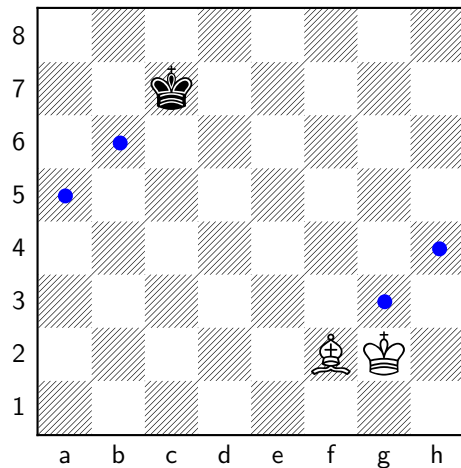


The Wonderful World of Mobius Chess

Chess on Strange Geometries

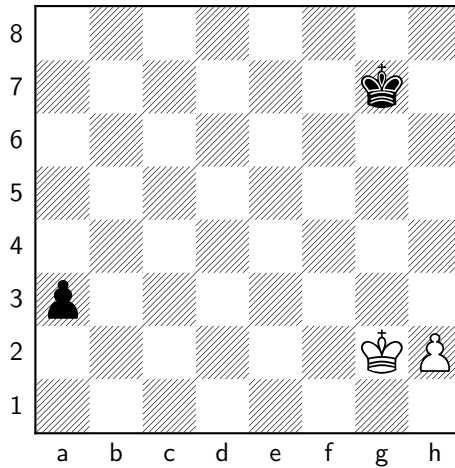
Max Petschack

I am not good at chess. While I have played a decent amount of it, I have always been more attracted to the gimmicky strategies than the good ones. Perhaps for this reason, I find it more interesting to play chess variants than the actual thing. They tend to lend themselves to gimmicky, weird play and are often more about the joy of discovering what is possible than any sort of actual competitive strategies. They also have the added benefit that most people are not good at them and so the playing field is somewhat levelled. One common variant that many people invent independently is cylindrical or "portal" chess. This variant imagines that the left and right side of the chess board are connected so that any piece can go off one side and come back via the other.



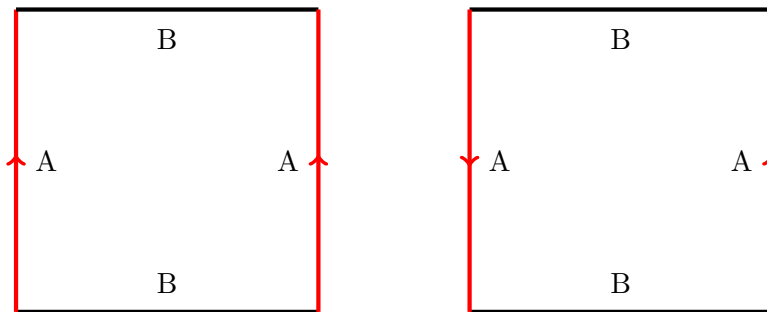
The black king is in check

This version of chess plays mostly the same as regular chess, but still has its fair share of interesting moves. For example, in the figure above the white bishop is attacking the king in a manner that is impossible in regular chess. This move is possible because the bishop's attack wraps around the board and comes back on the other side. The a and h file pawns also become significantly stronger in cylindrical chess, as these files are now adjacent. Consider the following position with white to move.



A losing endgame for white?

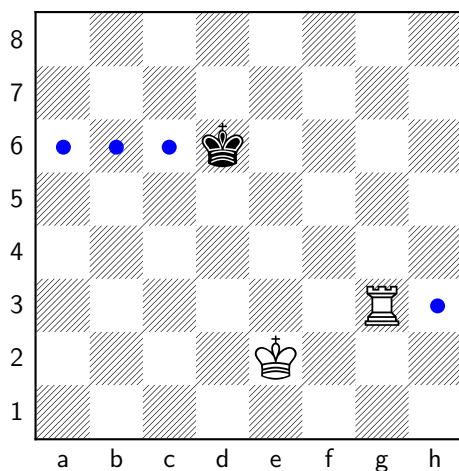
In this position white would normally be losing, as the black pawn would be able to promote to a queen. In cylindrical chess, however, this is not the case, as $hxa3^1$ leads to a winning endgame for white. In general, the increased connectedness of the board makes pieces with diagonal movement stronger. Rooks, by comparison, gain nothing from these new rules, since going off one edge just brings them back to the same file. But cylinders are only one possible geometry. What if we try some others?



A cylinder vs a Möbius strip

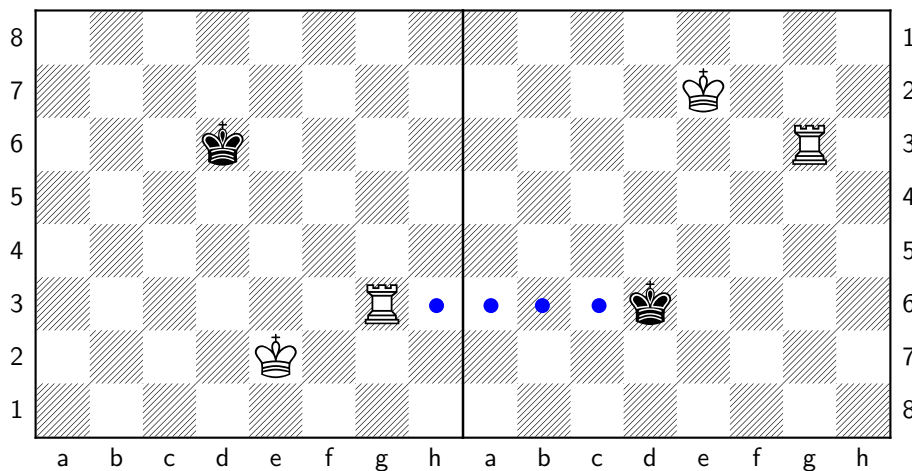
In the diagram above we can see how to construct a cylinder vs a Möbius strip. To create the cylinder we simply join the A sides together. To create the Möbius strip we do the same but with a half twist as, indicated by the orientation of the arrows. If we connect our chess board like this then we get Möbius chess, a far more interesting variant.

