

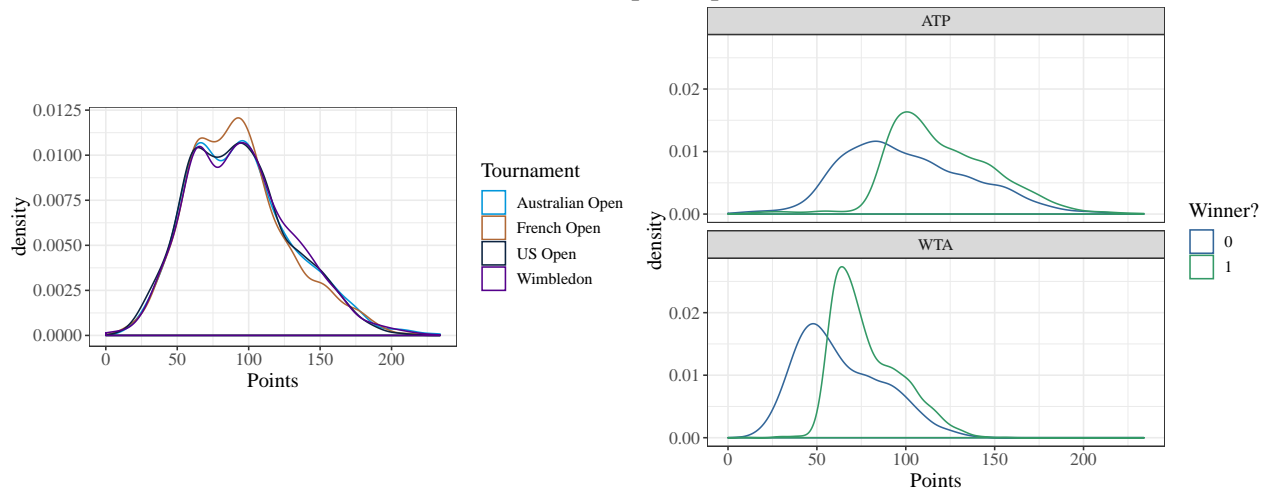
Graphics

We have no names

Examining the distribution of points earned

We first examine the distribution 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 unsurprisingly, the winners of the match tended to earn more points than the losers.

Distribution of points per match

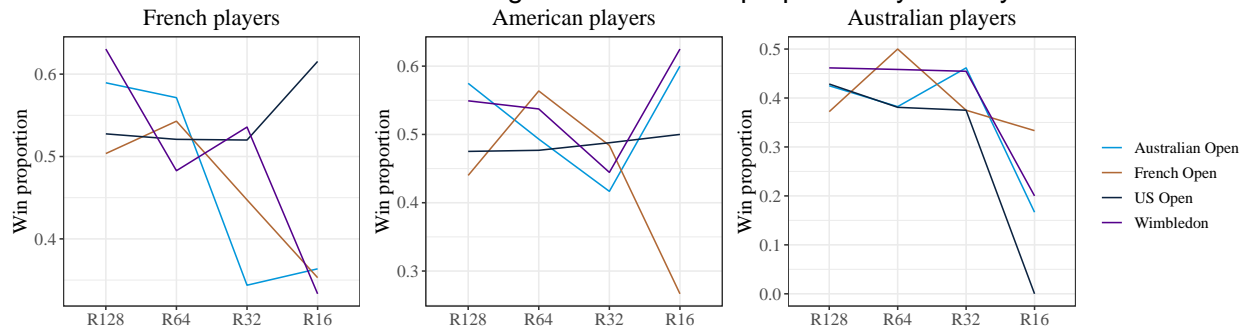


Home court advantage

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.

