the pawn; and
- 2) When the offensive pawn reaches its "6th" rank the King should move *straight back and forth on the file in front of the pawn* until the offensive King goes to the 6th rank and then move onto the same file as the offensive King.

So with White to play (it transposes after the first move with Black to play!), a typical line might run: **1. Ke1 Kc4** Just to show it does not matter much where Black's King plays - only 1...Kc2?? 2.d4 obviously loses. **2.Ke2 Kd4** Following rule #1, Black should prevent white's King from getting in front of the pawn. In this case the black King needs to guard both d3 and e3. **3.d3** Else White cannot make progress. **3...Kd5** Black may as well practice going straight back in any case - it is not necessary until the pawn gets to the 6th rank, but it doesn't hurt! **4.Ke3 Ke5 5.d4+ Kd5 6.Kd3 Kd6 7.Ke4 Ke6 8.d5+ Kd6 9.Kd4 Kd7 10.Ke5**

Ke7 11.d6+ Kd7 12.Kd5 Now, according to rule #2, is when it really matters what the defensive King does! *Straight back!* **12...Kd8 13.Kc6 Kc8** The defensive King must "oppose" the other King when it comes up. Note this is NOT the same as "the opposition", which we will consider in the next example. **14.d7+** In a futile attempt to make progress, but 14.Kd5 is met by 14...Kd7, repeating the position and eventually allowing Black to claim a "threefold repetition of position" draw. **14...Kd8** And now White must either stalemate Black or lose the pawn. **15.Kd6** stalemate.

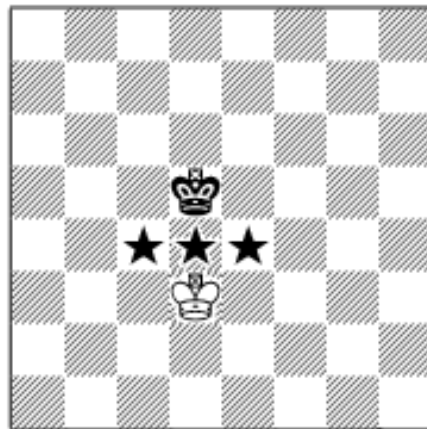
Now suppose Black had played incorrectly and moved the King back diagonally, 13...Kc8?? This throws away the whole game in one move - that is why you need to give yourself time to think about the endgame! 14. Kc6 White now opposes Black who must play 14...Kd8 15.d7 Zugzwang! Black does not wish to vacate d8, but must. 15...Ke7 16.Kc7 and White wins by queening the pawn next move.

So in non rook-pawn positions where the offensive King is not in front, Black draws easily no matter who is to move by observing the above two rules. Therefore, more interesting are the positions where the offensive King *is* in front.



In this position what are the two evaluations?

This time if you said White to move draws and Black to move loses, you would be right! This *is* the famous "Whoever has the opposition gets a desirable result" position. What is the "opposition"? Before I define it, it is easier to give an example!:

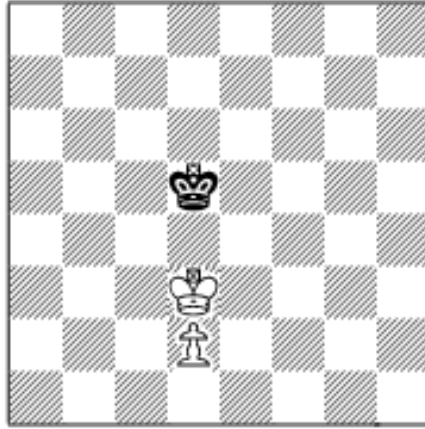


In this position, the Kings are having a "race" to the 4th rank. Who should win? The answer is, whichever King does *not* move first has the advantage, e.g., **1. Ke3 Kc4** and the black King "wins the race" to the 4th rank.

Therefore, without getting too technical, the (local) opposition occurs in a position like the above where there *are no nearby pawns on the same rank as the Kings or the ranks between the Kings* and the Kings are

separated by one square directly across a rank, file, or diagonal. Then the player who is *not* on move has "the opposition". In the previous position there are no pawns on the 3rd, 4th, or 5th ranks, where the Kings are, there is one empty

square between the two Kings, on d4, so the side that has the opposition is whoever is NOT to move. Back to our primary position:



In this type of position, if the offensive side has the opposition it can win, and if the defensive side has the opposition it can draw. With White to move Black has the opposition and can draw: **1.Ke3 Ke5** Black keeps the King opposing the white King. Now already White has nothing constructive to do because:

1) If the King retreats to the second rank, **2.Ke2**, then Black will not let it in front of the pawn with **2...Kd4** and we have the kind of position we examined before, which is a draw.

