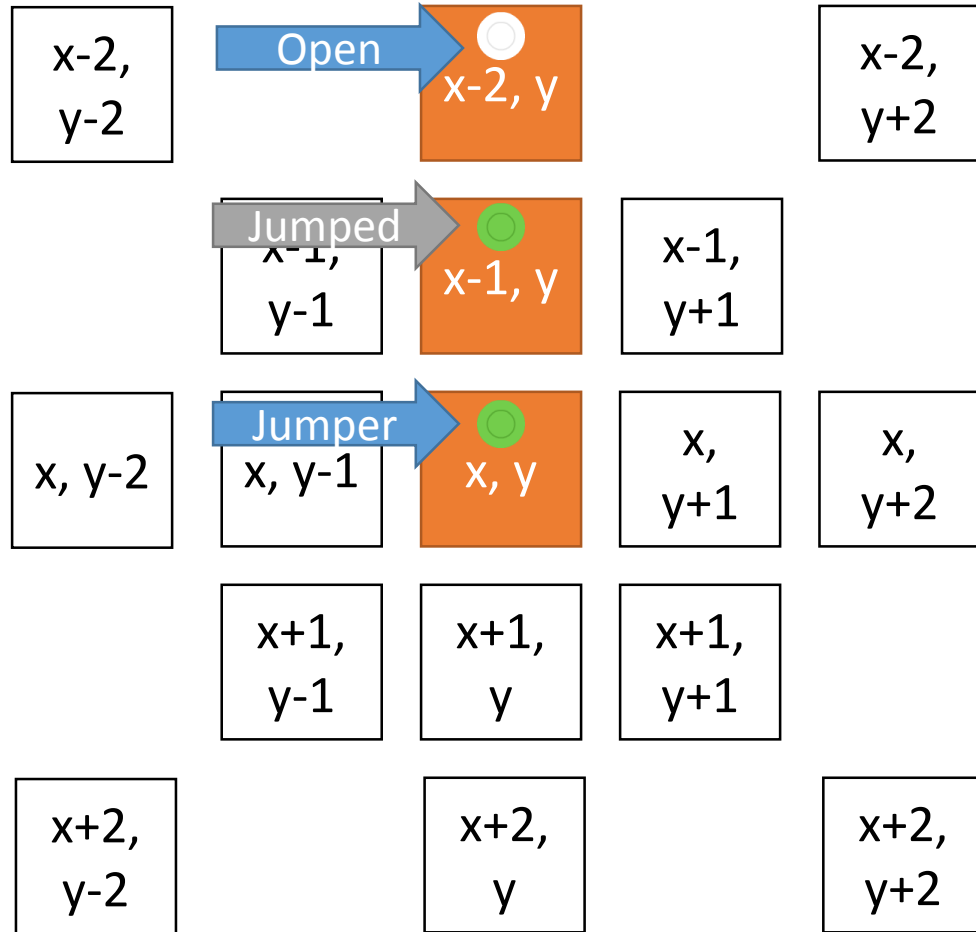


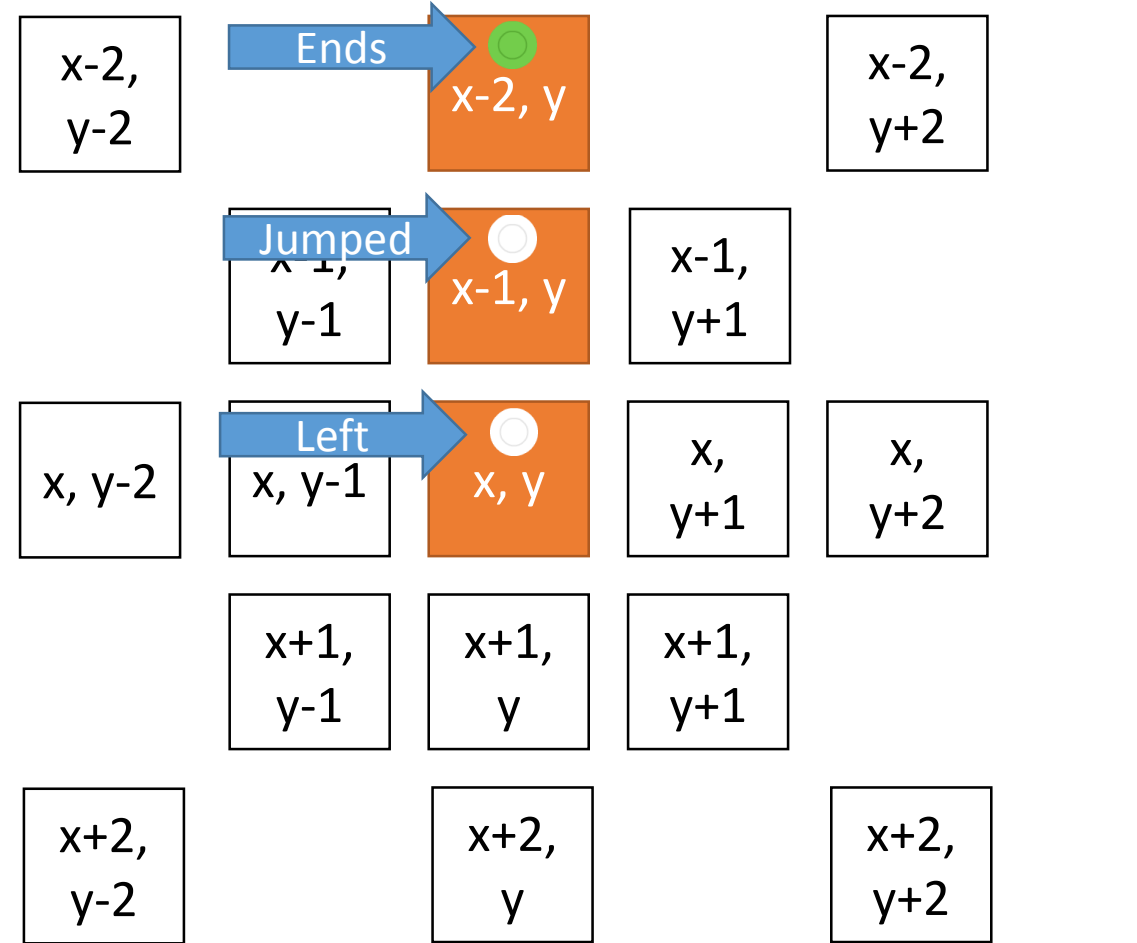
# Peg Game

Jumping Movement

# Before



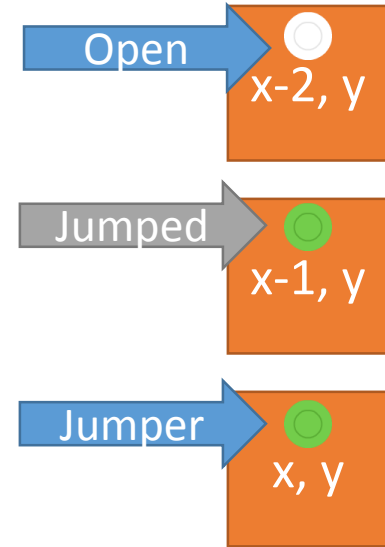
# Up



```

public boolean isValidUp(int pos, int last) {
    int endX = pos / col;
    int endY = pos % col;
    int x = last / col;
    int y = last % col;
    //end must be blank
    if (board[endX][endY] != 0)
        return false;
    //start must be peg
    else if (board[x][y] != 1)
        return false;
    //guard
    else if ((x - 2) < 0)
        return false;
    //middle must be peg
    else if (board[x - 1][y] != 1)
        return false;
    //start and end form correct relationship
    else if ((x - 2) == endX && y == endY)
        return true;
    //otherwise, it's all bad
    else
        return false;
}

