EVALUATING THE MBTI PERSONALITY CONSTRUCT USING TEXT DATA

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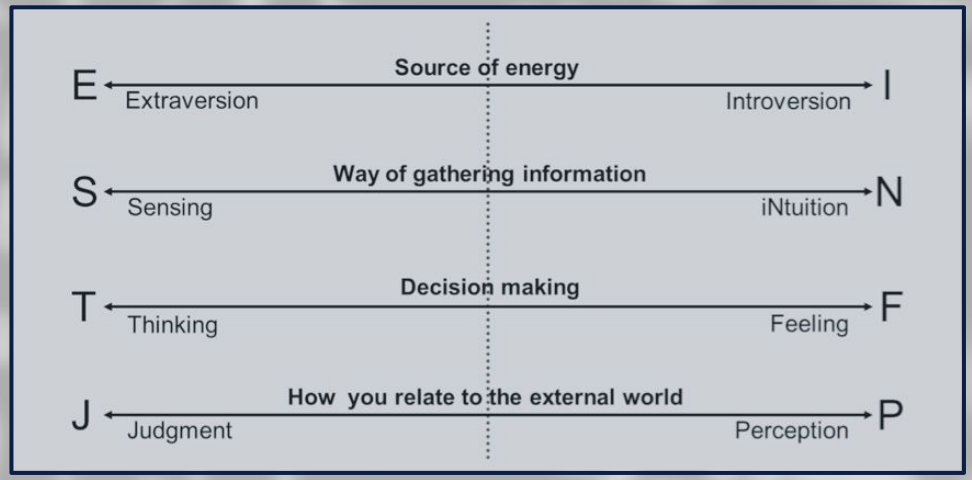
PURPOSE

To determine the usefulness of the MBTI as a construct of personality using text data.

MYERS-BRIGGS TYPE INDICATOR (MBTI)

BACKGROUND

"...introspective self-report questionnaire with the purpose of indicating different psychological preferences in how people perceive the world around them and make decisions"

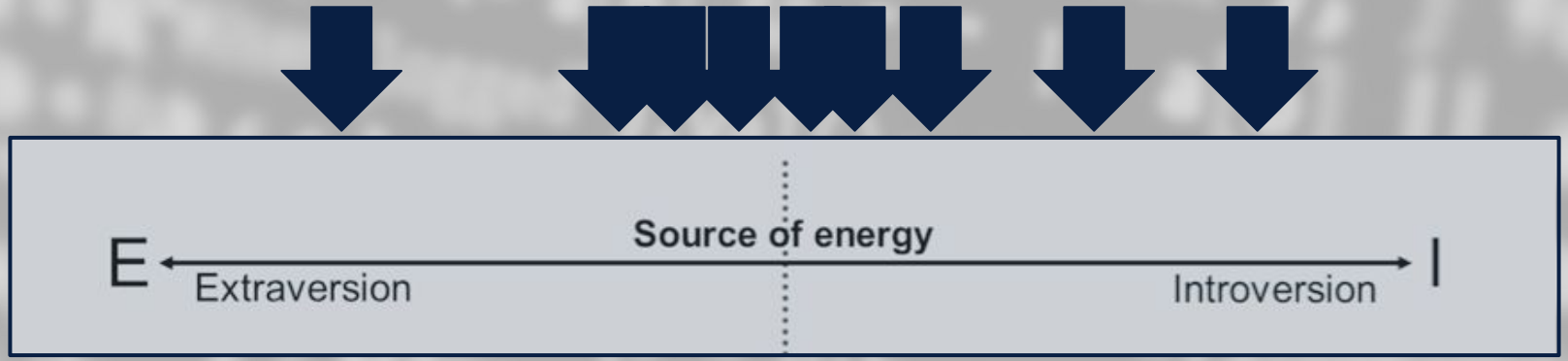


MBTI RELIABILITY

BACKGROUND

Poor Retest:

