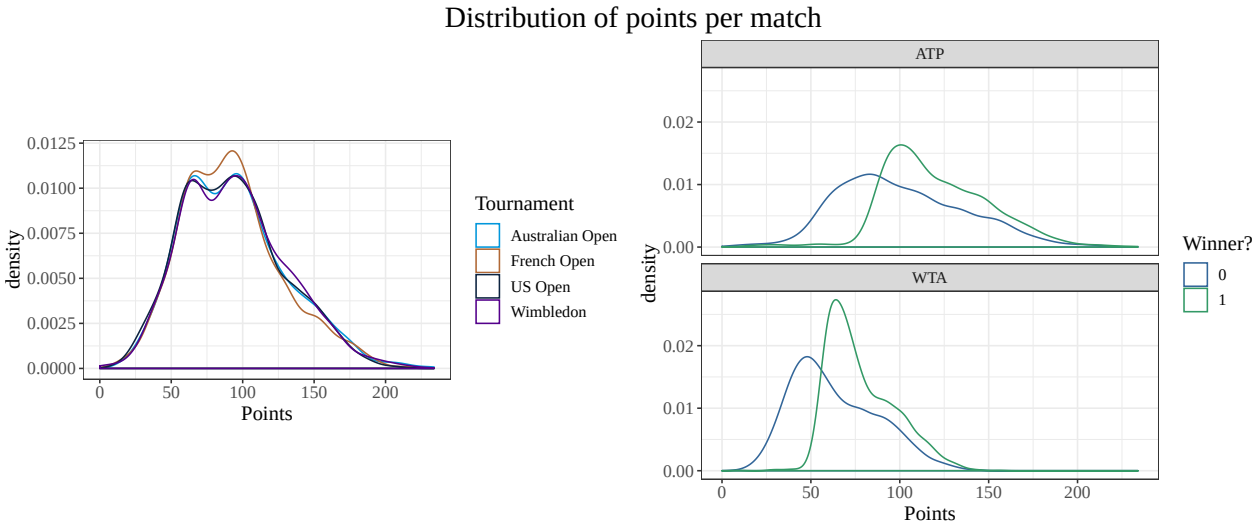
Graphics

We have no names

Examining the distribution of points earned

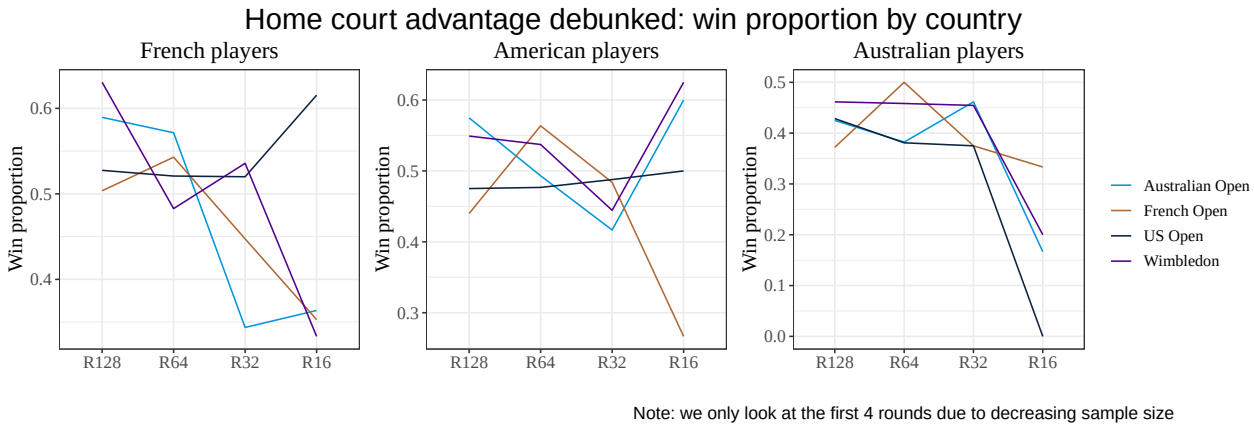
We first examine the distibution of points earned per match. We find that the distribution is similar across tournament, with Wimbledon differing slightly from the other grand slams. As expected, there are more points earned in the WTA than the ATP due to the differing numbers of games played. Also unsuprisingly, the winners of the match tended to earn more points than the losers.



Home court advantage

It is commonly thought that there is a home court advantage in grand slam games (SOURCE). In our data we find this to be true (i.e. French players win the French open more than French players win other slams). But, we also know that the home team is given preference for wild card bids (SOURCE) so potentially citizens of a particular country play in "their" tournament more often than they play in other tournaments. We also find this to be true in our data for France, The United States, and Australia (i.e. the proportion of French players in the French Open is greater than the proportion of French players in other slams).