```

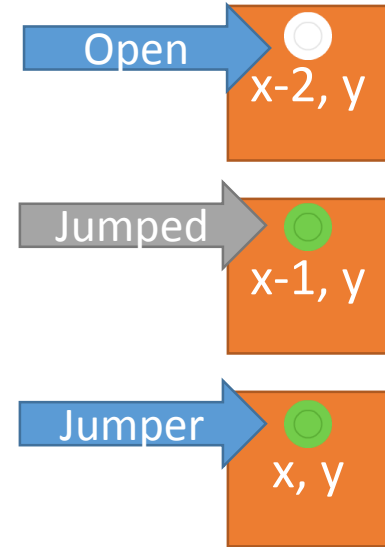


```

public void gridButtonClick(int pos) {
    if (last == -1) {
        //click #1
        last = pos;
    } else {
        //click #2
        int x = last / col;
        int y = last % col;
        int mid = -1;
        if (isValidUp(pos, last)) {
            board[x][y] = 0;
            board[x - 1][y] = 0;
            board[x - 2][y] = 1;
            mid = 1;
        }
        //other directions here

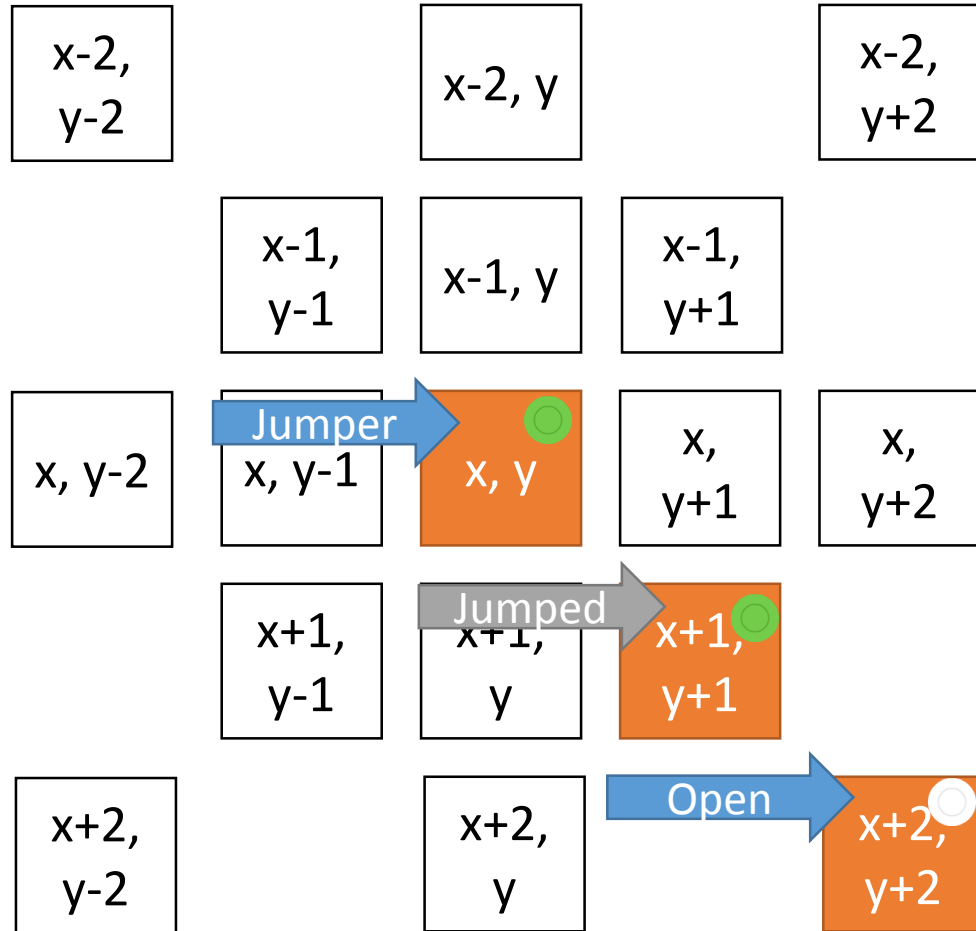
        if (mid == -1)
            Toast.makeText(getApplicationContext(), "Can't swap", Toast.LENGTH_SHORT).show();
        redraw();
        last = -1;
    }
}