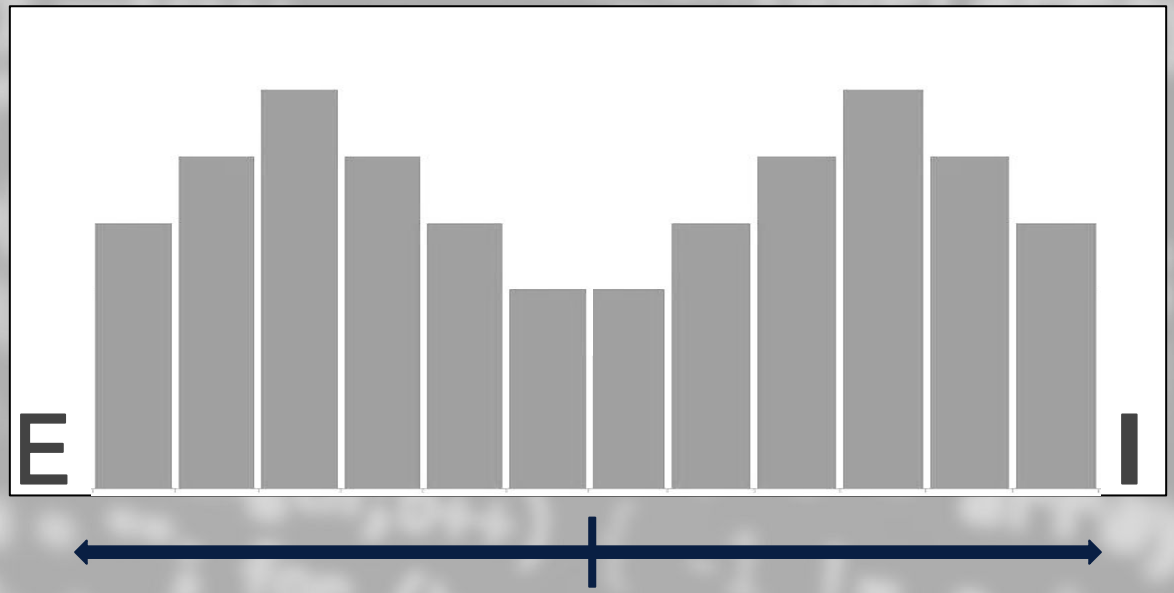
Normal distribution of test scores



MBTI RELIABILITY

BACKGROUND

Expectation: Bimodal distribution

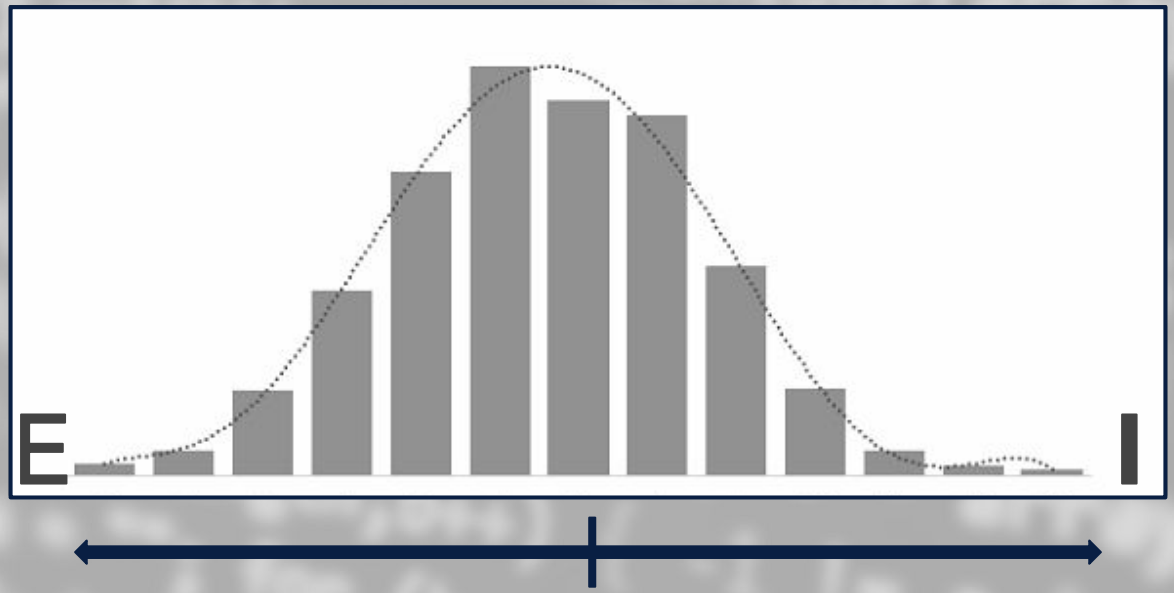


Two groups in population = good

MBTI RELIABILITY

BACKGROUND

Reality: Normal distribution



one population = bad

HYPOTHESIS

Text can be categorized by the MBTI personality type of the person writing it (Bimodal Distribution).

