# FlexiChess

## Rules

Each player has his own set of rules to play:

1. I must capture
   1. When more than one capture is available:
      1. I may capture any
      2. I must capture weakest/strongest target with weakest/strongest piece
   2. I must take only if my taking piece is stronger than piece taken. In other cases I can take or not take
   3. I must take only if my taking piece is stronger than piece taken and taken piece is protected. In other cases I can take or not take.
   4. I must take only if my taking piece is weaker than piece taken or taken piece is unprotected. In other cases I can take or not take
   5. I must take only if taken piece is unprotected. In other cases I can take or not take.
   6. I must take with pawns if I can (weakest/strongest)
   7. I must take/attack after you take/attack
2. I must attack
   1. I have to create a new attack
   2. I have to create a new attack or capture
   3. I must attack protected
   4. I must attack protected or capture (stronger)
   5. I must attack if not attacked
3. I must protect
   1. I have to protect my piece if I can
   2. I cannot move to unprotected position (fear)
   3. If I can move to protected position, I have to move to position with maximum protection (fear)
   4. I have to capture or move to maximum protected position (fear)
   5. I have to capture or move to protected position
4. I can’t attack
   1. I cannot create new attack
   2. I cannot create new attack if I captured in my previous turn
   3. I cannot create new attack if you captured in my previous turn
   4. I cannot create new attack with my piece which captured in my previous turn
   5. I cannot attack your Queen, but I can capture it if you move into attack
   6. I cannot create more attacks than 10-100% of your attacks
   7. I cannot create more attacks per square than your protections
   8. I cannot attack your pieces, which are not protected
   9. I cannot attack more than 1 piece with my single piece
   10. I cannot create more than 1 attack with a single move
   11. I cannot attack stronger pieces
   12. I cannot make more than 1-2 attacks per piece
   13. I cannot attack (stronger) during first 3-20 turns
   14. I should remove attack if I captured your piece in a previous turn
   15. I cannot check
   16. I cannot attack with piece type (stronger), **which was just captured by you** (fear)
   17. I cannot attack piece type (stronger), **which just captured my piece** (fear)
   18. I cannot attack stronger pieces than capturing piece (fear)
   19. I cannot attack the piece (stronger), **which was protected before your move and now is not protected**
   20. I cannot attack the piece (stronger), **which you moved just now**
   21. I cannot attack the piece type, **which you moved just now**
   22. I cannot attack (stronger) **if in previous move you captured my piece**
   23. I have to remove my attack if I can (fear)
5. I can’t capture
   1. I cannot capture (stronger) if I captured in my previous turn
   2. I cannot capture (stronger) with my piece type, which captured in my previous turn
   3. I cannot capture (stronger) with my piece, which captured in my previous turn
   4. I cannot capture (stronger) during first 3-20 turns
   5. I cannot capture until you capture first of my pieces or pawns
   6. I cannot capture your pieces, which are not protected
   7. I cannot capture your pieces (stronger), which are protected
   8. I cannot capture with piece type (stronger), **which was just captured by you** (fear)
   9. I cannot capture piece type (stronger), **which just captured my piece** (fear)
   10. I cannot capture after checking
   11. I cannot capture stronger pieces than my capturing piece (fear)
   12. I cannot capture if I am checked and can escape without capturing
   13. I cannot capture with king if I am checked and can escape without capturing
   14. I cannot capture with same piece if I moved it more than 2-5 times in a row
   15. I cannot capture with same piece type if I moved it more than 2-5 times in a row
   16. I cannot capture checking piece if I am checked and can escape without capturing
   17. I cannot capture checking piece with king if I am checked and can escape without capturing
   18. If I can capture, I have to capture smallest piece
   19. I cannot capture the piece (stronger), **which was protected before your move and now is not protected**
   20. I cannot capture the piece (stronger), **which I could not capture before your move**
   21. I cannot capture the piece (stronger), **which I could not capture before your move with this piece type**
   22. I cannot capture (stronger) pieces out of my 2-7 lanes
   23. I can capture only if I attack piece with at least (or not more than) 1-3 pieces
   24. You choose a piece, which cannot be attacked with pawns
   25. I cannot capture the piece (stronger), **which you moved just now**
   26. I cannot capture the piece type (stronger), **which you moved just now**
   27. I cannot capture (stronger) **if in previous move you captured my piece**
   28. I can only capture **if in previous move you captured my piece**
   29. I cannot capture your piece (stronger), **which just captured my piece**
   30. I cannot capture back on any attack (capture **your attacking piece with piece attacked**)
       1. Prohibited for any pieces
       2. Prohibited only if my piece is weaker
6. I can’t protect
   1. I cannot create new protection (remove if created)
   2. I cannot create more protections than 10-100% of your protections
   3. I cannot create more protections than 10-100% of your attacks
   4. I cannot protect piece, which you attack
   5. I cannot protect more than 1 piece in one turn
   6. I cannot protect more than 1 piece with my single piece
   7. I cannot retreat to protection with the attacked piece
   8. I cannot make more than 1-2 protections per piece or remove if exceeded
   9. I cannot protect Q or remove if created
   10. I cannot protect Q/R or remove if created
   11. I cannot protect pieces on your half of the board or remove if created
   12. I have to remove protection from attacked piece or move it into unprotected attack, If you attack me
   13. I have to remove protection from any piece, If you attack me
   14. I should remove protection if I captured your piece in a previous turn
   15. I have to remove protection from my piece
7. My piece is locked
   1. Some random pieces of mine are locked in place, and you see these locks beforehand
   2. Each turn 1-6 types of pieces (or all) are selected randomly, which I can move
   3. I have to move my king once every 4-20 turns
   4. I have to move each piece type once every 6-20 turns
   5. I cannot move Queen more than Y times in a row
   6. I cannot move my piece, which captured your piece in the previous turn
   7. You can choose which of my pieces should be freezed for several turns.
   8. I cannot move same piece more than 2-5 times in a row
   9. I cannot move same piece type more than 2-5 times in a row
   10. I can move only pawns (or cannot escape my 3-5 lanes) if you are not attacking any of my pieces
   11. I can move only pawns (or cannot escape my 3-5 lanes) if you are not in my 2-4 lanes
   12. I can move only pawns (or cannot escape my 3-5 lanes) during first 3-30 turns or until you capture my pieces with aggregate value 1-9
   13. I cannot move piece, **which is attacked by your previous turn**
   14. I cannot move piece, which is attacked by more than 0-3 pieces
   15. I cannot move piece type, **which was captured**
   16. I can move only pawns or King **after capture** (fear)
   17. I can move only Queen **after capture** (fear)
   18. I can move only pawns if you attack my Queen (fear)
   19. **If you attack me with more than XX pieces**, I can move only attacked pieces (fear)
   20. **If you attack me with more than XX pieces**, I can move only attacked pieces and cannot capture (fear)
8. My moves are limited
   1. My turn is replaced with a random move
   2. Some random moves are disabled
   3. Length of B/R/Q moves is reduced to 1-7 maximum length
   4. I cannot [move and/or capture] with [pieces / pawns / queen], which [are / will be] next [straight / diagonal / any] to your [pieces/pawns/queen]
   5. I have to [remove / or capture with] [piece / pawn / queen] which is next [straight / diagonal / any] to your [pieces/pawns/queen]
   6. I have to move to worse/worst rated position on board
   7. My pawns can move only one square
9. I must prevent your attack
   1. I have to remove your attack if I can (fear)
   2. I have to remove your attack if I can, but not capture (fear)
   3. If you attack me, I have to remove attack if possible (fear)
   4. If you attack my Queen, I have to remove this attack (fear)
   5. I cannot move into your attack (fear)
   6. I cannot move into your attack, but can capture into attack
   7. I cannot move into your multiattack (fear)
10. I must threaten my piece
    1. I have to open attack to my unprotected piece
    2. I have to move into your attack (panic)
    3. I have to move into your attack with piece which is not attacked by you yet (panic)
    4. I have to move into your attack without protection (panic)
11. Chess algorithms
    1. Allow only 1-20 best moves by Stockfish or other algorithms (level 1-20)
    2. Prohibit 1-20 best moves by Stockfish or other algorithms (level 1-20)
    3. Prohibit 1-20 best moves by Stockfish or other algorithms if not all other moves are blunders (level 1-20)
    4. Modify algorithm rules
       1. Decrease value of queen and rook
       2. Decrease value of all pieces
       3. Increase value of pawns
12. Board modifications
    1. One random piece of mine is removed from the board (this is done manually using Edit mode)
    2. One random piece of mine is replaced with pawn (this is done manually using Edit mode)
13. I skip my move
    1. I skip my move in any case
    2. I skip 1-3 of my first moves (this is done manually using Edit board)
    3. I skip my move if **in previous move you captured my piece** (this is done manually using Edit board)

