El Clásico de Reddit

Bárça vs. Real Madrid

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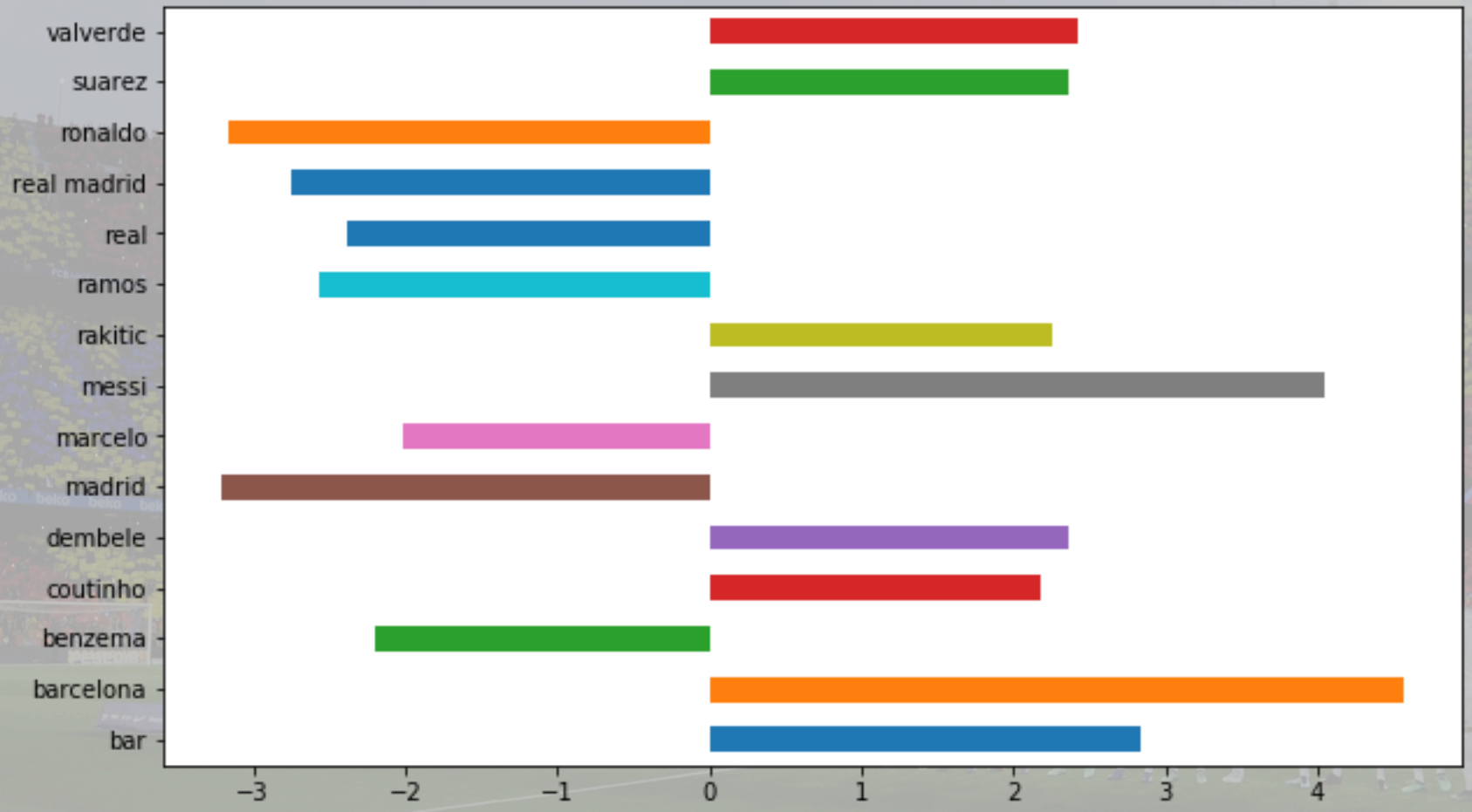
20 December 2018