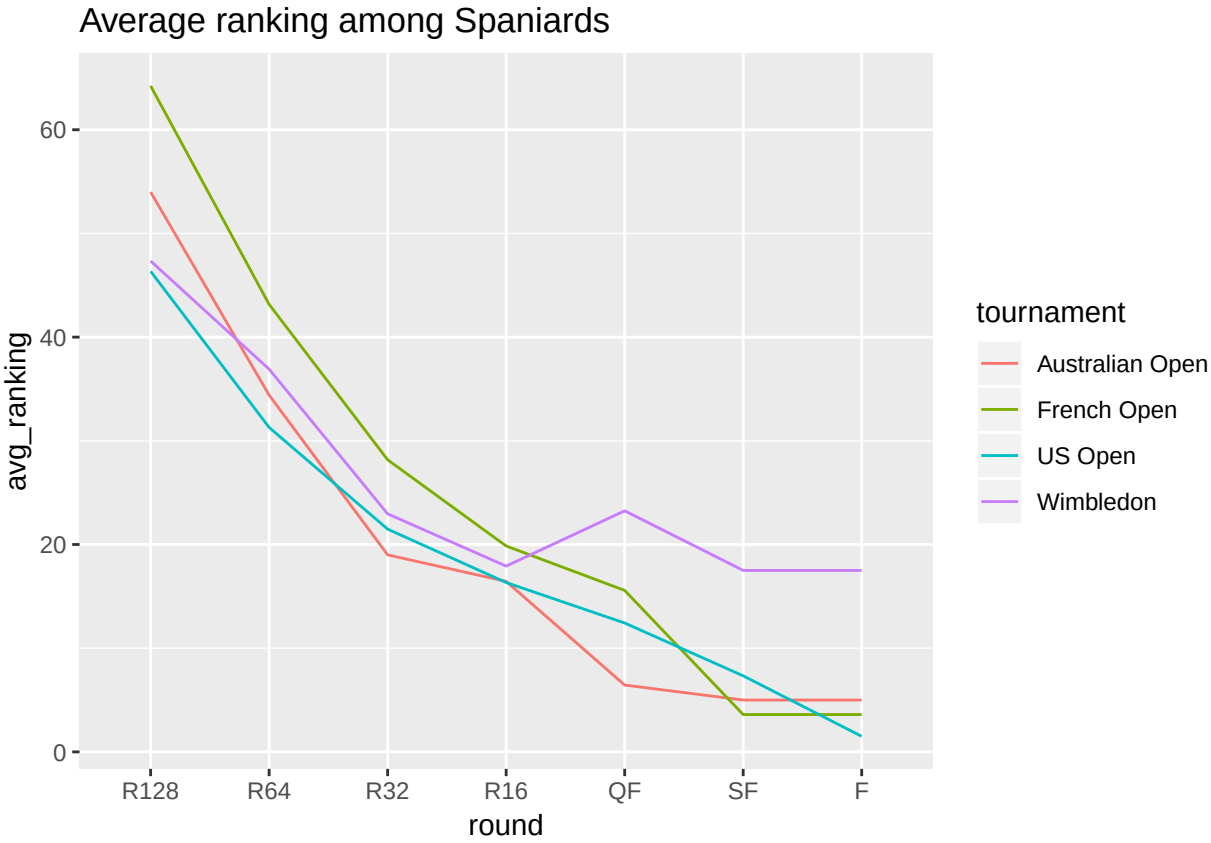
Therefore, we want to see how the proportion of wins for the home country changes across the different tournaments. If there was really a home court advantage, the proportion of French wins each round would be higher at the French Open than the Australian Open, the US Open, and Wimbledon. The same would be true for Australia and the US. But, we see that this isn't the case. After accounting for the number of players from each country, we don't find a home court advantage in the grand slam.



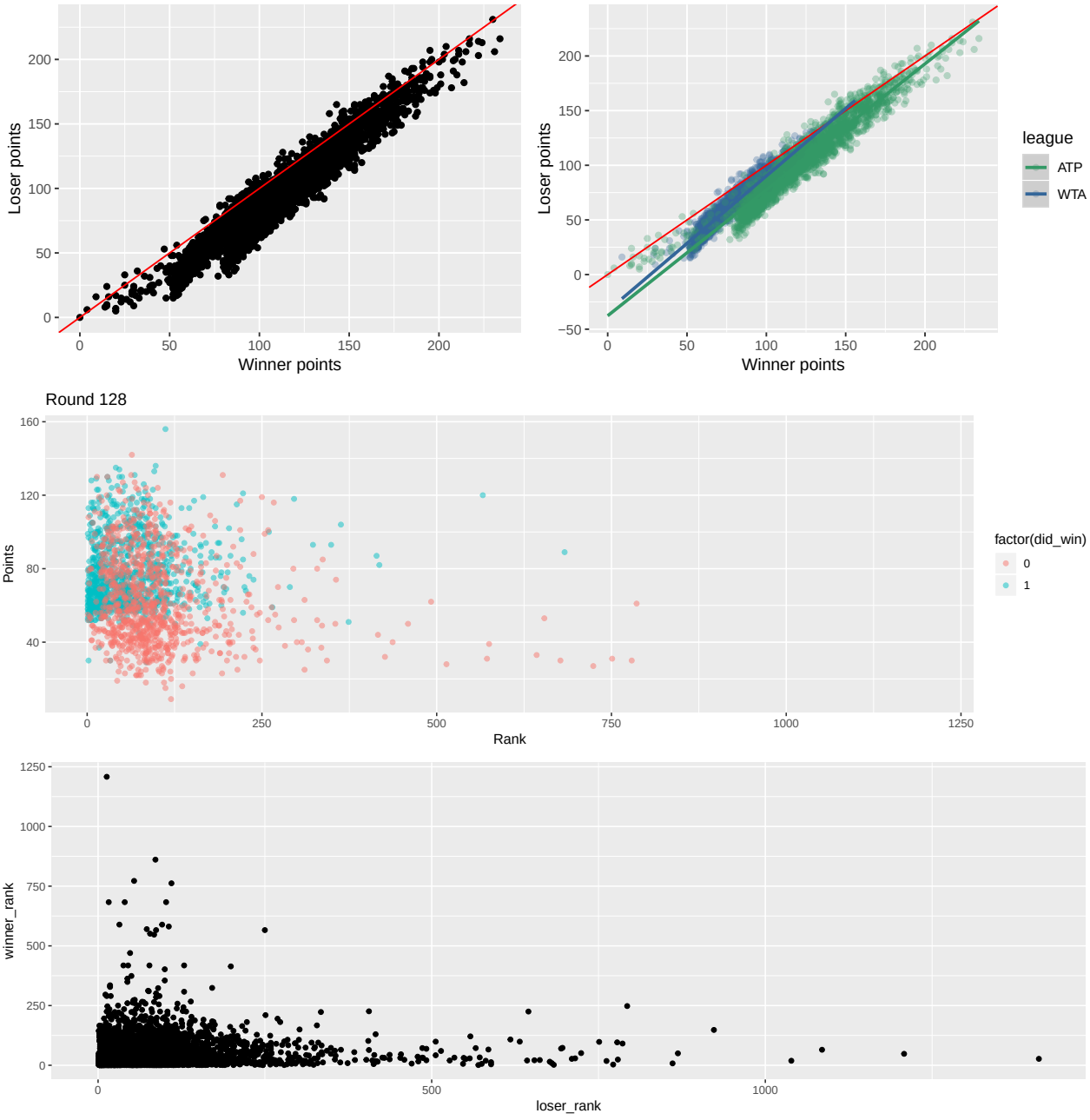
Note: we only look at the first 4 rounds due to decreasing sample size

