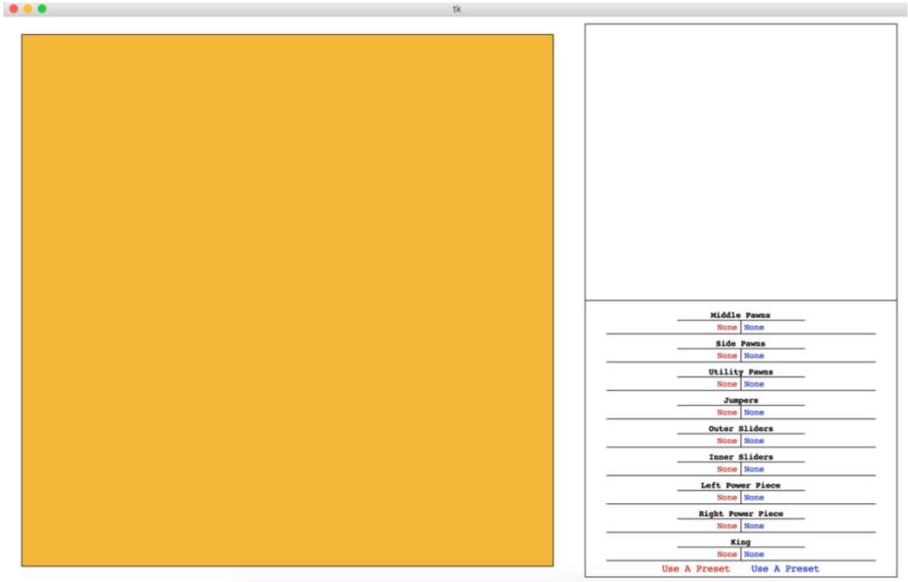
Background

I created this project to see how a game of non-discrete chess would play. It is by no means polished, but it is functional. I created it to be modular so new pieces could easily be added and tweaked. This was created in about a week at the beginning of 2017, most of the time going into the tedious calculations in the "movement_methods.py" file.

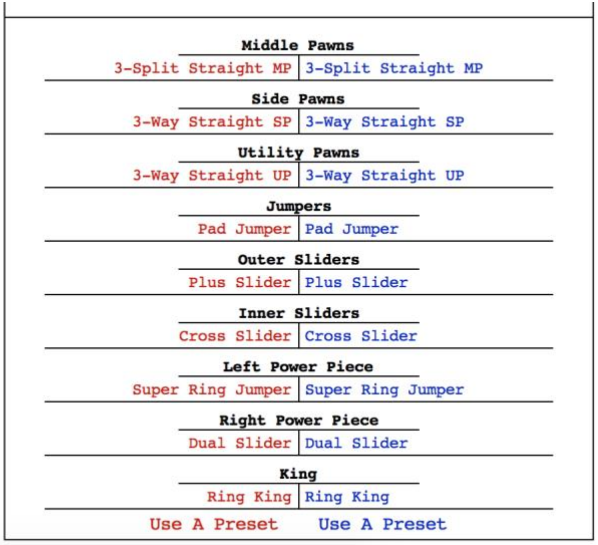
Beginning the game

Just running the main.py file should start up a screen which looks like this:



Middle Pawns
None | None
Side Pawns
None | None
Utility Pawns
None | None
Jumpers
None | None
Outer Sliders
None | None
Inner Sliders
None | None
Left Power Piece
None | None
Right Power Piece
None | None
King
None | None
Use A Preset   Use A Preset

This screen allows you to select which pieces each player will be using. For ease, you can just press "Use A Preset" for each red and blue team and click default. If you want to manually choose pieces, you can click on "None" or a piece name if you've already selected one and choose from the pieces I've created. Once all the piece types (Middle, Side, and Utility Pawns. Jumpers. Outer and Inner Sliders. Right and Left Power Pieces. And King) are selected, the bottom right of the screen will look like this and you can **press enter** to begin the game.



Middle Pawns
3-Split Straight MP | 3-Split Straight MP
Side Pawns
3-Way Straight SP | 3-Way Straight SP
Utility Pawns
3-Way Straight UP | 3-Way Straight UP
Jumpers
Pad Jumper | Pad Jumper
Outer Sliders
Plus Slider | Plus Slider
Inner Sliders
Cross Slider | Cross Slider
Left Power Piece
Super Ring Jumper | Super Ring Jumper
Right Power Piece
Dual Slider | Dual Slider
King
Ring King | Ring King
Use A Preset   Use A Preset

Playing the Game

Once each player's pieces have been selected, the bottom right of the screen has most basic directions for the game. As this was originally intended just for me to play with a few close friends, I'll clarify a few things here.

1. The game is played pretty much just like chess except there is no "Check Mate". A player loses when their king is actually taken
2. Unlike chess, there are 3 different types of pawns. All of them can only move forward, but they do so in different ways
3. Pressing the "s" key while hovering over a piece is useful. Pressing the "a" key is useful to see if you've moved a piece into a good position.
4. The small circles you see when seeing how a piece moves indicate if it collides with a piece. If it is green, it is your own piece. If it is red, it is the opponent's piece and you can capture it.
5. The game "allows" you to move the opponent's pieces on your turn. The game will prevent you from continuing your turn if you do this. You must press escape to restart your turn if this happens. This functionality is only in the game so you can check how an opponent could move on your turn.

The Files

1. main.py – There to start the game and high-level game decisions.
2. drawing.py – Contains all the function which draw something onto the Tkinter canvas.
3. movement_methods.py – Contains all the functions which have to do with moving pieces. These are just many different geometry functions.
4. method.py – Extra functions which don't belong in movement_methods.py.
5. piece_initializer.py – A couple functions to create the data structures out of the piece creation files.
6. piecepresets.py – Preset "loadouts" for a player. You can easily add more by following the format under 'default'. They will automatically be added to the game.
7. Piece Creation Files – The rest of the files are just dictionaries describing different types of pieces. The 'Movement' key and the 'Blockable' key need more explanation.
    a. **Movement -** Each index of the list the 'Movement' key maps to corresponds to a type of movement a piece can make. I'll call this index a movement motion. Each index of the movement motion corresponds to a line or arc in that movement motion. Each line or arc is sequentially followed by the movement motion until it is obstructed and the piece can no longer move.
    b. **Blockable** – Should have the same dimensions as the movement key. Each element corresponds to whether or not the line or arc in the same position can be blocked by other pieces or walls. (0 is unblockable. 1 is blockable)

How lines and arcs are described (All points are in board space where the board is a unit square)
Lines [1, (starting point of the line relative to the piece), (ending point relative to piece)]
Arcs [0, (center of circle relative to the piece), radius of circle, start angle of the arc, end angle of the arc, rotate clockwise?]