¹The h2 pawn takes the a3 pawn



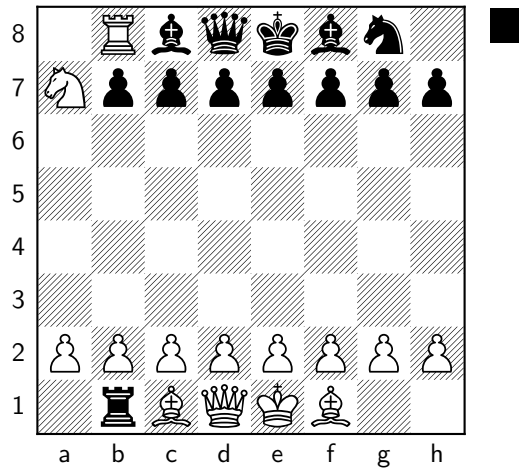
The black king is in check

Mobius chess is a bit less intuitive than cylindrical chess, but there are ways to make easier. One way is to imagine that there is another copy of the board attached to each side that is flipped vertically. Then, pretend that you can move onto that board. Finally, translate your final position onto the actual board. Here's how the board above would look using this method:



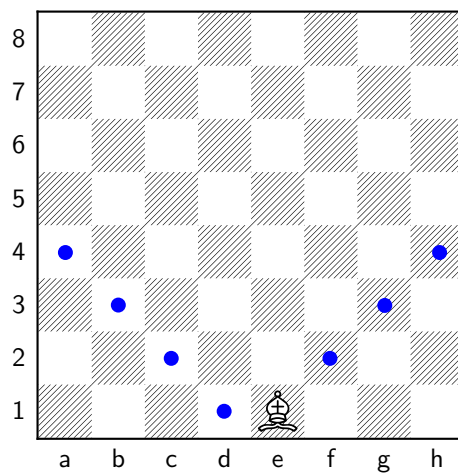
The left board is the original board and the right board is the flipped board

So what is Mobius chess like to play? Well, it gets strange very quickly, as the most fun way to play is to try and find the weirdest move you can that is at least slightly good. Every game I've played has started with white using their rook to take black's rook, to which black responds likewise. This might not be the best possible opening, but it sure is funny. This often leads to both players using their remaining rook to eat the opponents back rank, and the game is usually over pretty quickly. Another popular opening move is to jump your knight to the other side of the board so it can start wrecking shop. Here's what a typical game might look like after three turns:



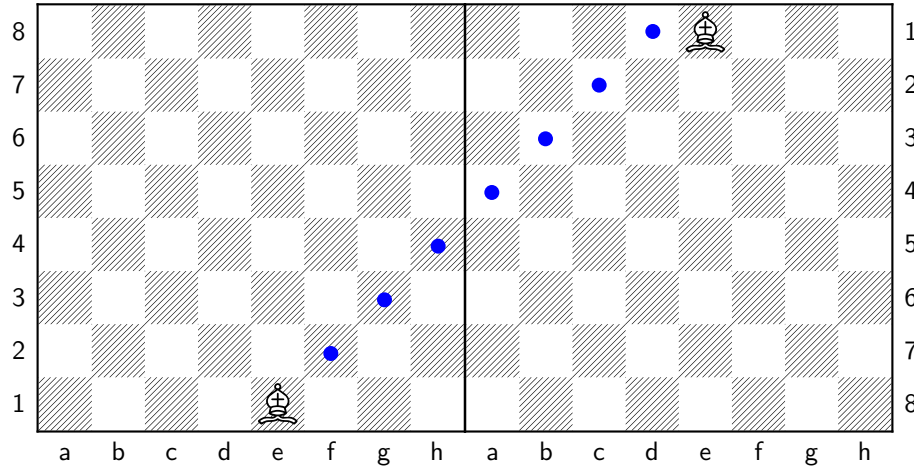
1. Rxa8 Rxa1 2. Rxb8 Rxb1 3. Nxa7

Mobius chess has some *weird* quirks. For example, not only can bishops switch colour, they can switch direction in the middle of a move.



The forbidden technique: moving sideways

This may be the single strangest move I've seen in any chess variant. Things like this mean that it's not uncommon for both players to completely miss when a check has occurred, so make sure to keep an eye out. If you're having trouble visualising it, here's what that move looks like using the flip method:



The left board is the original board and the right board is the flipped board

There's plenty more to discover about Mobius chess, so if this article has interested you I highly recommend pulling up a chessboard with a friend and trying it yourself. What kind of openings can you come up with? Are there actually good strategies? I also didn't cover any of the other possible geometries that you could create, such as spherical, toroidal, or even Klein bottle chess. They usually require that you alter the starting position to avoid instant checkmate, but they can be fun to play around with as well. This article is only a starting point for what you can explore!