DATA

MATERIALS

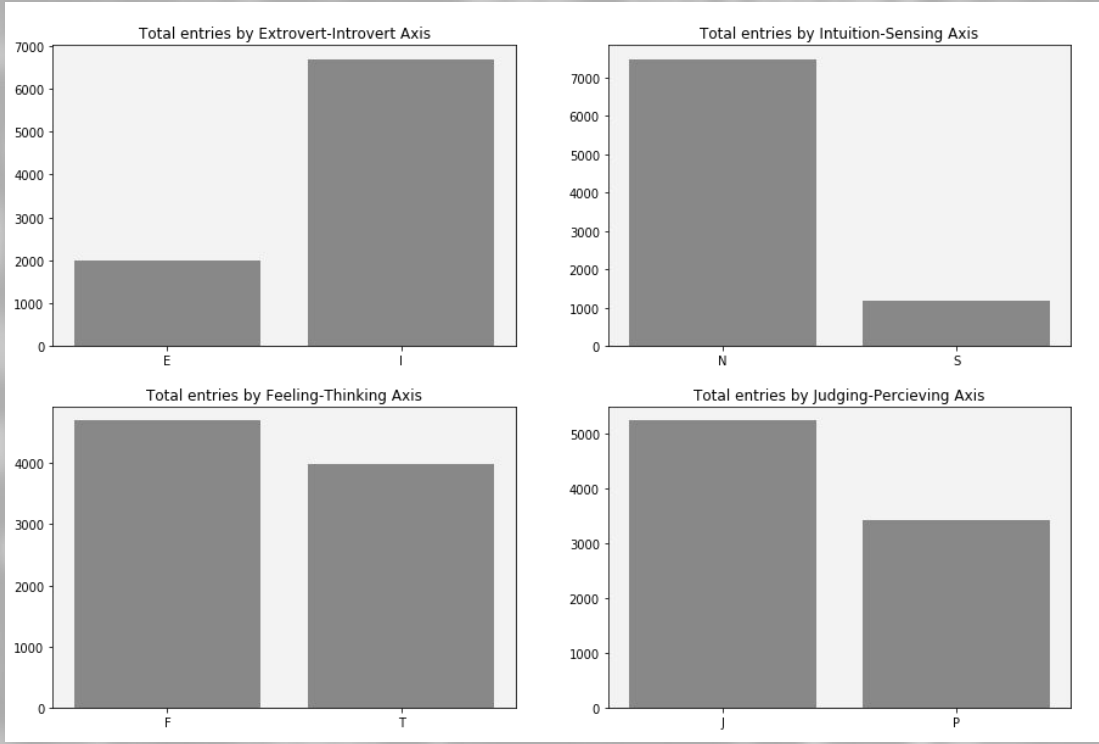
- PersonalityCafe
- 8600 rows
  - Type (4 letters).
  - The last 50 things posted

	type	posts
0	INFJ	'http://www.youtube.com/watch?v=qsXHcwe3krw|||...
1	ENTP	'I'm finding the lack of me in these posts ver...
2	INTP	'Good one _____ https://www.youtube.com/wat...
3	INTJ	'Dear INTP, I enjoyed our conversation the o...
4	ENTJ	'You're fired.|||That's another silly misconce...

DATA

MATERIALS

Regroup data by 4 axis



LIBRARIES

MATERIALS

Wrangling

- pandas
- nltk
- numpy
- html
- re

Analysis

- matplotlib
- scipy
- statsmodels
- wordcloud

ML

- sklearn

SAMPLES

EXPERIMENTAL DESIGN

Sample 2: “Short-Fat”

- Not split
- More features, less entries (8,600)

Sample 3 “No-Names”

- Class references removed
- Simulate unbiased data

DATA WRANGLING

EXPERIMENTAL DESIGN

- Remove Escaping HTML Characters
- Remove Hyperlinks
- Expand Contractions
- Remove Digits
- Remove Punctuation
- Remove Stopwords