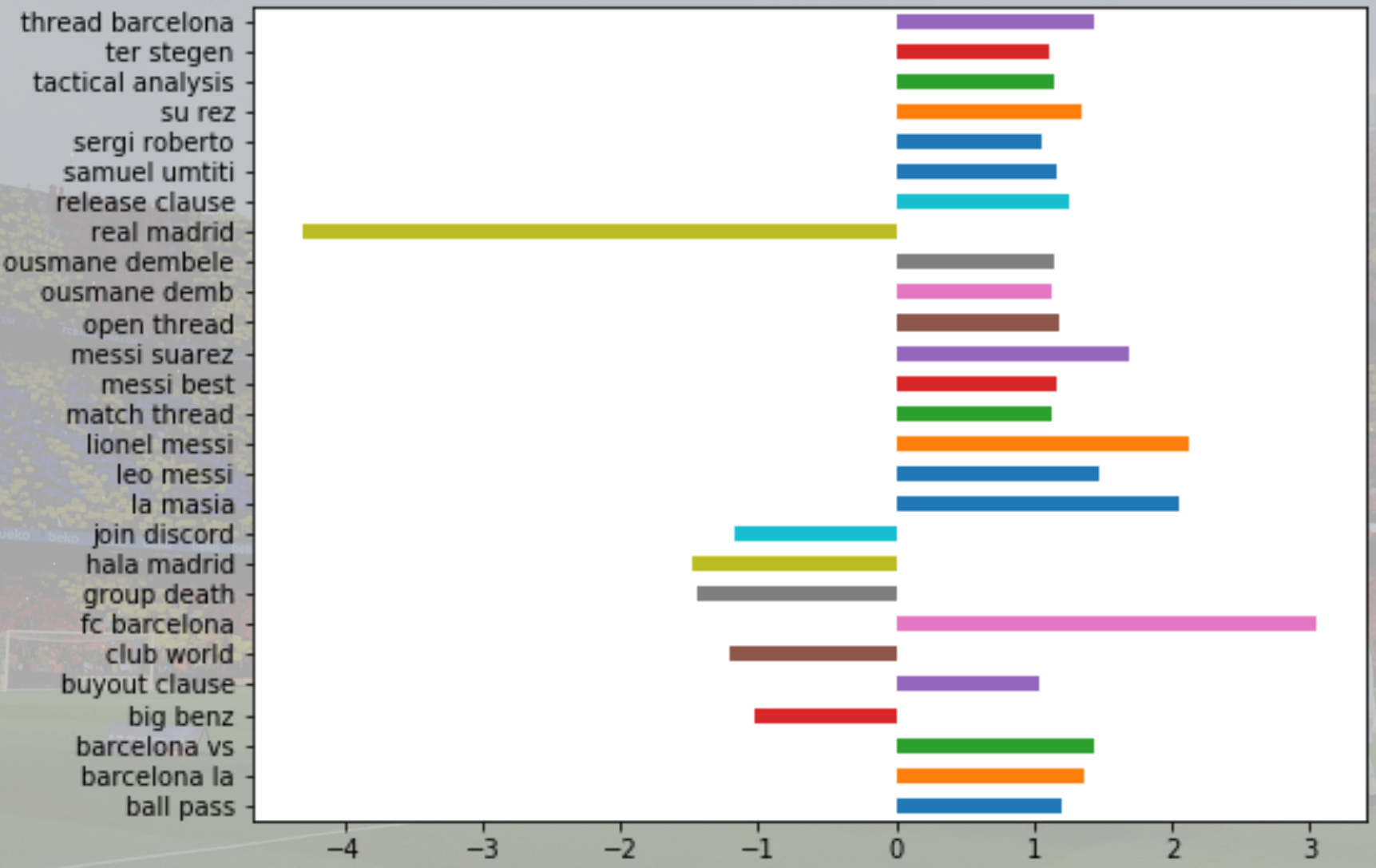
Data Science Problem

- Use NLP models to predict if certain comments / submissions come from one Subreddit or the other
- Subreddit's
  - /r/Barca
  - /r/realmadrid
- The Data Collection Process
  - 2834 from Barca
  - 2747 from realmadrid

