

Powerball TICKET (1,2,3,4,5,+6)

David

January 21, 2016

WHY POWERBALL TICKET (1,2,3,4,5,+6) HAS THE SAME ODDS AS A QUICKPICK

This is a simple powerball simulator representing many games played over a lifetime, where player 1 bought the same ticket (1,2,3,4,5,+6) and player 2 bought a quickpick. Assuming both players played powerball about once a week for 100 years ($52 \times 100 = 5200$). Meaning player 1 played the same ticket (1,2,3,4,5,+6) and player 2 played random numbers every game. (http://www.powerball.com/pb_home.asp).

Player 1

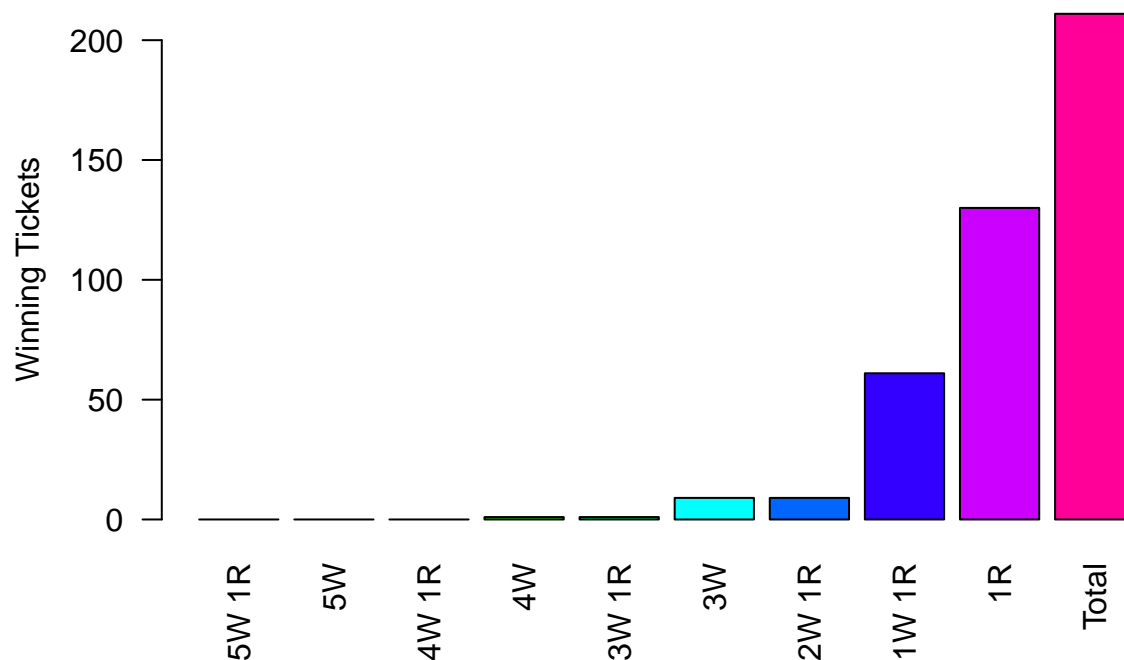
Grand Prize

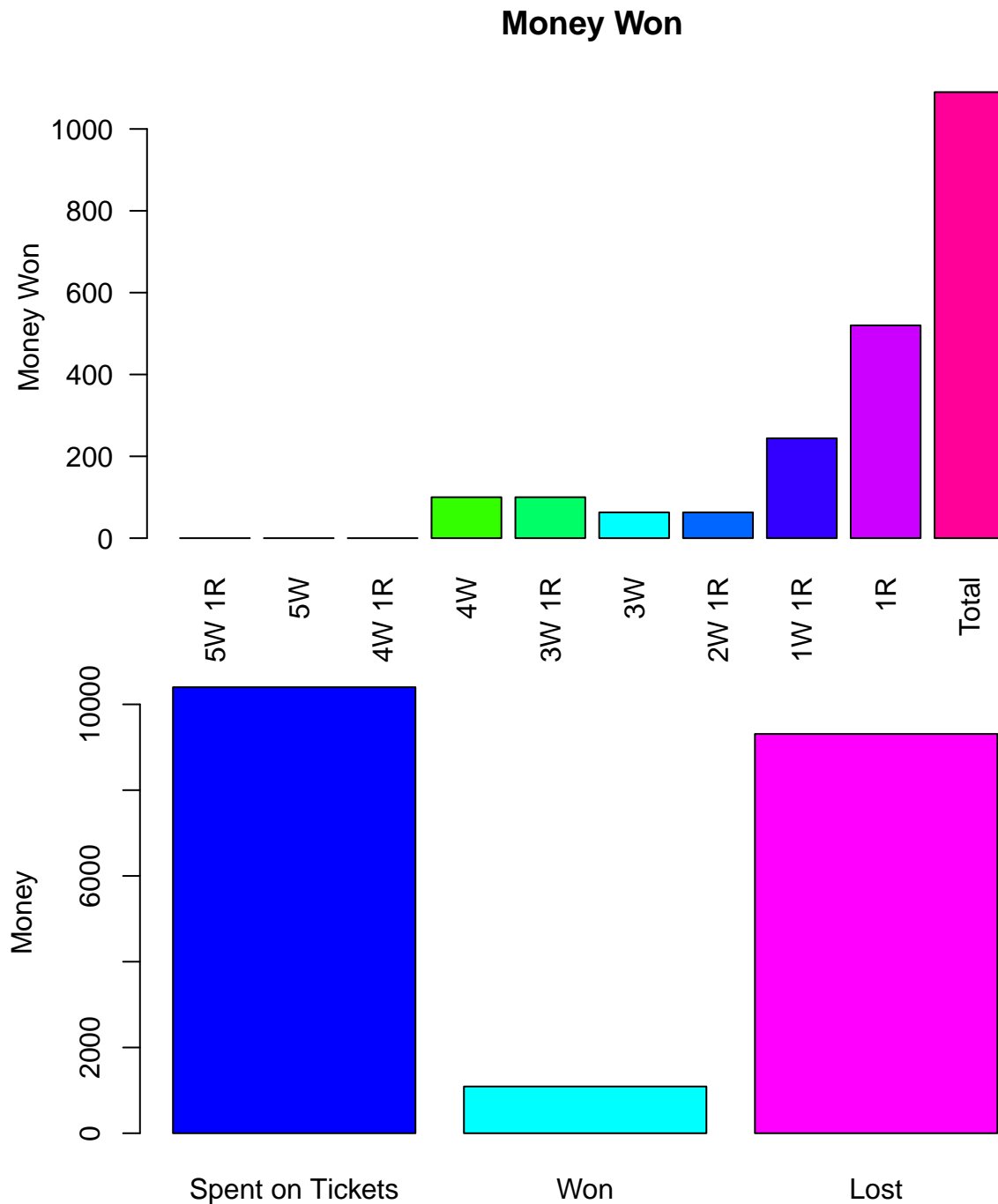
60000000

Games Played

5200

Winning Tickets





Best Ticket

```
## [1] "Your best ticket had 4 Whites Matched ($100)"
```

Player 1 Summary

```
## In your lifetime you spent $ 10400 and won $ 1090
## From the 5200 tickets you purchased 211 tickets were winners.
## You lost $ 9310 (if negative you won!!).
##
## You got 5 White + Powerball 0 time(s).
```

```
## You got 5 White           0 time(s).
## You got 4 White + Powerball 0 time(s).
## You got 4 White           1 time(s),
## You got 3 White + Powerball 1 time(s).
## You got 3 White           9 time(s),
## You got 2 White + Powerball 9 time(s).
## You got 1 White + Powerball 61 time(s).
## You got Powerball         130 time(s).
```