MACHINE LEARNING

EXPERIMENTAL DESIGN

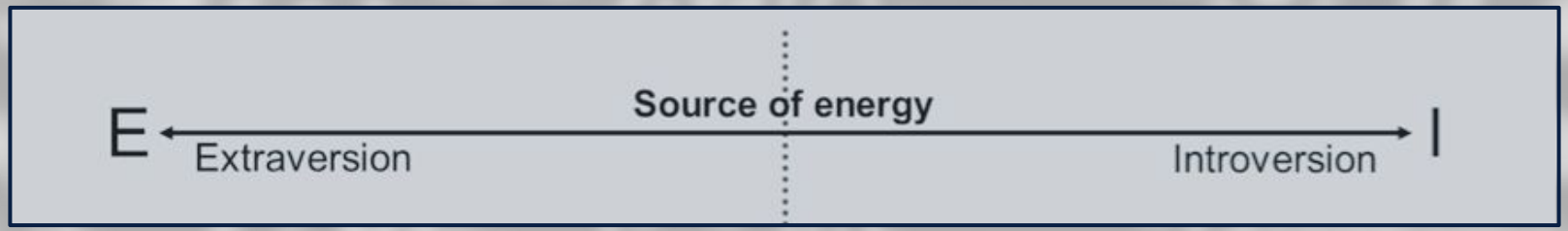
- Feature Extraction - Bag of words
  - Text vectorizing
  - Transforming by Inverse document frequency

- SGDClassifier - SVM with stochastic gradient descent
  - One classifier per axis

SIMULATING THE MBTI SCORING METHOD

EXPERIMENTAL DESIGN

- **Logarithmic loss function - probabilities**
- **Probability = Score**
- **Distribution of probabilities = # of groups in sample**

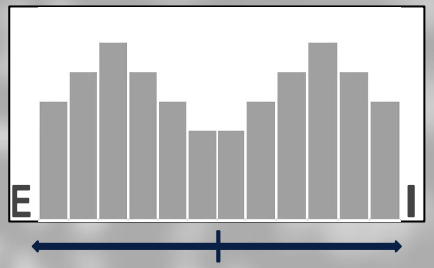


SIMULATING THE MBTI SCORING METHOD

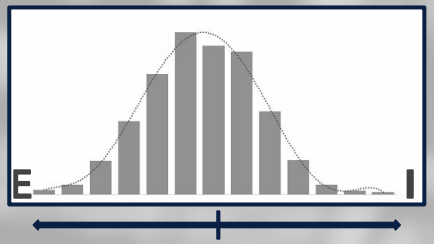
EXPERIMENTAL DESIGN

Interpreting Distributions

- **Bimodal = two populations**
  - **Two groups per axis (i.e. I or E)**

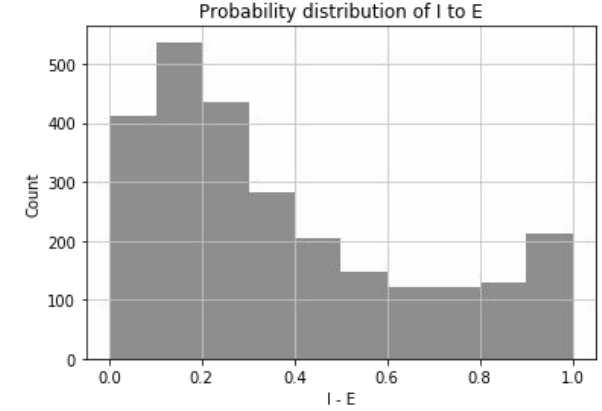


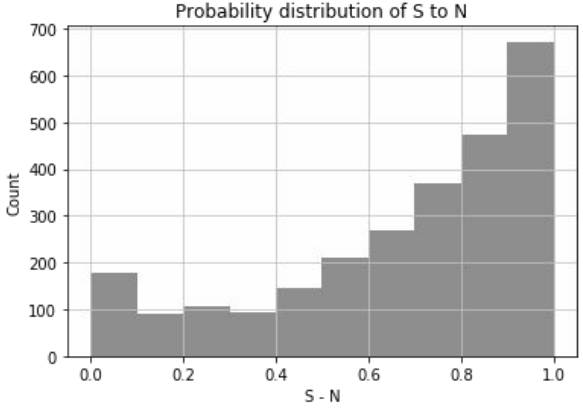
- **Normal = one population**
  - **One group per axis (i.e. neither I nor E)**