Features with Players / Teams



2 grams with Players / Teams

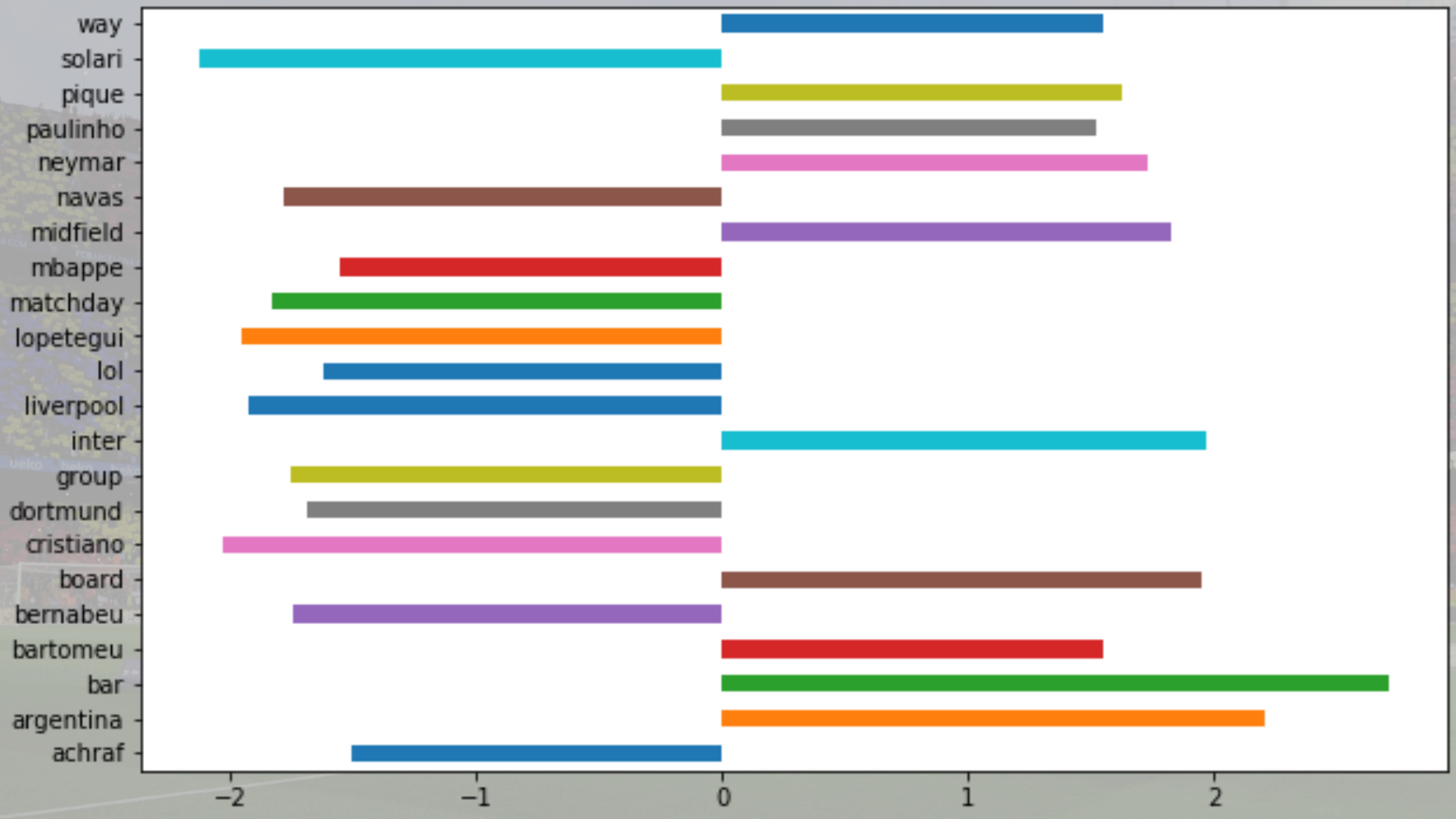


Stop Words:

Took Out Players Names to see performance of models

109 additional stop words along with the sklearn ones

Without Players / Teams



The Models

TfidfVectorizer
LogisticRegression
RandomForestClassifier
ExtraTreesClassifier

TfidfVectorizer and LogisticReg

- TfidfVectorizer - With players names
  - Tfidf training score 0.926
  - Tfidf testing score started at 0.696 accuracy
  - With LogReg in GridSearch with ngrams as (1,3) improved to 0.774 accuracy score

With Players Names

Accuracy: 0.7747014115092291

	precision	recall	f1-score	support
0	0.75	0.79	0.77	877
1	0.80	0.76	0.78	965
avg / total	0.78	0.77	0.77	1842

	Predicted Barca	Predicted realmadrid
Actual Barca	697	180
Actual realmadrid	235	730

Without Names

Accuracy: 0.6959826275787188

	precision	recall	f1-score	support
0	0.69	0.69	0.69	907
1	0.70	0.70	0.70	935
avg / total	0.70	0.70	0.70	1842

	Predicted Barca	Predicted realmadrid
Actual Barca	628	279
Actual realmadrid	281	654

Forest and Trees

- RandomForestClassifier
  - Best cv scores:
    - Train: 0.732 without | 0.655 with
    - Test: 0.699 without |0.608 with
- ExtraTreesClassifier
  - Best cv scores:
    - Train: 0.743 without|0.664 with
    - Test: 0.699 without|0.604 with
- Without or With Player & Team stop words

Random Forest

- With Player's & Clubs Names
  - Grid Search CV best score: 0.766
    - Best Params: {'max_depth': None, 'max_features': 'auto', 'n_estimators': 43}
- Without Player's & Clubs Names
  - Grid Search CV best score: 0.685
    - Best Params: {'max_depth': None, 'max_features': 'log2', 'n_estimators': 45}

Conclusions

- Top feature is players names
- Take the names out, accuracy score drops substantially
- Regardless due to the nature of comments being so randomly similar within the two subreddits
- To do:
  - To do more model parameters
  - More ngram features (3,6)
  - Put in coaches as stop words