Spaniards on clay

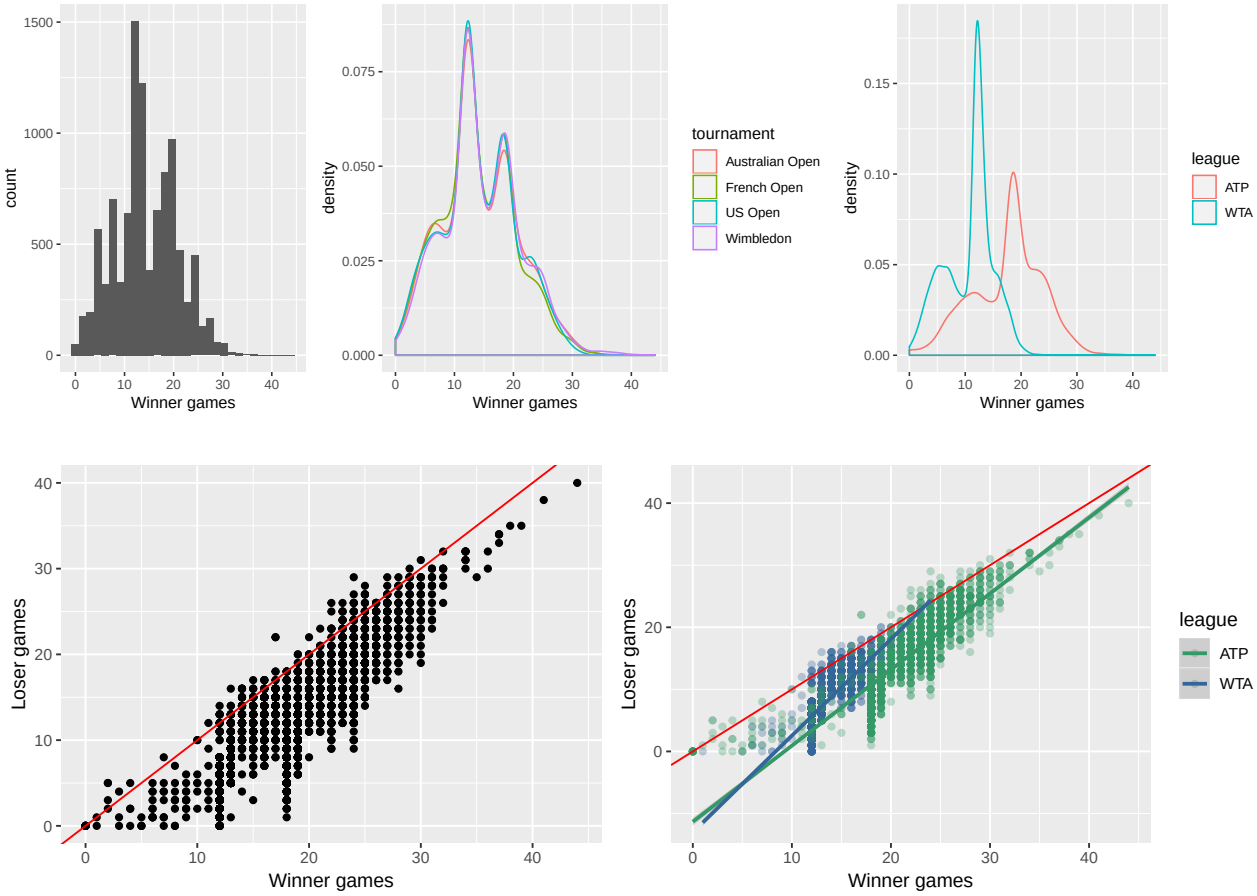
```
## # A tibble: 4 x 2
##   tournament      avg_ranking
##   <fct>                 <dbl>
## 1 Australian Open        54.0
## 2 French Open            64.2
## 3 US Open                46.4
## 4 Wimbledon              47.3
```



Points won


Loser points
Winner points
league
ATP
WTA
Round 128
Points
Rank
factor(did_win)
0
1
winner_rank
loser_rank

Games won


count
Winner games
density
Winner games
tournament
Australian Open
French Open
US Open
Wimbledon
density
Winner games
league
ATP
WTA
Loser games
Winner games
Loser games
Winner games
league
ATP
WTA

Spain vs. tournament

Is being a winner from Spain independent of tournament?