Home court advantage debunked: win proportion by country

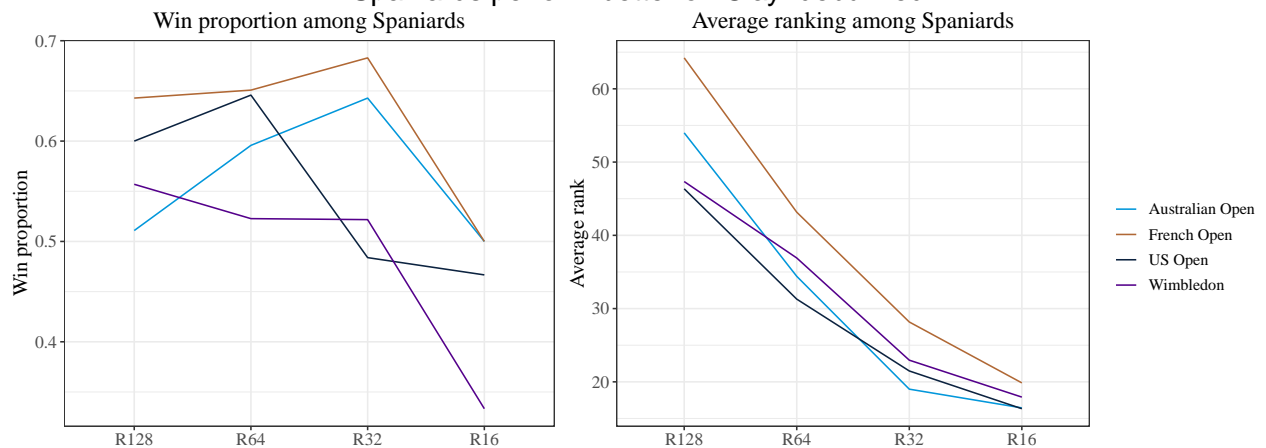


Note: we only look at the first 4 rounds due to decreases

Spaniards on clay

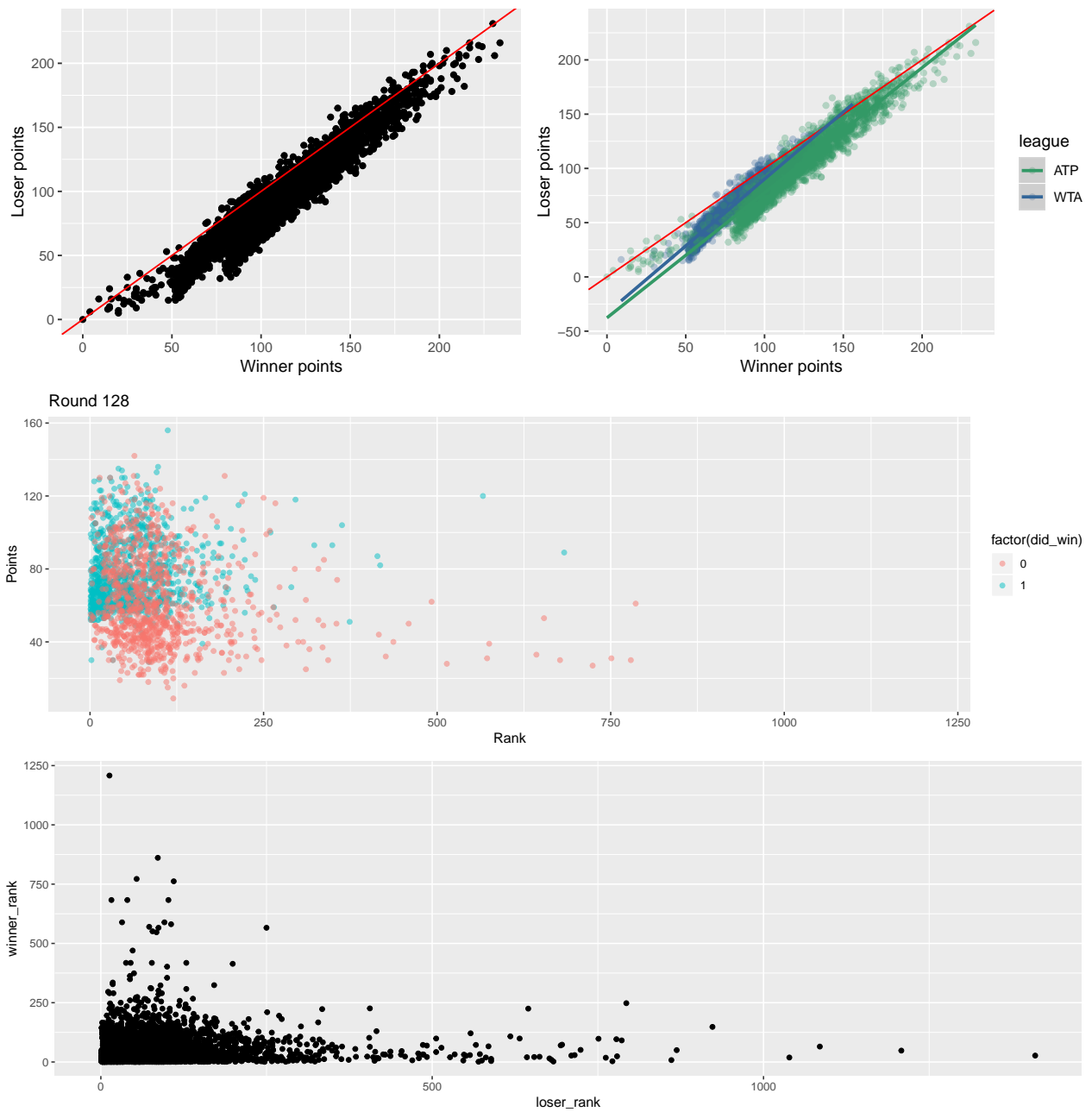
It is also commonly thought that Spaniards play better on clay. We are interested in whether Spaniards win the French Open more than they win in other tournaments. It does appear that Spaniards are winning the French Open more than they are winning other tournaments. But, this result is not significant. In addition, the ranking of Spaniards in the French Open is, on average, higher than other tournaments, which may help explain this common misconception, although this result is not significant either.