## Actions

1. Play mode
2. Edit mode (also selects which move is next: black or white)
3. Undo move
4. Change settings
   1. Enable/disable rules for each player, set probability

## User interface

1. Chess board
2. Player 1
   1. Material
   2. Rules (current rules highlighted)
3. Player 2
   1. Material
   2. Rules (current rules highlighted)
4. Game codes
5. Download PGN
6. Undo move
7. Edit board (restarts game)
8. Settings
9. Mood image

## Approach

1. Before each move (and after undo, edit and settings change)
   1. Evaluate previous opponent move
      1. Which piece moved
      2. Which piece captured my piece
      3. What piece type did you capture
      4. What your piece I could not capture before your turn, but can capture now
      5. What my pieces were not attacked, but are attacked now
      6. What your pieces were protected, but are not protected now
   2. Evaluate current position
      1. For each piece calculate number of attacks received and created
      2. For each piece calculate number of protections received and created
   3. Determine possible rules for this turn
      1. First add constant rules
      2. Then add random rules
   4. Start applying rules one-by-one, gradually making moves impossible. If rule application makes no move possible, do not add this rule.
      1. To evaluate a move sometimes will need to evaluate new position after that move
   5. If there is only one possible move, make it automatically
   6. If there are multiple possible moves, highlight pieces that can move. On mouse over show possible moves.

## Conditions for rules

1. Random
2. First X moves
3. After [no] capture/attack
4. After [no] captured/attacked
5. If attacking >Y
6. If attacked >Y
7. If protecting >Y
8. If I have no unprotected
9. After piece/pawn move
10. If have material balance >Y
11. If [no] capture/captured during Y moves
12. If centipawn evaluation >Y