2) If White continues sideways **2.Kf3** then Black will also force the white King to no longer be in front of the pawn **2...Kd4 3.Ke2** and again we have the drawn position where the King is no longer in front. Finally,

3) If White tries to go back **2.Kd3** then Black repeats with **2...Kd5** and White has made no progress. If this position occurs one more time, then Black can claim a draw by three-fold repetition of position (remembering to make the claim *before* the position is repeated the third time, as you can't claim after you make the move).

If in the starting position Black is to move, then White has the opposition and can win! In order to make progress, White should use the following rules:

1) Move the King first! *Never move the pawn unless the King cannot make further progress.* To use an analogy from US football: Think of the King as a pulling guard and the pawn as a running back. Gotta block first!

2) *Never push the pawn to the same rank as your King* until queening is trivial, and

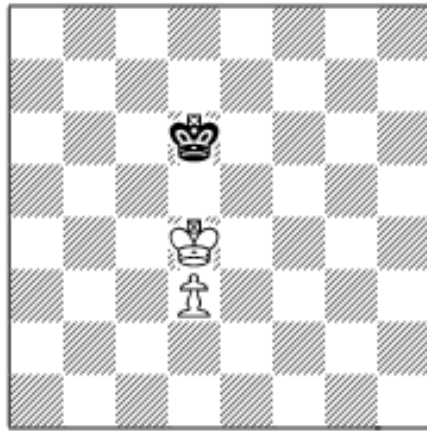
3) Keep the opposition with the King - but "make progress" wherever possible.

With these rules, the rest is easy. Let's try it: **1...Ke5** Black must give way, so **2.Kc4** White must make progress. No credit for the "blindly oppositional" **2.Ke3?** as this violates rule #3. **2...Kd6** There are other moves, but nothing can save Black! **3.Kd4** Of course! White re-establishes the opposition one file up. Just keep doing this! **3.e4?** draws as above, violating rule #2. **3...Kc6 4.Ke5** Still making progress toward further ranks. **4...Kc5** Black tries to vary and confuse White. Otherwise the same pattern continues. **5.d4+** Moving the pawn is OK here since otherwise progress is stopped. Besides, the pawn is still on a rank behind the white King, so that is OK. **5...Kc6 6.Ke6 Kc7 7.d5** Not **7.Ke7**

when 7...Kc6 forces the repetition with 8.Ke6. **7...Kd8** The best defense, else White plays 8.Ke7 next move and then d6-d7-d8Q – a easily winning pattern the offensive King is always trying to achieve. Now what should White play?

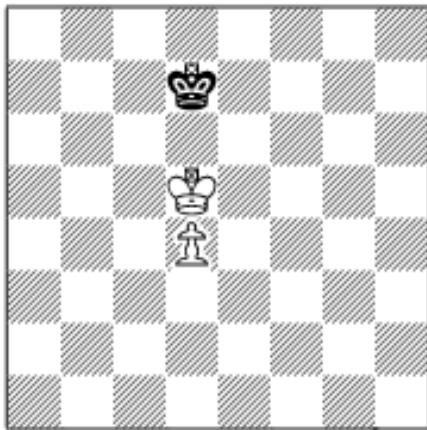
8.Kd6! – rules 1 and 2: The King always comes first - let us look what would happen after 8.d6? Ke8. Look familiar? The King is behind the pawn as in the earlier examples and this is a draw!: 9.d7+ Kd8 10.Kd6= So 8.Kd6 is the right move - remember this idea! After **8.Kd6** White keeps the opposition and wins easily after **8...Ke8 9.Kc7** followed by **10.d6-d7-d8Q** and wins.

Now suppose we move the starting position one rank up the board:



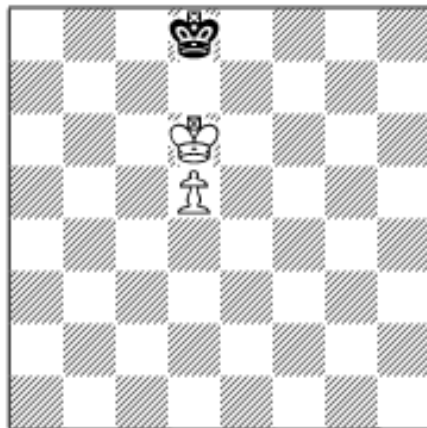
Does this make any difference in the two evaluations?

If you read the Novice Nook article "Techniques" you know! The answer is no! - Black to play loses, White to play draws. How about up another rank?:



Any different now?

No, still White to move draws, Black to move loses. Finally, one more rank up:

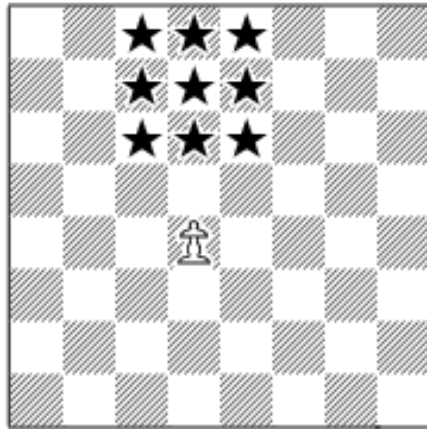


Does either evaluation change here?