Spaniards perform better on Clay: debunked

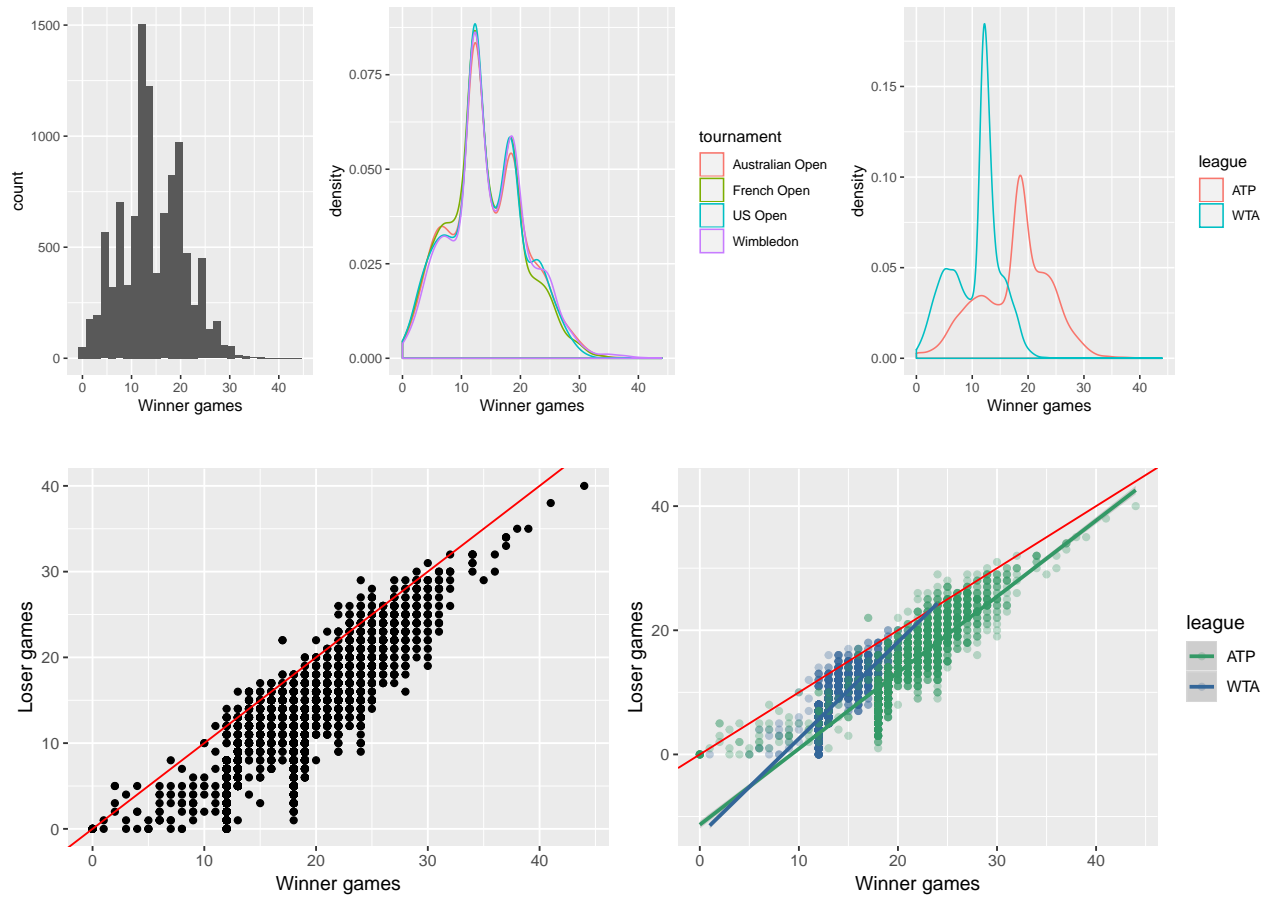


Note: we only look at the first 4 rounds due to decreasing sample size

Points won



Games won



Spain vs. tournament

Is being a winner from Spain independent of tournament?