```

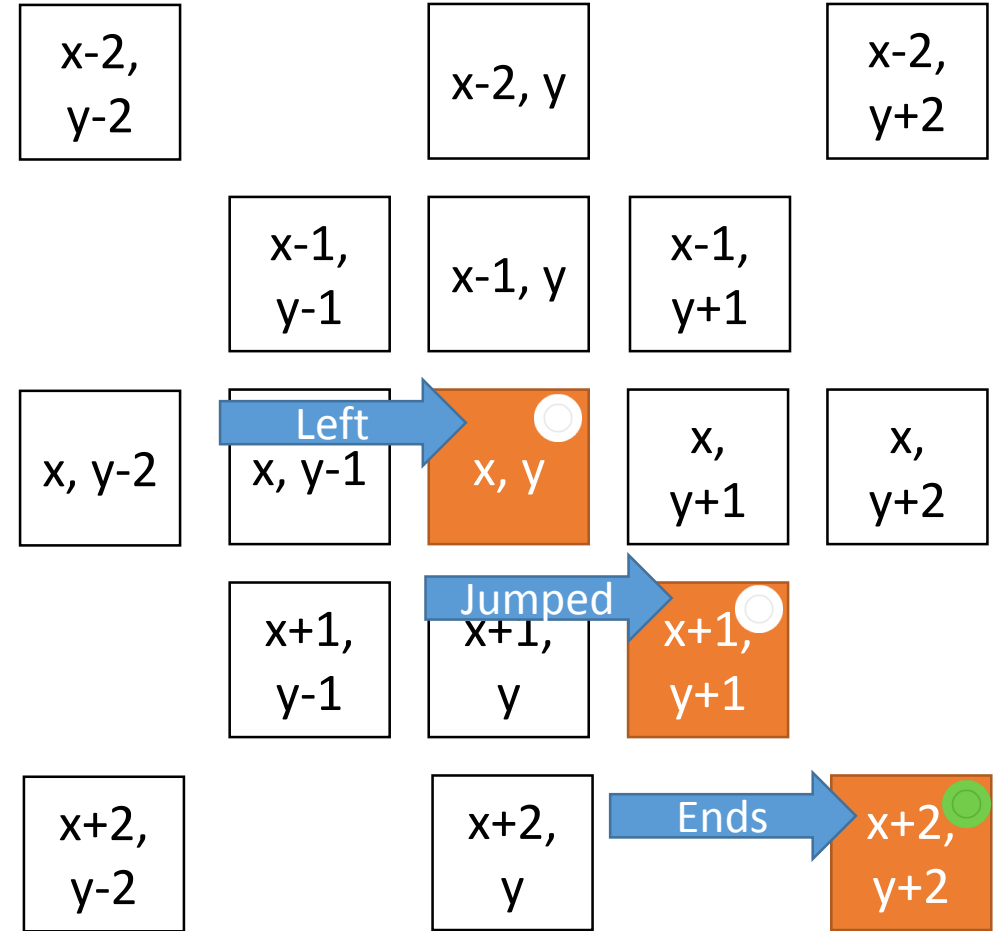


# Down, Right

Before



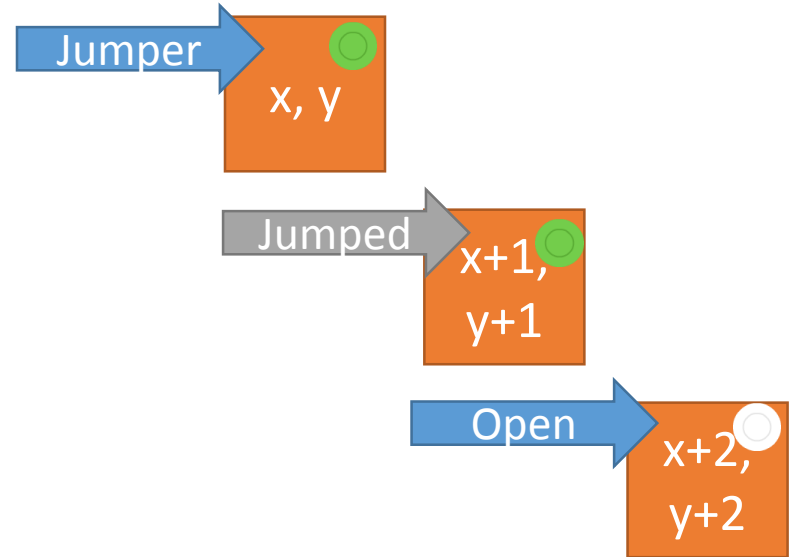
After



```

public boolean isValidDownRight(int pos, int last) {
    int endX = pos / col;
    int endY = pos % col;
    int x = last / col;
    int y = last % col;
    //end must be blank
    if (board[endX][endY] != 0)
        return false;
    //start must be peg
    else if (board[x][y] != 1)
        return false;
    //guard
    else if ((x + 2) >= row)
        return false;
    else if ((y + 2) >= col)
        return false;
    //middle must be peg
    else if (board[x + 1][y + 1] != 1)
        return false;
    //start and end form correct relationship
    else if ((x + 2) == endX && (y + 2) == endY)
        return true;
    //otherwise, it's all bad
    else
        return false;
}