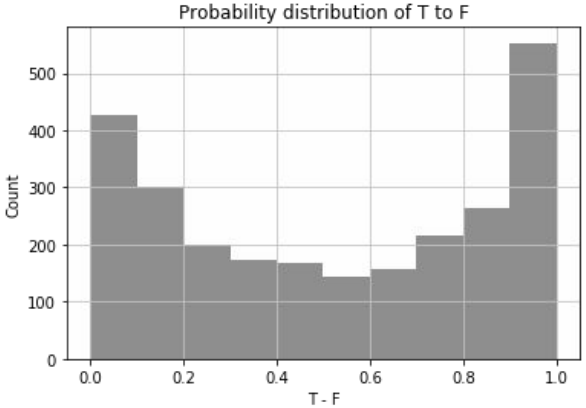


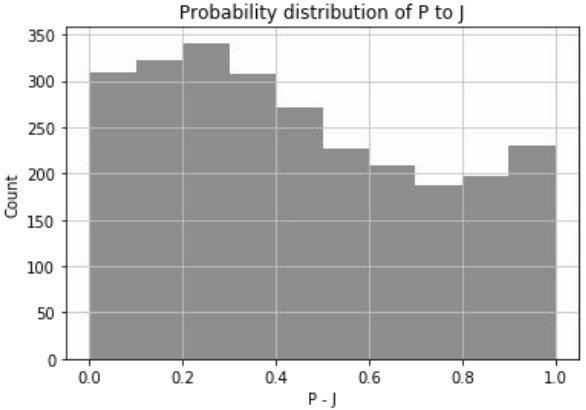
SAMPLE 2

RESULTS



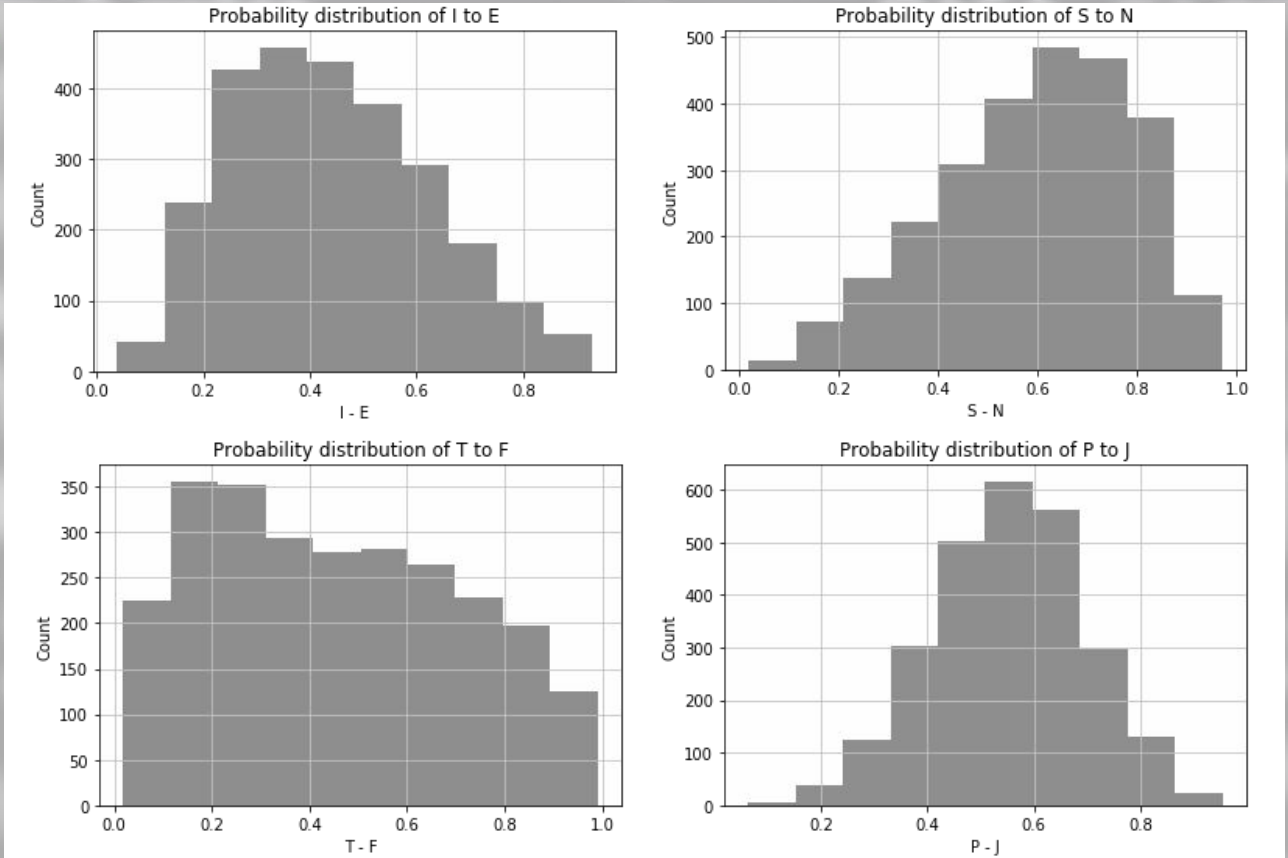






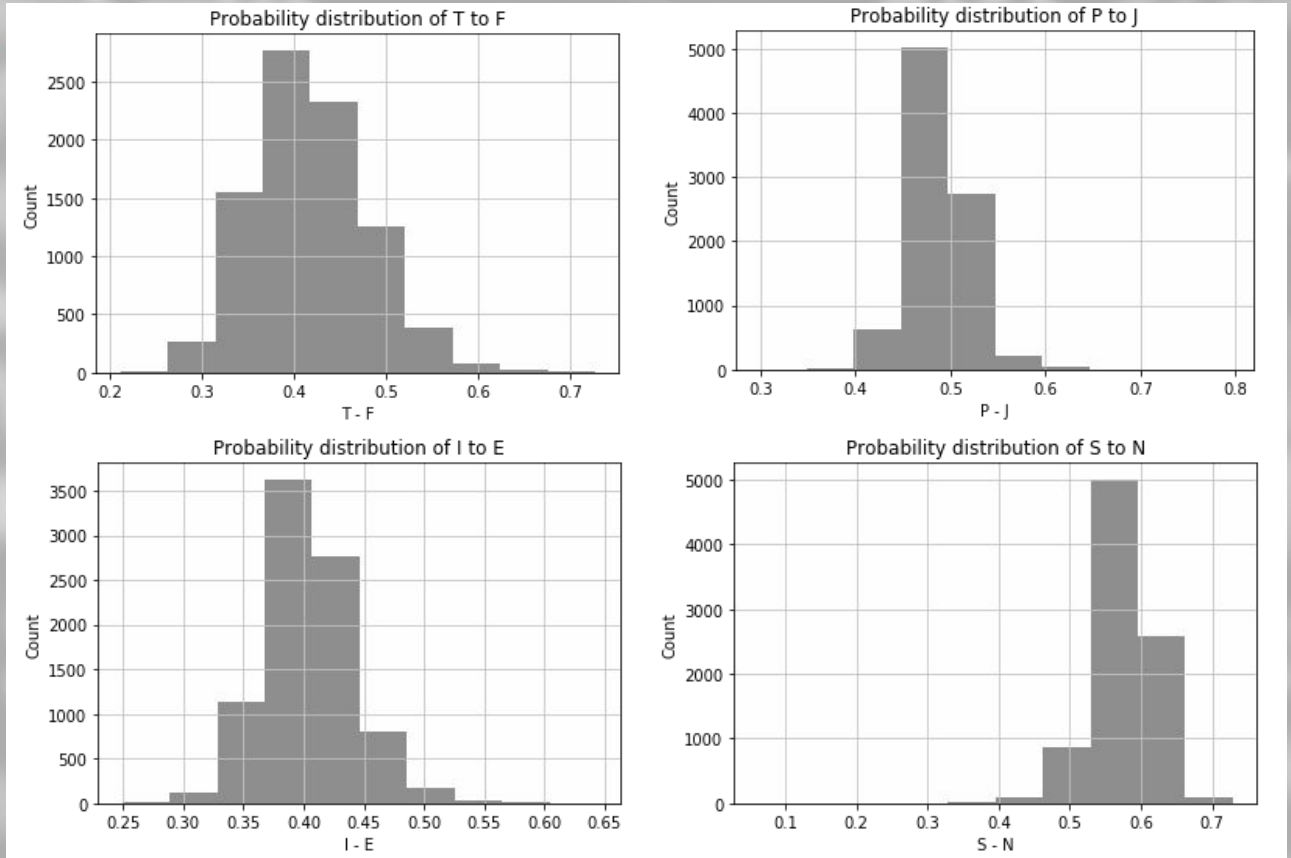
SAMPLE 3

RESULTS



SAMPLE 2 CLASSIFIER WITH SAMPLE 3

RESULTS



EVALUATING THE MBTI PERSONALITY CONSTRUCT USING TEXT DATA

CONCLUSIONS

- Implications
- Applications

IMPLICATIONS

CONCLUSIONS

- Accept Null Hypothesis
- Class names = strongest feature
- Belief influenced behavior
- Potential usefulness of text data
    - Model people's behavior using NLPK

APPLICATIONS

CONCLUSIONS

- Targeted advertising - mildly useful
  - Individuals who strongly identify with MBTI
- Content delivery - very useful
  - Scoring for audiences based on language content
- Applicant screening - not useful
  - Social media screening
  - Resume screening - potential