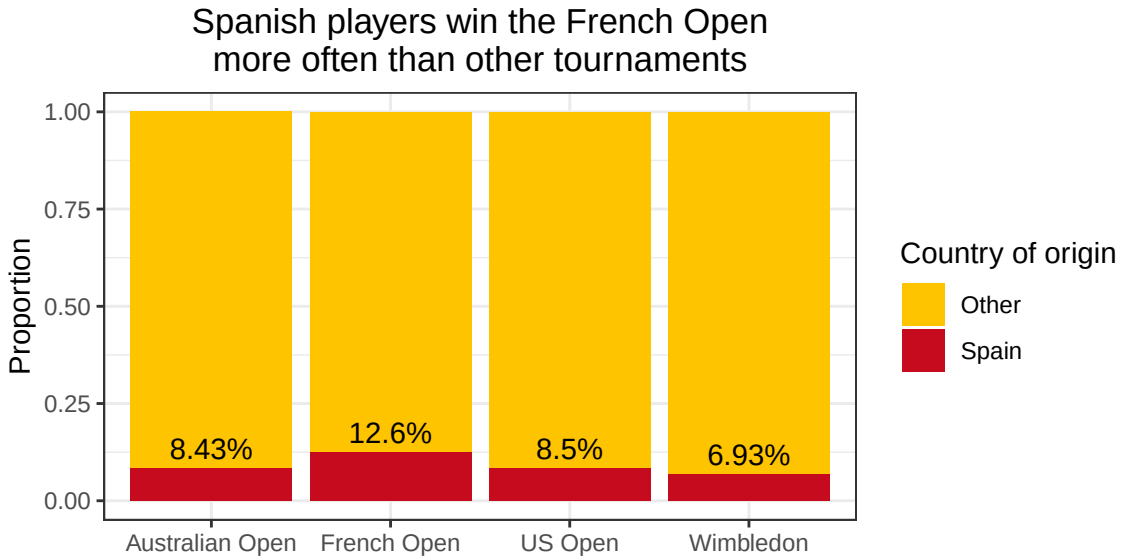


Table 1: Actual table

	Other	Spain
Australian Open	1163	107
French Open	1110	160
US Open	1162	108
Wimbledon	1182	88

Table 2: Expected table

	Other	Spain
Australian Open	1154.25	115.75
French Open	1154.25	115.75
US Open	1154.25	115.75
Wimbledon	1154.25	115.75

Table 3: Pearson's Chi-squared test: `spain_vs_tourn`

Test statistic	df	P value
27.23	3	5.265e-06 * * *

But do Spaniards enter the French open more than they do other tournaments?

We look at players in the *first round* of all tournaments.

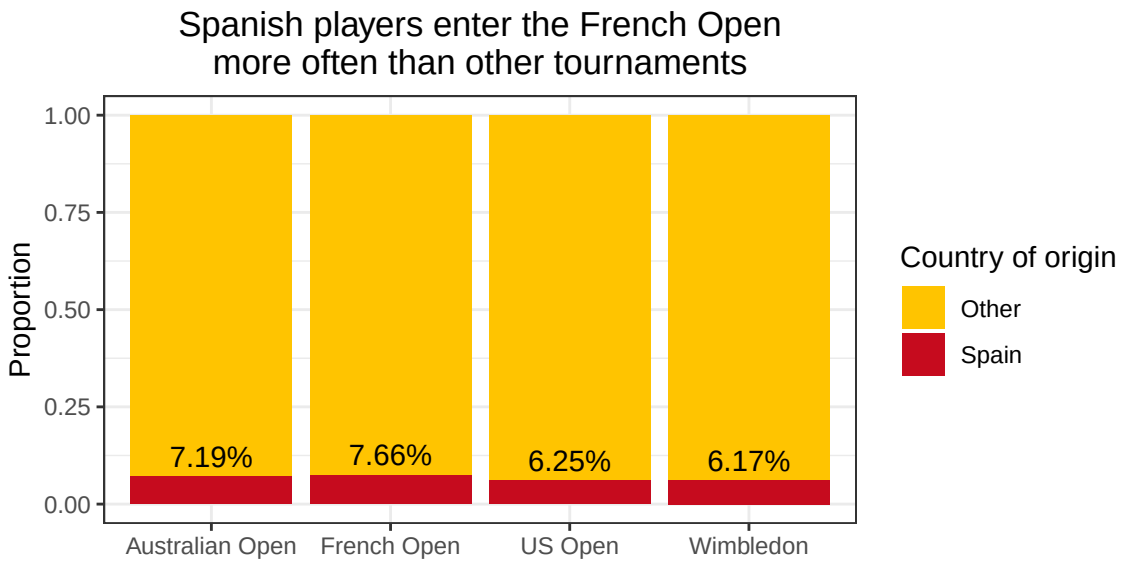
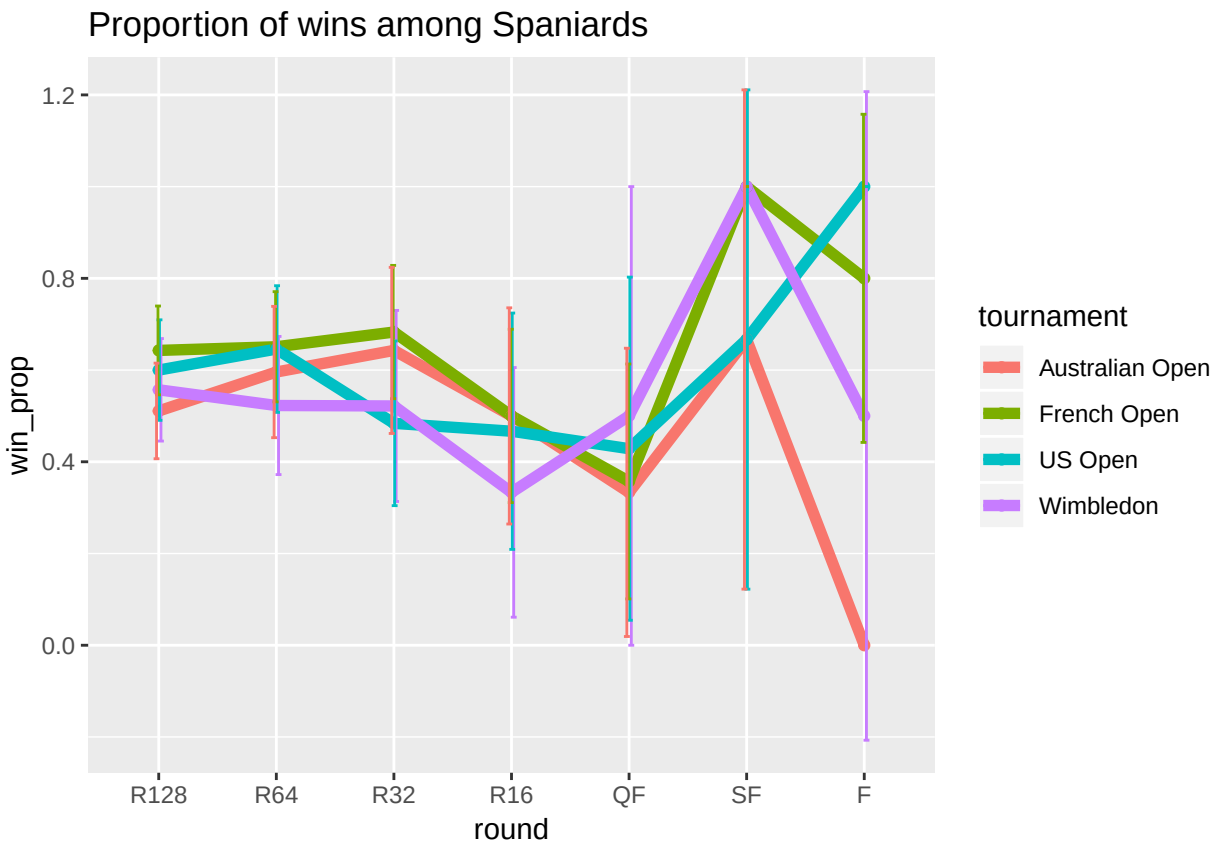