If you said “No, still Black to play loses and White to play draws,” you are wrong! In fact, in this position *no matter who is to play, White wins!* So this is not a position where the opposition matters!

Even with White to move, Black can do no better than: **1.Ke6 Ke8 2.d6 Kd8 3.d7 Kc7 4.Ke7** And White wins! I call the general rule the *Tic-Tac-Toe Rule*. Create a Tic-Tac-

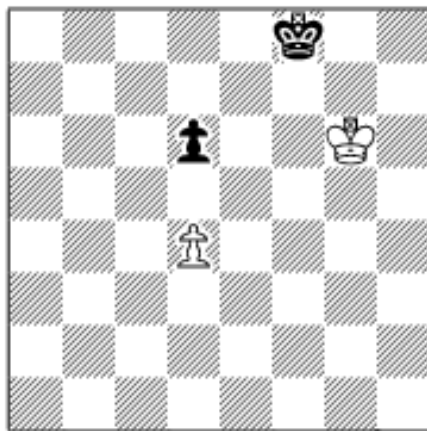
Toe board on the chessboard in the following way: Find the pawn's promotion square, in this case d8. Come back to the square the pawn would be on before promotion. Make this the center of a 3x3 Tic-Tac-Toe board:



Now the rule is, *if the following all are true:*

- 1) The offensive King is anywhere inside the Tic-Tac-Toe board,
- 2) The pawn is on any rank behind the King, and
- 3) The defensive King cannot simply win the pawn, then *White always wins with best play, regardless who is on move!*

How can you use the Tic-Tac-Toe rule? Many ways. Consider the following problem, Black to play and draw:

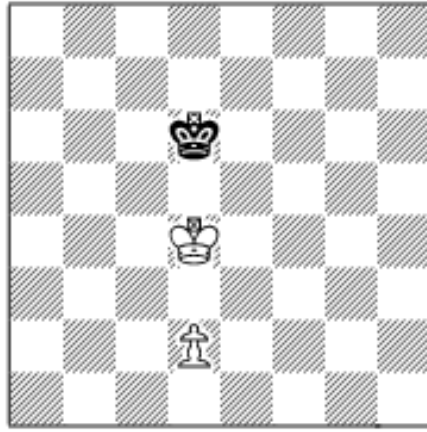


The obvious 1...Ke7 does not work: 1...Ke7 2.d5 Now Black's King will be "elbowed out": 2...Ke8 Black tries the "diagonal opposition". 3.Kf6 Kd7 Nothing really works. 4.Kf7 Kd8 5.Ke6 Kc7 6.Ke7 This is a good maneuver to remember! 6...Kc8 Black goes for the opposition. 7.Kxd6 Kd8 and White wins as the opposition does not matter. This is a Tic-Tac-Toe win!

So what other idea can Black try instead?

1...d5! Black voluntarily gives up the pawn on a non Tic-Tac-Toe square. **2.Kf6 Ke8** From what we learned earlier, onto what square does Black need to move his King when White captures the pawn? d7! And there is no way for White to prevent the black King from just hanging around d7, ready to pounce on it as soon as the black pawn is captured, so it is a draw: **3.Ke6 Kd8 4.Kd6** This does not help White **4...Ke8 5.Kxd5 Kd7** and Black has the opposition and draws as above.

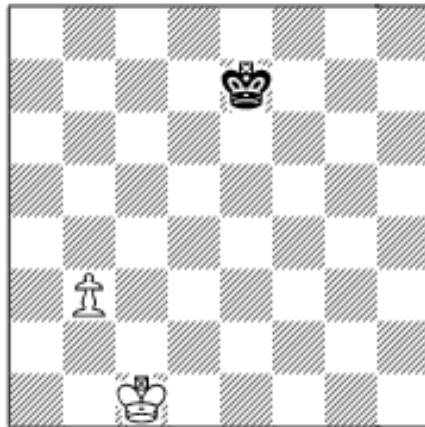
Let's consider positions where the white King starts farther in front of the pawn. What are the two evaluations here?



If you said White wins either way you are correct! The reason is easy: With Black to move White has the opposition and wins as before. With White to move he plays **1.d3!**, gets the opposition and wins anyway! So the rule for this case is simple: With non-rook pawns, *you always win if your King gets two or more ranks in front of your pawn* (it does not even have to be on the same file, but close enough to maintain frontal position and not lose the pawn).