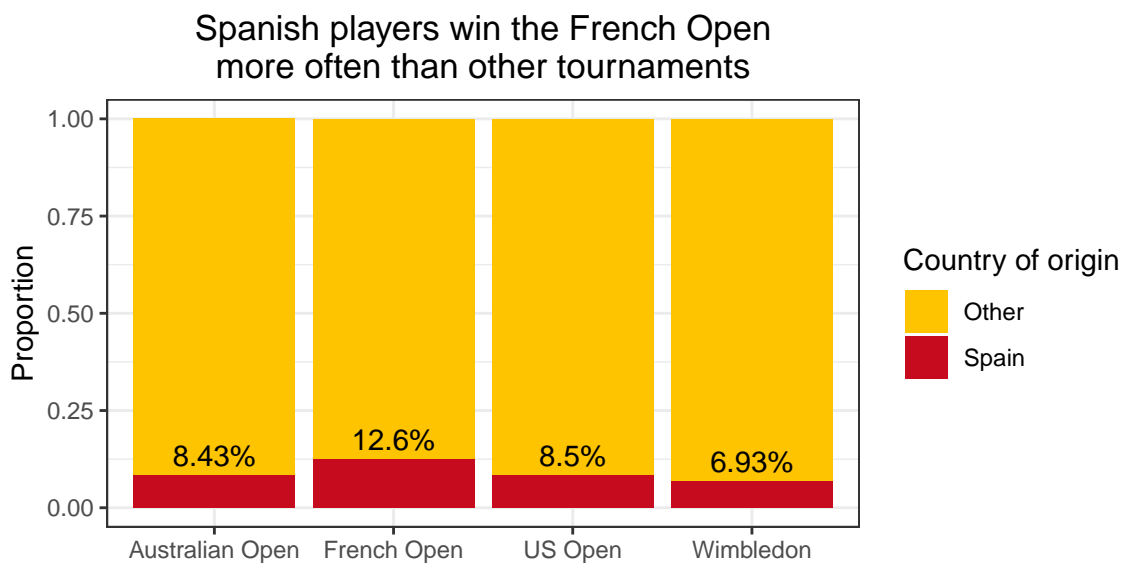


Table 1: Actual table

	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.