Table 4: Pearson's Chi-squared test: .

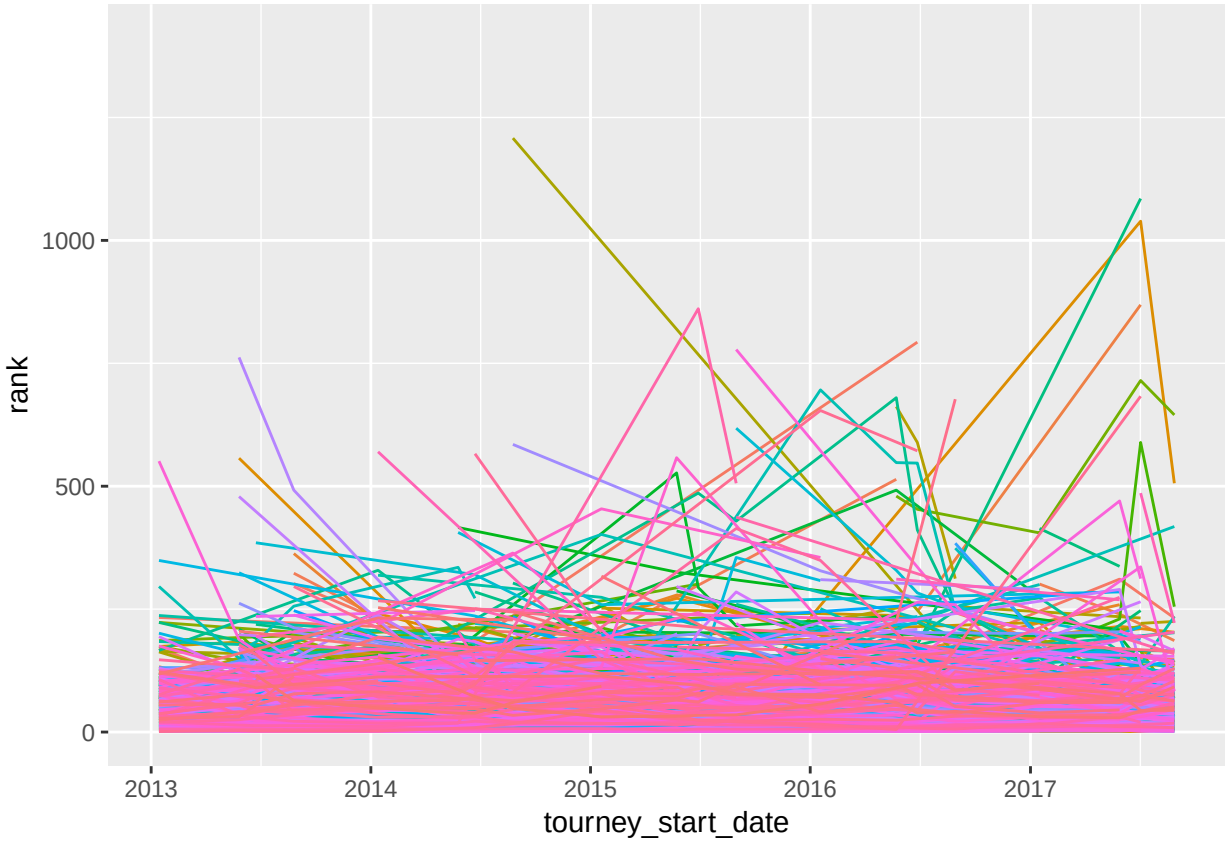
Test statistic	df	P value
3.183	3	0.3643

Yes, but not significantly more.