```

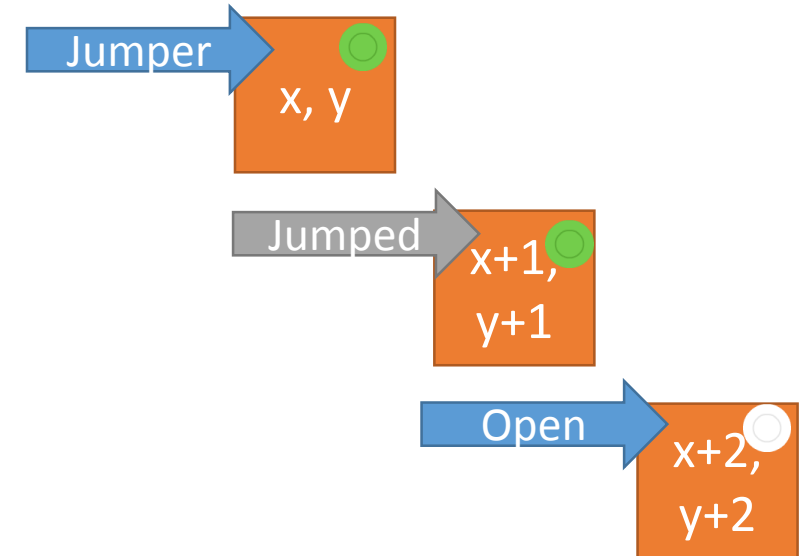


```

public void gridButtonClick(int pos) {
    if (last == -1) {
        //click #1
        last = pos;
    } else {
        //click #2
        int x = last / col;
        int y = last % col;
        int mid = -1;
        if (isValidUp(pos, last)) {
            board[x][y] = 0;
            board[x - 1][y] = 0;
            board[x - 2][y] = 1;
            mid = 1;
        } else if (isValidDownRight(pos, last)) {
            board[x][y] = 0;
            board[x + 1][y + 1] = 0;
            board[x + 2][y + 2] = 1;
            mid = 1;
        }

        if (mid == -1)
            Toast.makeText(getApplicationContext(), "Can't swap", Toast.LENGTH_SHORT).show();
        redraw();
        last = -1;
    }
}

```



Up, Left

Guard:  
 $x-2 < 0$   
 $y-2 < 0$

$x-2,$   
 $y-2$

Up

Guard:  
 $x-2 < 0$

$x-2, y$

$x-2,$   
 $y+2$

Up, Right

Guard:  
 $x-2 < 0$   
 $y+2 \geq \text{col}$

$x-1,$   
 $y-1$

$x-1, y$

$x-1,$   
 $y+1$

Left

Guard:  
 $y-2 < 0$

$x, y-2$

$x, y-1$

$x, y$

$x, y+1$

$x, y+2$

Right

Guard:  
 $y+2 \geq \text{col}$

$x+1,$   
 $y-1$

$x+1, y$

$x+1,$   
 $y+1$

Down, Left

Guard:  
 $x+2 \geq \text{row}$   
 $y-2 < 0$

$x+2,$   
 $y-2$

$x+2, y$

Down

Guard:  
 $x+2 \geq \text{row}$

$x+2,$   
 $y+2$

Down, Right

Guard:  
 $x+2 \geq \text{row}$   
 $y+2 \geq \text{col}$