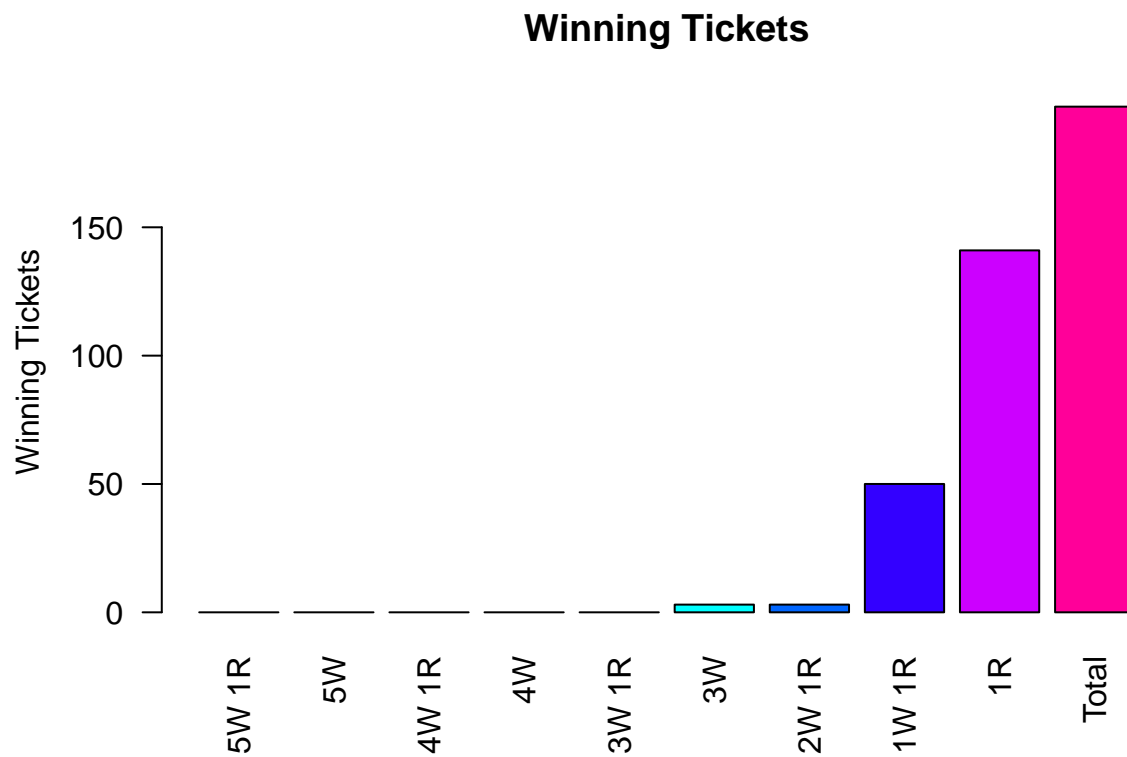
Player 2

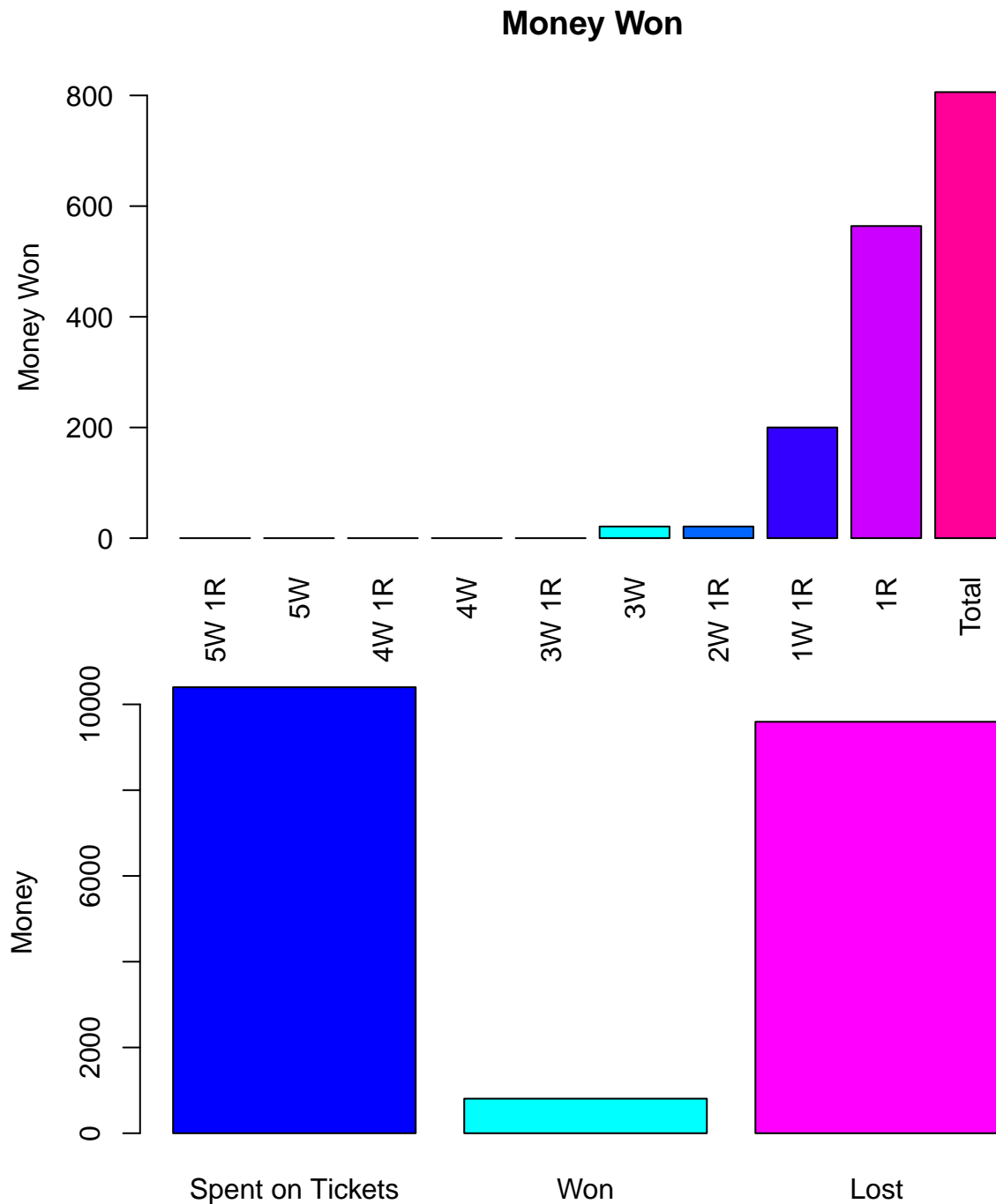
Grand Prize

60000000

Games Played

5200





Best Ticket

```
## [1] "Your best ticket had 2 Whites + Powerball Matched ($7)"
```

Player 2 Summary

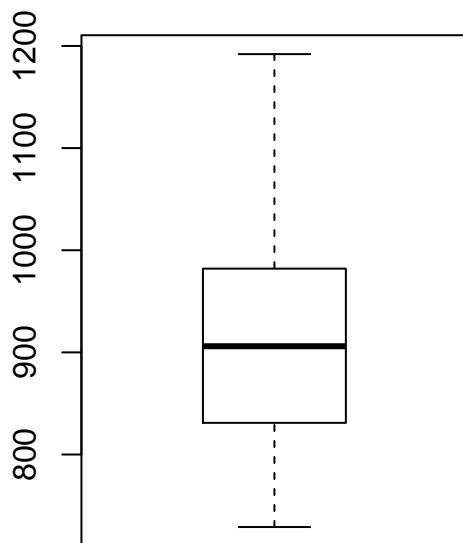
```
## In your lifetime you spent $ 10400 and won $ 806
## From the 5200 tickets you purchased 197 tickets were winners.
## You lost $ 9594 (if negative you won!!).
##
## You got 5 White + Powerball 0 time(s).
```

```
## You got 5 White 0 time(s).
## You got 4 White + Powerball 0 time(s).
## You got 4 White 0 time(s),
## You got 3 White + Powerball 0 time(s).
## You got 3 White 3 time(s),
## You got 2 White + Powerball 3 time(s).
## You got 1 White + Powerball 50 time(s).
## You got Powerball 141 time(s).
```