Spain proportion of wins across the tournaments



Player rankings over time



Home court advantage

France

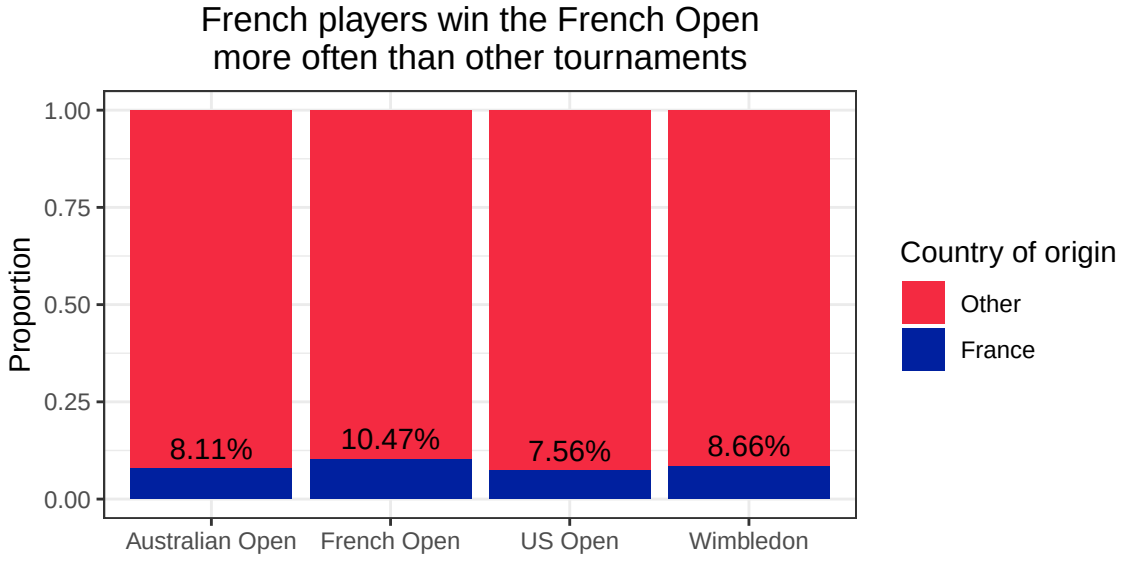


Table 5: Actual table

	France	Other
Australian Open	103	1167
French Open	133	1137
US Open	96	1174
Wimbledon	110	1160

Table 6: Expected table

	France	Other
Australian Open	110.5	1159.5
French Open	110.5	1159.5
US Open	110.5	1159.5
Wimbledon	110.5	1159.5

Table 7: Pearson's Chi-squared test: `france_vs_tourn`

Test statistic	df	P value
7.662	3	0.05354

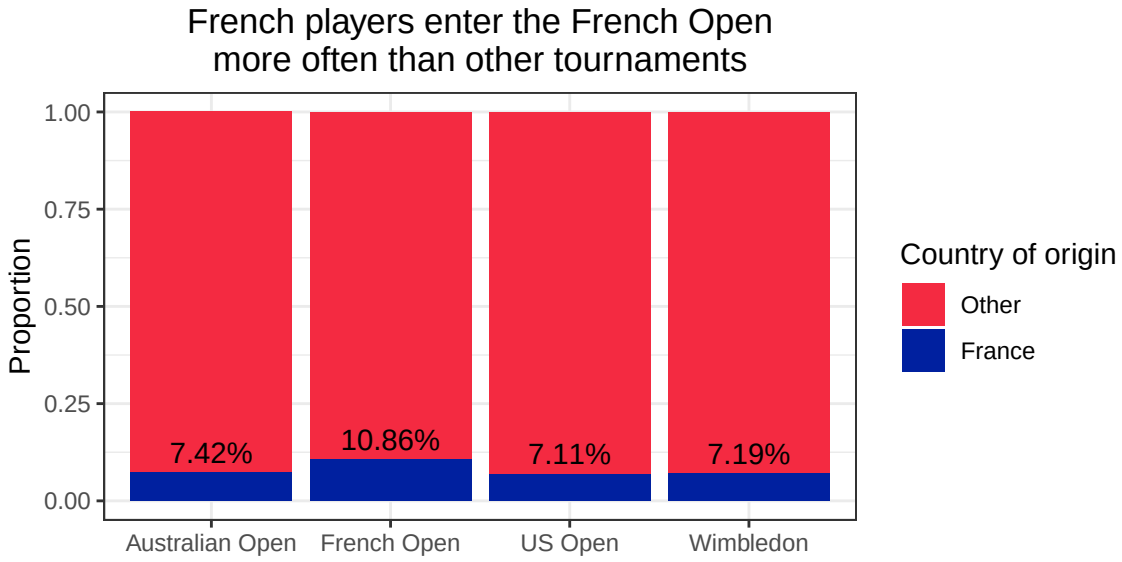


Table 8: Pearson's Chi-squared test: .

Test statistic	df	P value
16.9	3	0.0007395 * * *

Yes, significantly.