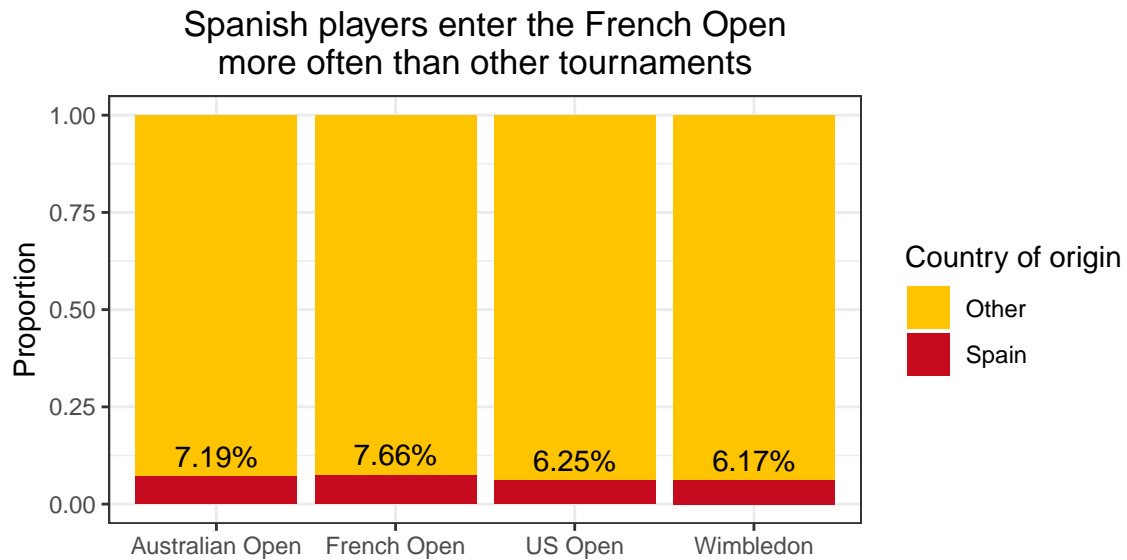
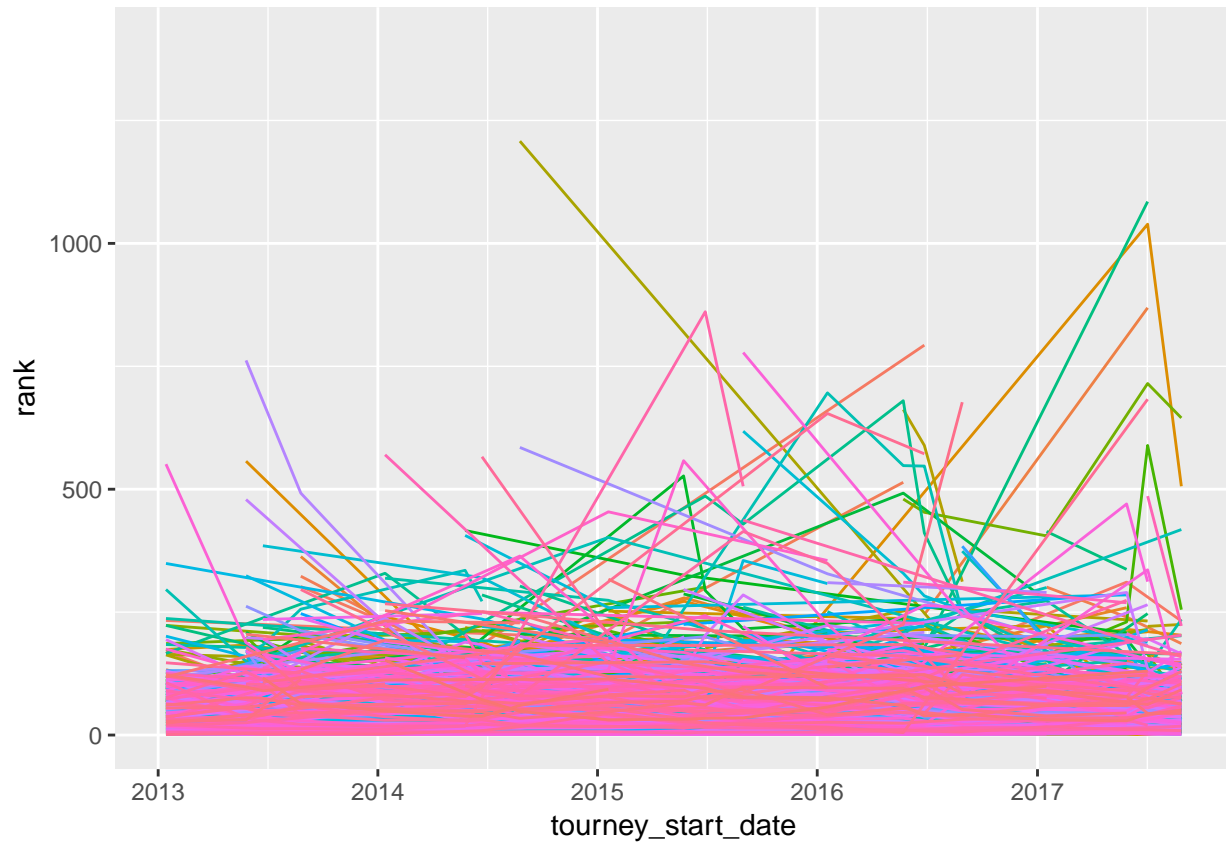


Table 4: Pearson's Chi-squared test: .

Test statistic	df	P value
3.183	3	0.3643

Yes, but not significantly more.

