

Proximity Patterns code

August 10, 2020

```
[1]: import pandas as pd
import numpy as np
import plotly.express as px
import plotly.graph_objects as go
```

```
[2]: df = pd.read_csv("proximities.csv")
df.drop("Unnamed: 0", inplace=True, axis=1)
```

```
[3]: df.head()
```

```
[3]:
```

		__video_title	side	team	opposition \
0	100	Thieves vs Cloud9 Full - LCS Summer 2020 W...	blue	100t	c9
1	100	Thieves vs Cloud9 Full - LCS Summer 2020 W...	blue	100t	c9
2	100	Thieves vs Cloud9 Full - LCS Summer 2020 W...	blue	100t	c9
3	100	Thieves vs Cloud9 Full - LCS Summer 2020 W...	blue	100t	c9
4	100	Thieves vs Cloud9 Full - LCS Summer 2020 W...	blue	100t	c9

	game_won	player_role	teammate_role	player_champion	teammate_champion \
0	100t	support	top	karma	camille
1	100t	support	jgl	karma	olaf
2	100t	support	mid	karma	galio
3	100t	support	adc	karma	ashe
4	100t	jungle	top	olaf	camille

	proximity
0	4.166667
1	35.700758
2	25.189394
3	82.386364
4	30.871212

```
[4]: teams = df['game_won'].drop_duplicates().tolist()
```

```
[5]: scores = {}

for team in teams:
    df_team = df[df['game_won'] == team].shape[0]/16
```

```

total = df[df['team']==team].shape[0]/8
scores[team.upper()]= df_team/total
scores

```

```

[5]: {'100T': 0.4666666666666667,
      'C9': 0.6875,
      'GGS': 0.6,
      'TL': 0.8666666666666667,
      'DIG': 0.25,
      'CLG': 0.3333333333333333,
      'IMT': 0.2,
      'TSM': 0.6428571428571429,
      'EG': 0.35714285714285715,
      'FLY': 0.6}

```

```

[6]: df2 = pd.DataFrame(index = range(10))

```

```

[7]: proximities = [0]*10

for i,team in enumerate(teams):
    df_dig = df[df['team']==team.lower()]
    df_dig_sup = df_dig[df_dig['player_role']=="jungle"]
    df_dig_sup_jgl = df_dig_sup[df_dig_sup['teammate_role']=="mid"]
    proximities[i] = df_dig_sup_jgl['proximity'].mean()

```

```

[8]: df2['team'] = scores.keys()
df2['wins'] = scores.values()
df2['prox'] = proximities

```

```

[9]: fig = px.scatter(
    df2,
    x = 'wins',
    y= 'prox',
    text = "team",
    trendline="ols")

fig.update_traces(textposition='bottom center')

fig.update_layout(showlegend=False)
fig.update_layout(title="Jungle + Midlaner Proximity vs Win percentage")
fig.update_layout(xaxis_title="Win percentage")
fig.update_layout(yaxis_title="Jungle-Midlane Proximity")
fig.update_layout(annotations = [dict(x=0.27, y=73, text="NA LCS Summer 2020",
↪font = dict(size=18),showarrow=False)])
fig.show()

```

```

[10]: df_sup = df[df['player_role']=="support"]

```

```
[11]: df_sup
```

```
[11]:
```

		__video_title	side	team	\
0	100	Thieves vs Cloud9 Full - LCS Summer 2020 W...	blue	100t	
1	100	Thieves vs Cloud9 Full - LCS Summer 2020 W...	blue	100t	
2	100	Thieves vs Cloud9 Full - LCS Summer 2020 W...	blue	100t	
3	100	Thieves vs Cloud9 Full - LCS Summer 2020 W...	blue	100t	
8	100	Thieves vs Cloud9 Full - LCS Summer 2020 W...	red	c9	
...		
1187	Team Solomid	vs Team Liquid Full - LCS Summer ...	blue	tsm	
1192	Team Solomid	vs Team Liquid Full - LCS Summer ...	red	tl	
1193	Team Solomid	vs Team Liquid Full - LCS Summer ...	red	tl	
1194	Team Solomid	vs Team Liquid Full - LCS Summer ...	red	tl	
1195	Team Solomid	vs Team Liquid Full - LCS Summer ...	red	tl	

	opposition	game_won	player_role	teammate_role	player_champion	\
0	c9	100t	support	top	karma	
1	c9	100t	support	jgl	karma	
2	c9	100t	support	mid	karma	
3	c9	100t	support	adc	karma	
8	100t	100t	support	top	senna	
...	
1187	tl	tl	support	adc	taric	
1192	tsm	tl	support	top	bard	
1193	tsm	tl	support	jgl	bard	
1194	tsm	tl	support	mid	bard	
1195	tsm	tl	support	adc	bard	

	teammate_champion	proximity
0	camille	4.166667
1	olaf	35.700758
2	galio	25.189394
3	ashe	82.386364
8	jayce	1.609848
...
1187	kalista	70.304818
1192	mordekaiser	11.504425
1193	trundle	58.407080
1194	azir	32.055064
1195	aphelios	84.660767

[600 rows x 10 columns]

```
[14]: df3 = pd.DataFrame(index=teams)

for role in ['top', 'jgl', 'mid', 'adc']:
```

```
df3[role] = df_sup[df_sup['teammate_role']==role].groupby('team').
↳mean()['proximity'].tolist()
```

```
[15]: df3
```

```
[15]:
```

	top	jgl	mid	adc
100t	9.026643	46.742046	32.745391	80.321256
c9	9.438638	44.367828	27.666957	82.221725
ggs	11.684759	44.289692	30.643610	80.483487
tl	11.574074	46.294553	31.679214	79.363238
dig	10.057528	41.819633	30.442132	81.951397
clg	13.532926	50.186067	41.576745	72.077346
imt	9.329512	48.556108	32.415519	76.287894
tsm	10.404171	51.356122	37.071883	78.582939
eg	11.518277	49.403316	33.710428	79.305950
fly	11.825049	45.362010	32.664900	78.650100

```
[16]: means = [0.0]*4
for i,role in enumerate(['top','jgl','mid','adc']):
    means[i] = (df3[role].mean() - df3[role].min()) / (df3[role].max() -
↳df3[role].min())

means.append(means[0])

means
```

```
[16]: [0.40221944922373787,
0.5262003931031451,
0.38783628916584023,
0.6749735276581413,
0.40221944922373787]
```

```
[22]: df3 = pd.DataFrame(index=teams)

for role in ['top', 'jgl', 'mid', 'adc']:
    df3[role] = df_sup[df_sup['teammate_role']==role].groupby('team').
↳mean()['proximity'].tolist()

for role in ['top','jgl','mid','adc']:
    df3[role] -= df3[role].min()
    df3[role] /= df3[role].max()

n =

nums = df3.iloc[n].tolist()
nums.append(nums[0])
```

```

fig = go.Figure()

fig.add_trace(go.Scatterpolar(r = means,
                             theta = ['Top', 'Jungle', 'Mid ', 'ADC', 'Top'],
                             name = "League average"))

fig.add_trace(go.Scatterpolar(r = nums,
                             theta = ['Top', 'Jungle', 'Mid ', 'ADC', 'Top'],
                             fill = "toself",
                             name = "%s Support" % df3.index[n].upper()))

fig.update_layout(title="%s: Support proximities" % df3.index[n].upper())
fig.update_layout(
    polar=dict(
        radialaxis=dict(
            visible=True,
            range = [0,1],
            tickfont_size = 9,
            nticks=3,
            angle=180,
            tickangle=-180
        ),
    ),
    showlegend=True
)

fig.show()

```