United States

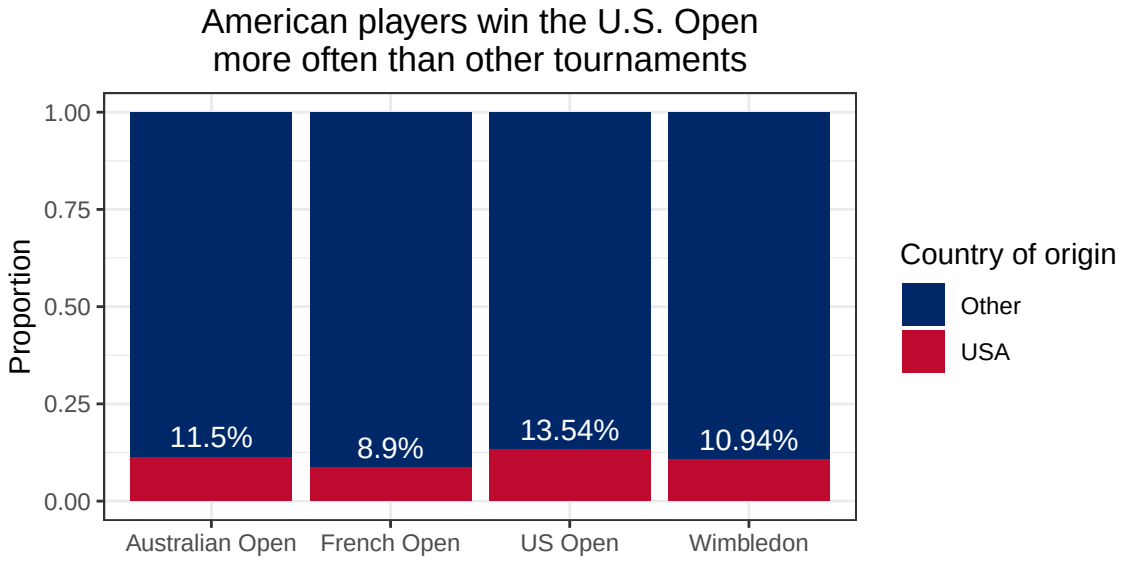


Table 9: Pearson's Chi-squared test: `usa_vs_tourn`

Test statistic	df	P value
13.95	3	0.002972 * *

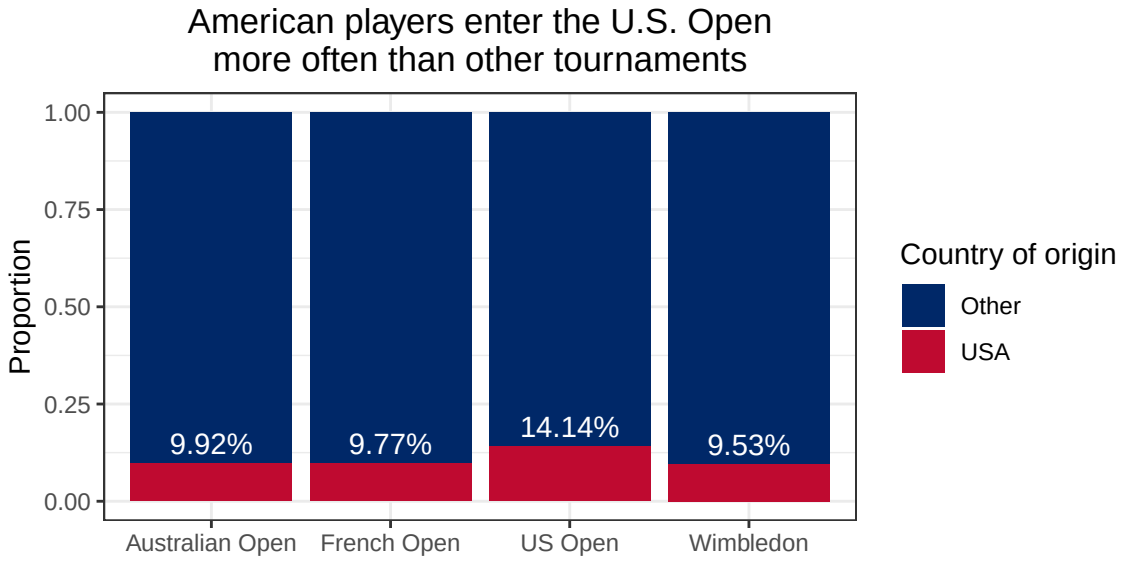


Table 10: Pearson's Chi-squared test: .