Player rankings over time



Home court advantage

France

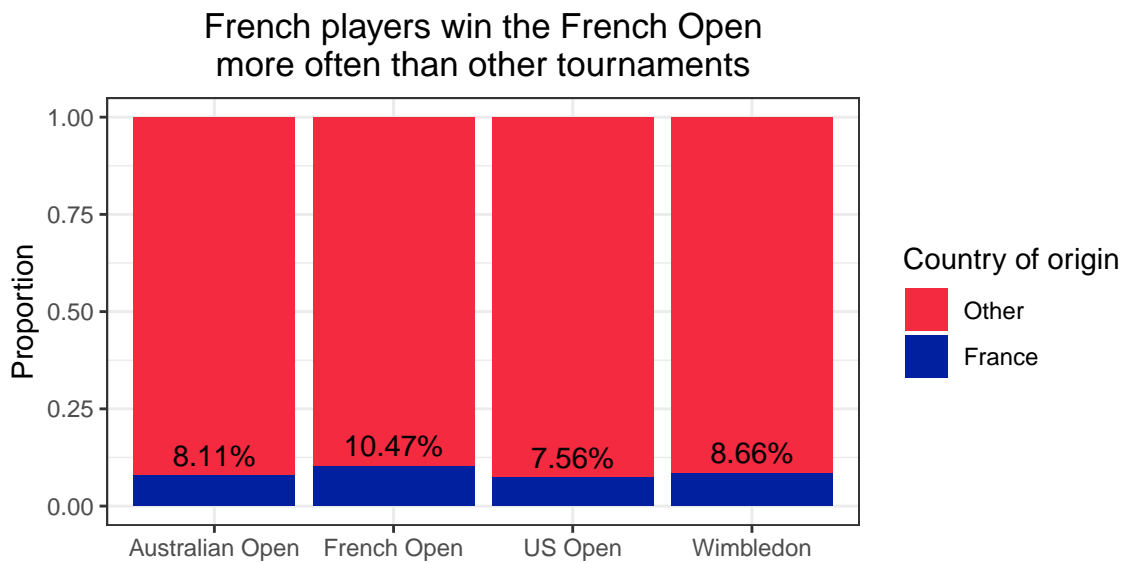


Table 5: Actual table		
	France	Other
Australian Open	103	1167
French Open	133	1137
US Open	96	1174
Wimbledon	110	1160

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

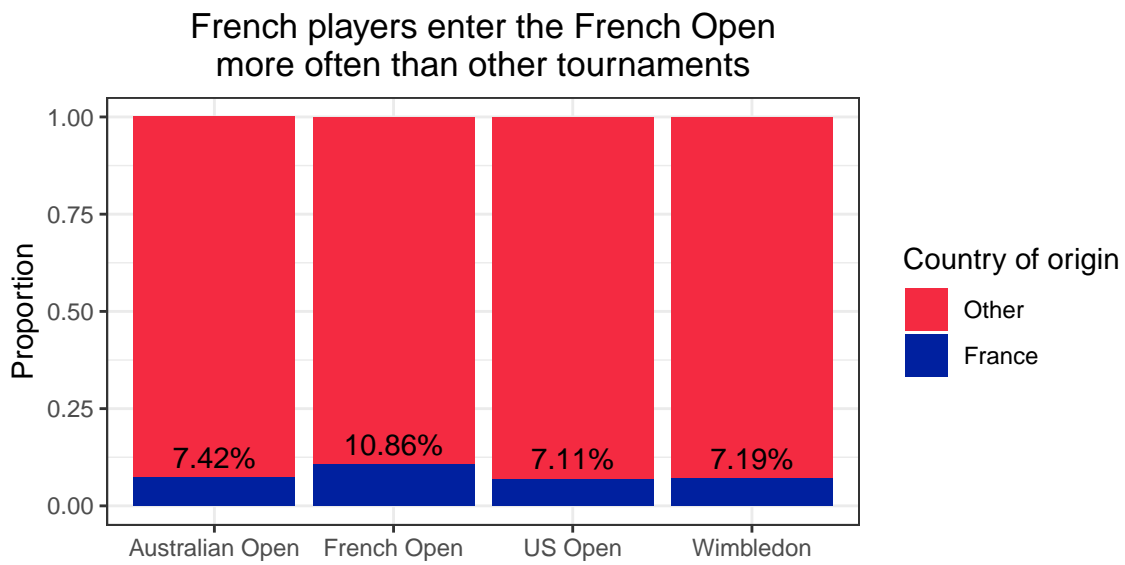


Table 8: Pearson's Chi-squared test: .

Test statistic	df	P value
16.9	3	0.0007395 * * *

Yes, significantly.