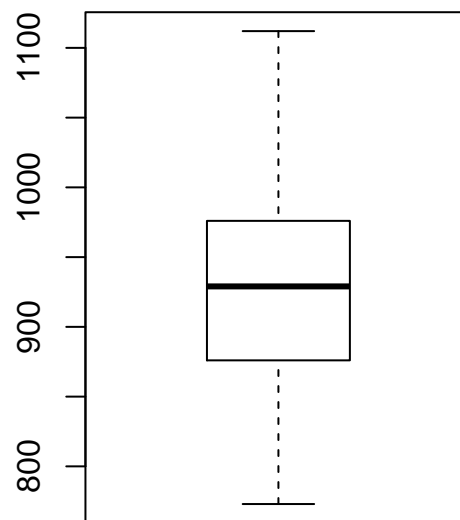
Boxplots Median Lifetime Winnings

The simulation was run 50 times for each player.

Boxplot Player 1



Boxplot Player 2



Summary for Player 1

```
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  729.0   831.2   906.0   910.9   981.5  1192.0
```

Summary for Player 2

```
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  773.0   876.0   929.0   922.7   974.0  1192.0
```

T-Test

```
##
## Welch Two Sample t-test
##
## data:  winnings1 and winnings2
## t = -0.62449, df = 94.177, p-value = 0.5338
```

```
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -49.48372  25.80372
## sample estimates:
## mean of x mean of y
##    910.86    922.70
```