Test statistic	df	P value
19.34	3	0.0002323 * * *

Australia

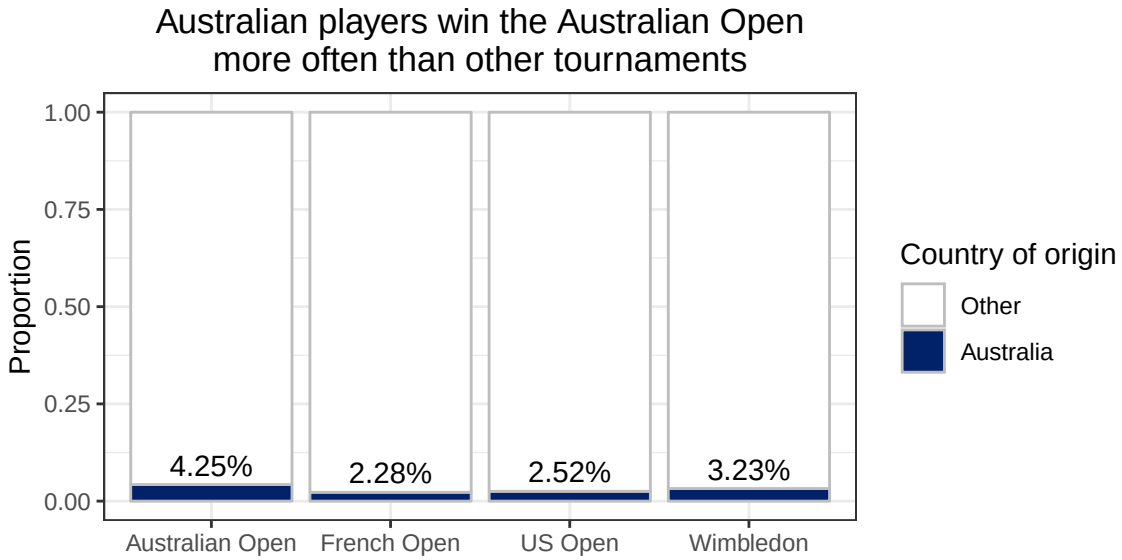


Table 11: Actual table

	Australia	Other
Australian Open	54	1216
French Open	29	1241
US Open	32	1238
Wimbledon	41	1229

Table 12: Expected table

	Australia	Other
Australian Open	39	1231
French Open	39	1231
US Open	39	1231
Wimbledon	39	1231

Table 13: Pearson's Chi-squared test: `Australia_vs_tourn`

Test statistic	df	P value
9.999	3	0.01857 *

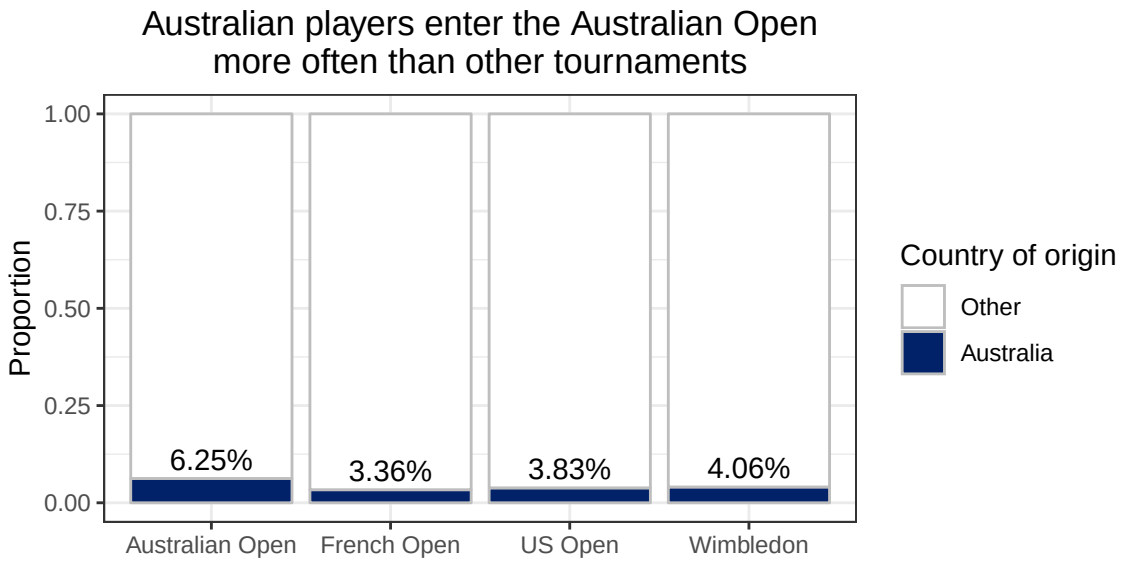


Table 14: Pearson's Chi-squared test: .

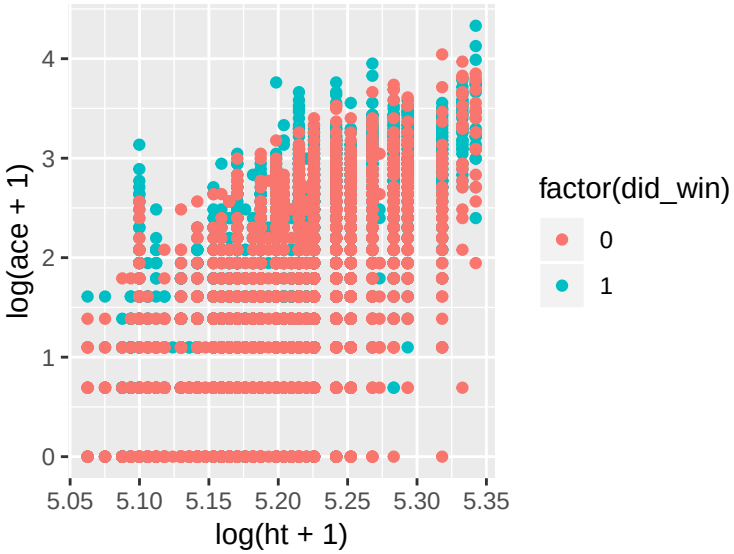
Test statistic	df	P value
15.13	3	0.001712 * *

Conclusions

- Spaniards win the French Open more often than they win other tournaments, and this difference is significant. They play in the French Open more often than they play in other tournaments, but not significantly.
- French win the French Open more often than they win other tournaments, but this difference is (barely) insignificant. They play in the French Open more often than they play in other tournaments, at a significantly higher rate.
- Americans win the US Open more often than they win other tournaments, and this difference is significant. But, they play in the US Open more often than they play in other tournaments, at a significantly higher rate.
- Australians win the US Open more often than they win other tournaments, and this difference is significant. But, they play in the Australian Open more often than they play in other tournaments, at a significantly higher rate.

Pairs

Follow-up



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