United States

American players win the U.S. Open more often than other tournaments

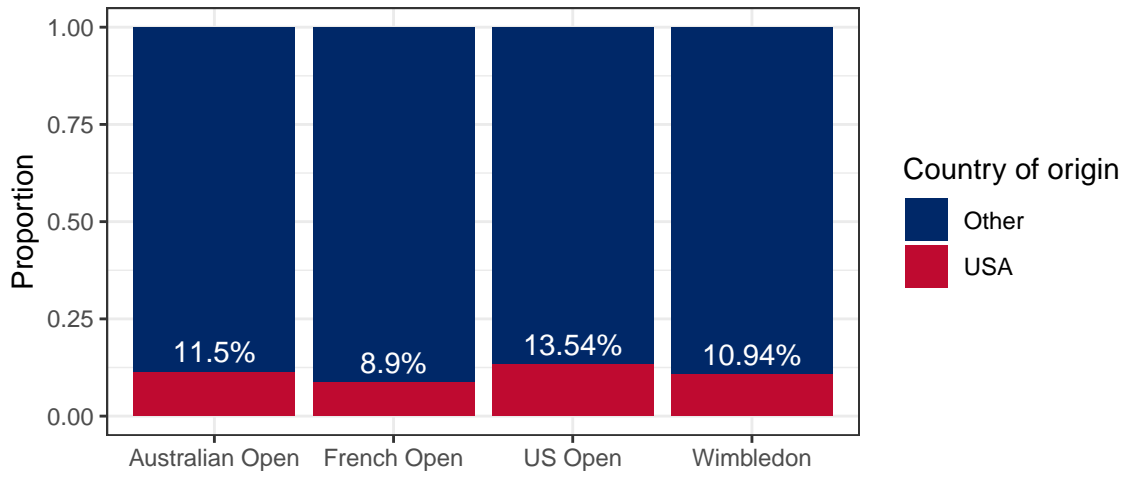


Table 9: Pearson's Chi-squared test: `usa_vs_tourn`

Test statistic	df	P value
13.95	3	0.002972 * *

American players enter the U.S. Open more often than other tournaments

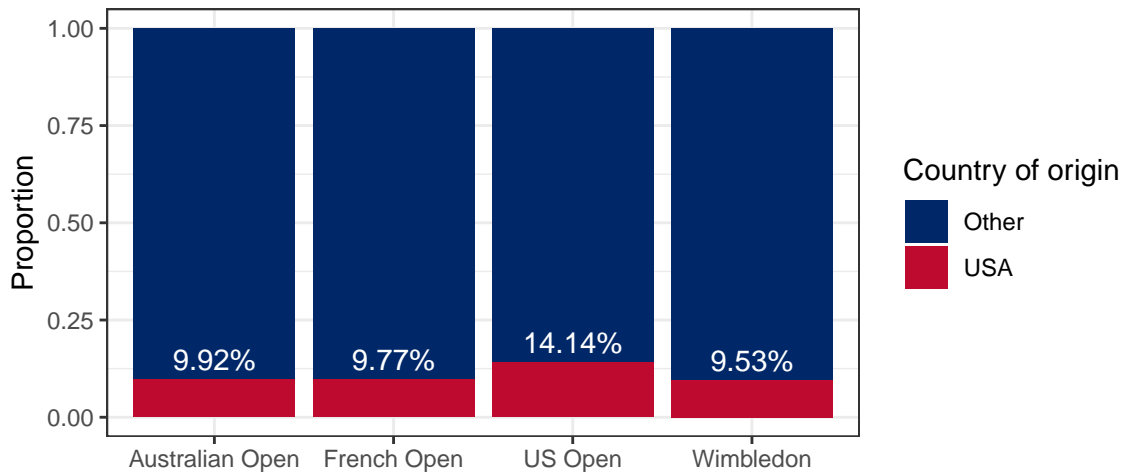


Table 10: Pearson's Chi-squared test: .