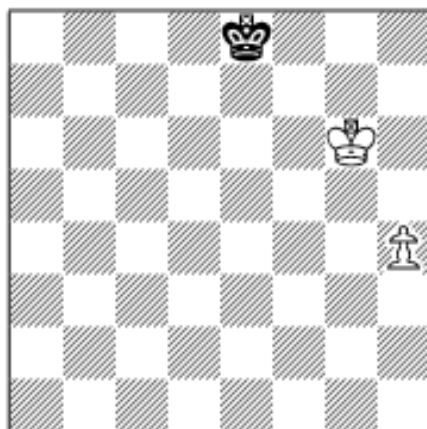
The Underpass

One special case worth noting is where the offensive King is far enough to one side of the pawn that the other King cannot catch it "sideways":



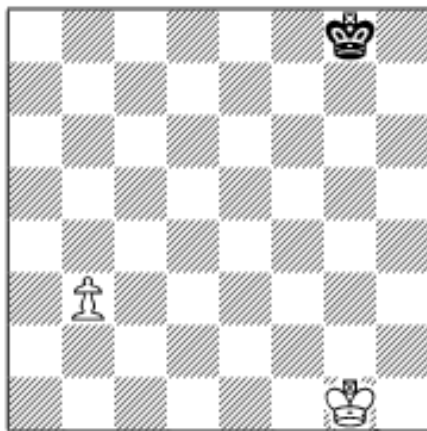
Here the "obvious straightest distance between two points" 1.Kc2 Kd6 2.Kc3 Kc5 draws as shown earlier. But White's King starts farther "left" of Black's King, so the right way is **1.Kb2! Kd6 2.Ka3!** and now either **2...Kc6** or **2...Kc5** loses to **3.Ka4**.

Let's quickly consider the case of rook pawns - *The only way the offensive King can win is if it can occupy the b or g-file's 7th or 8th rank and not lose the pawn*. The following is a limiting case:



This is White to play and win. I once saw someone play this wrong: They instantly played 1.h5? The right move was "King first!" with **1.Kg7** and then the pawn easily queens, but after 1.h5? Kf8 Whoops! Now if 2.h6 Kg8 draws easily with the defensive King in the corner. Suppose White instead tries 2.Kh7 The only way to keep the black King out of the corner, but 2...Kf7 Now the white King is stuck. And if he tries to get out with 3.Kh6 Kg8 and Black draws, but if White instead pushes the pawn 3.h6 Kf8 4.Kh8 Kf7 5.h7 Kf8 and it is stalemate - draw anyway! So from the original position 1.Kg7 wins and 1.h5? does not.

Finally, a "distant opposition" problem. White to play:



Distant opposition can roughly be defined as “Putting your King on a square which creates a rectangle with the other King with all four corners of the rectangle the same colored square (such as a light square), with the usual caveat of no pawns interfering/between the Kings.” For Kings on the same file, the distant opposition is just *an odd number of squares between Kings with your opponent to move*.

In the above position, Black's King will be inside the square after 1.b4? Kf8 so running doesn't work. It looks like White should play Kg2 and have 5 (an odd number) squares between the Kings:

1. Kg2 And Black has nothing better than **1...Kf7** **2.Kf3** Keeping the opposition with 3 squares in between and the opponent to move. **2...Ke7!** - Coming up with **2...Ke6?** and allowing the “local opposition” with **3.Ke4** is not as good - you will see why soon! **3.Ke3** and not **3.Ke4?** **Ke6!** and Black grabs the opposition and draws. **3...Kd7** Black keeps his distance and waits for a chance. **4.Kd3 Kc7 5.Kc3** Now what can Black play?:

- Going back to the 8th rank loses to **6.Kb4** and the white King will get two squares in front of the pawn.
- Going **5...Kd7?** loses to **6.Kb4** when Black cannot get the opposition.
- Going to the 6th rank loses to White opposing on the 4th, e.g. **5...Kc6 6.Kc4** with the opposition! Or **5...Kb6 6. Kb4** and again White has the opposition and wins, but...

5...Kb7! What can White do now? He wants to go to b3 to maintain the distant opposition but his pawn is there. That is why I defined opposition as *not being in effect if pawns are on the same ranks (or in between) the Kings!* So in this problem White never really had the distant opposition, even if it looked so. Suppose White tries:

1. **6.Kb4 Kb6** Black has the opposition and draws.
2. **6.Kd3 Kc7!** We have been here before - White is making no progress.
Finally:
3. **6.Kb2 Kb6 7.Ka3 Kb5** and White cannot get in front of the pawn! Draw!

This problem alone teaches you a lot about many King and pawn endgame positions.

The reason you need to study King and pawn endgames before other endgames containing pawns is that you need to know when to trade down from more complex endgames, like King and 2 pawns vs. King and pawn or King and rook and pawn versus King and rook! Whether on the offensive or defensive, you need to know which trades lead to a win. So study this month's column and you will be

ready for more difficult endgames.

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

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