

MSDS692_CGREEN_Final Project Heatmap Code

March 4, 2022

1 MSDS692_CGREEN_Final Project Heatmap

For the visual in this code I relied heavily on the skills learned in MSDS670.

```
[1]: import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.preprocessing import StandardScaler
```

```
[2]: df = pd.read_csv('20220227 Heatmap Data.csv', index_col=0)
df
```

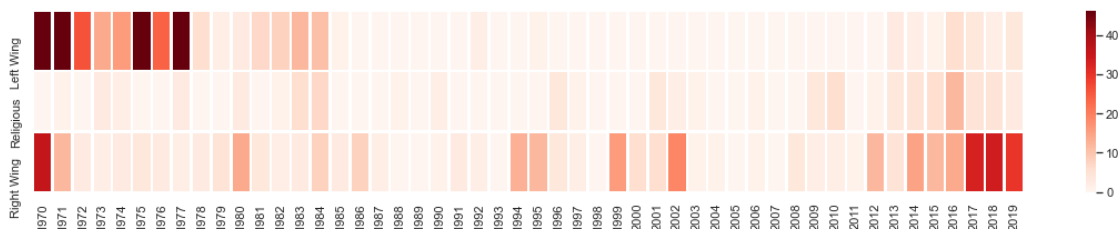
```
[2]:      1970  1971  1972  1973  1974  1975  1976  1977  1978  1979  ... \
Left Wing    299   115    26   14   16   55   24   46    6    2  ...
Religious      0     1     0    3    2    0    0    3    0    0  ...
Right Wing    36    12     3    2    3    4    3    2    3    5  ...

      2010  2011  2012  2013  2014  2015  2016  2017  2018  2019
Left Wing      0     0     0     3     2     1     6     4     2     4
Religious      6     0     1     4     5     6    12     5     5     3
Right Wing      2     1    12     5    15    12    14    33    34    30
```

[3 rows x 50 columns]

```
[3]: sns.set(rc = {'figure.figsize':(20,3)})
sns.heatmap(df, cmap='Reds',xticklabels=1, yticklabels=1, robust=True,
↪linewidth=1.5, cbar_kws={'shrink': 1})
```

```
[3]: <AxesSubplot:>
```



1.0.1 Scaling the data to get a better color spread

The initial heat map washed out much of the data because of the large number of extreme left wing incidents in the early 1970's. To correct for this, I used the standard scaler method from MSDS650 and referred to the 2021 Geeks for Geeks overview of scaling to adjust the data.

```
[4]: std_scaler = StandardScaler()
df_scaled = std_scaler.fit_transform(df.to_numpy())
df_scaled = pd.DataFrame(df_scaled,
    ↪columns=['1970', '1971', '1972', '1973', '1974', '1975', '1976', '1977', '1978', '1979', '1980', '1981',
df_scaled.head()
```

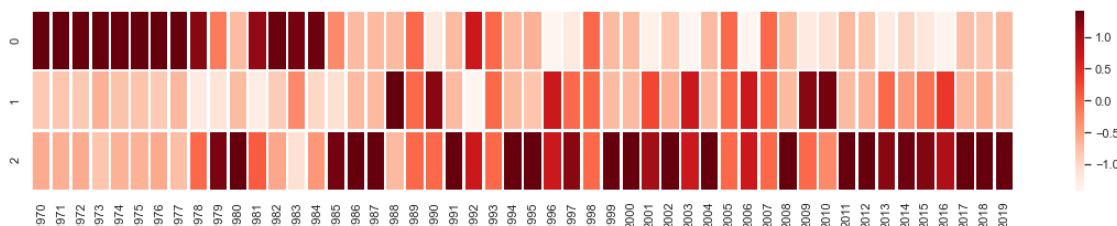
```
[4]:      1970      1971      1972      1973      1974      1975      1976 \
0  1.405589  1.408794  1.406328  1.410220  1.411313  1.411202  1.404879
1 -0.837851 -0.811517 -0.832317 -0.613139 -0.784063 -0.785481 -0.842927
2 -0.567738 -0.597277 -0.574012 -0.797081 -0.627250 -0.625722 -0.561951

      1977      1978      1979  ...      2010      2011      2012      2013 \
0  1.413933  1.224745 -0.162221  ... -1.069045 -0.707107 -0.797081 -1.224745
1 -0.682589 -1.224745 -1.135550  ...  1.336306 -0.707107 -0.613139  0.000000
2 -0.731345  0.000000  1.297771  ... -0.267261  1.414214  1.410220  1.224745

      2014      2015      2016      2017      2018      2019
0 -0.959616 -1.185999 -1.372813 -0.743980 -0.808506 -0.666726
1 -0.419832 -0.074125  0.392232 -0.669582 -0.600604 -0.746733
2  1.379448  1.260124  0.980581  1.413561  1.409110  1.413459
```

[3 rows x 50 columns]

```
[10]: sns.set(rc = {'figure.figsize':(20,3)})
sns.heatmap(df_scaled, cmap='Reds',xticklabels=1, yticklabels=1, robust=True,
    ↪linewidth=1.5, cbar_kws={'shrink': 1})
plt.savefig('Ideology Waves Heatmap.png', dpi=450, bbox_inches='tight')
```



```
[ ]:
```