Test statistic	df	P value
19.34	3	0.0002323 * * *

Australia

Australian players win the Australian Open more often than other tournaments

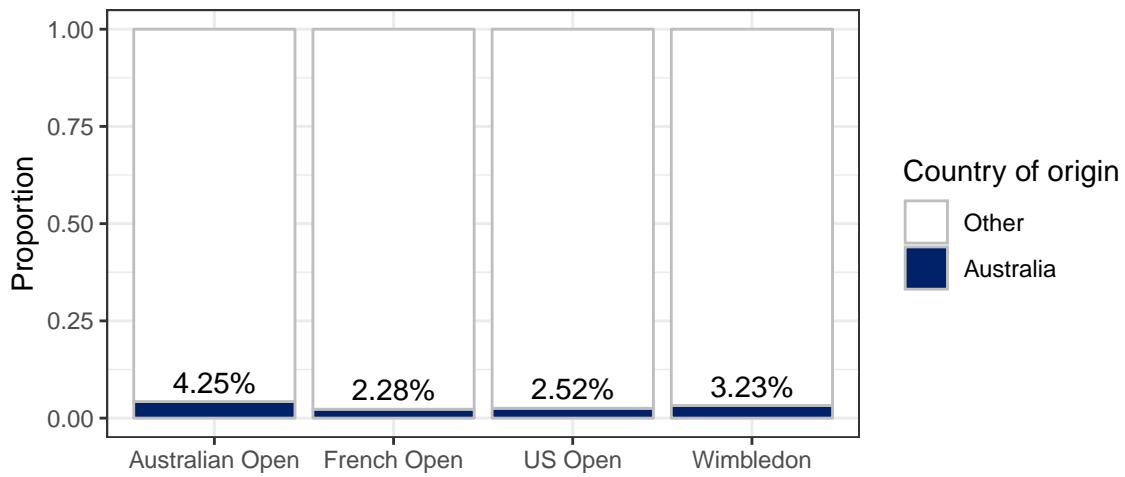


Table 11: Actual table

	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 *

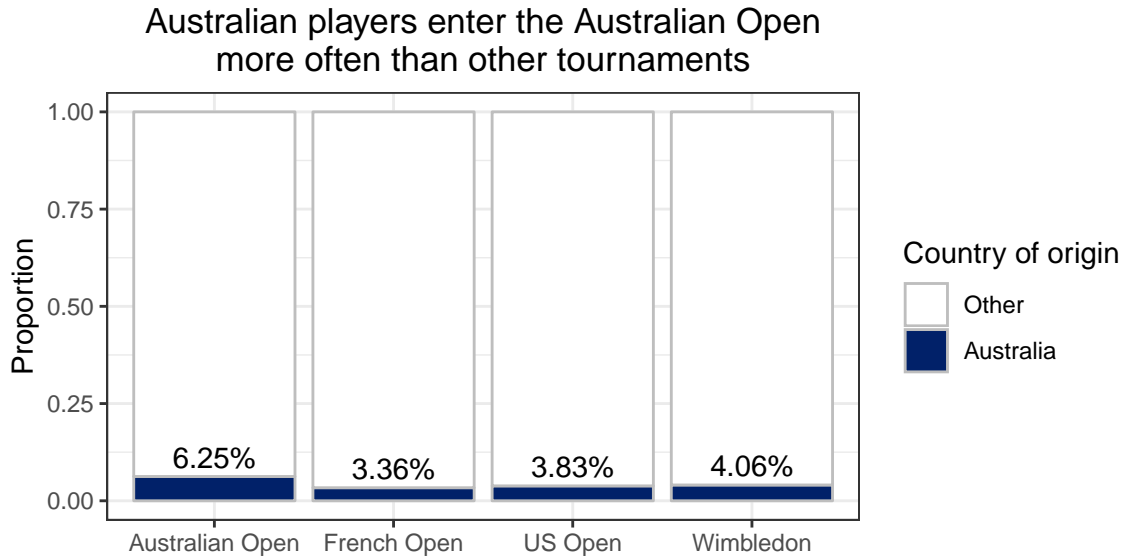


Table 14: Pearson's Chi-squared test: .

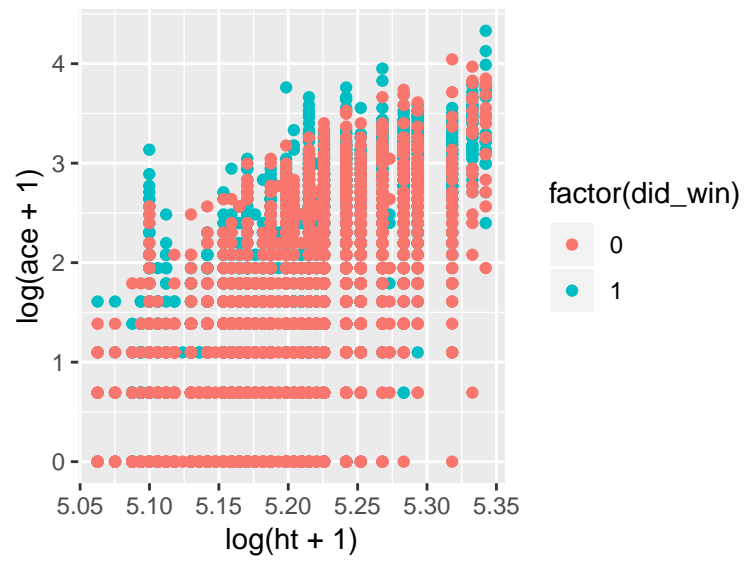
Test statistic	df	P value
15.13	3	0.001712 * *

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



MDS

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