Gaining Insight on Customer Topics of a US Airline via Twitter

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Metis

Introduction & Objective

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Use Natural Language Processing to gain better insight into Customer Topics via Twitter

Dataset & Tools

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- Data source: *Twitter*
  - *Pulled 23,000 tweets covering a two week period*
- Tools
  - *Python, Pandas, scikit-learn*
  - *Tweepy*
  - *Matplotlib, Seaborn*
  - *NLTK, Spacy, pyLDAvis*

Methodology Pipeline

Pull Tweets:

Tweepy

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→

Cleaner:

Tokenize,
Lemmatize
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CountVectorizer

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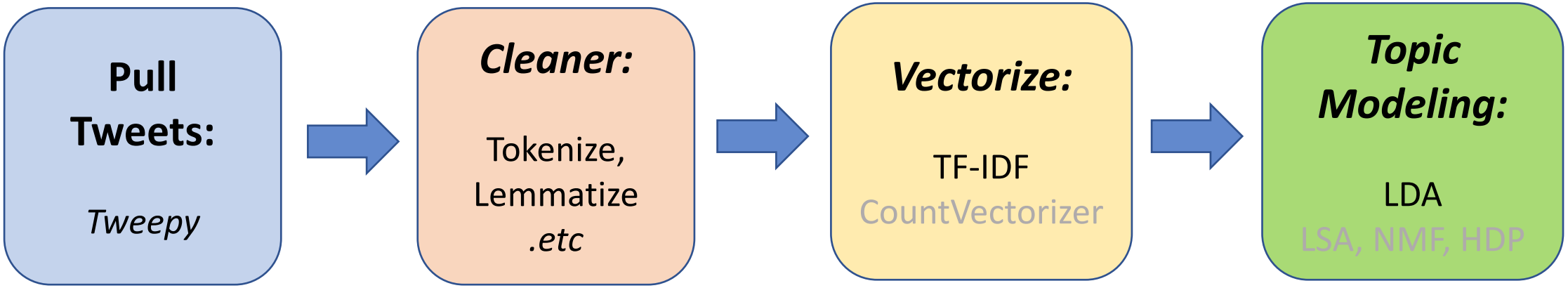
Topic Modeling:

LDA
LSA, NMF, HDP

Methodology Pipeline



- Process above is repeated when new data is available
- Arrived at 20 topics
- Picked three that relayed clearest meaning

Selected Topic List (10/29 – 11/13)

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- **Hour Delay Minute Connection Waiting**

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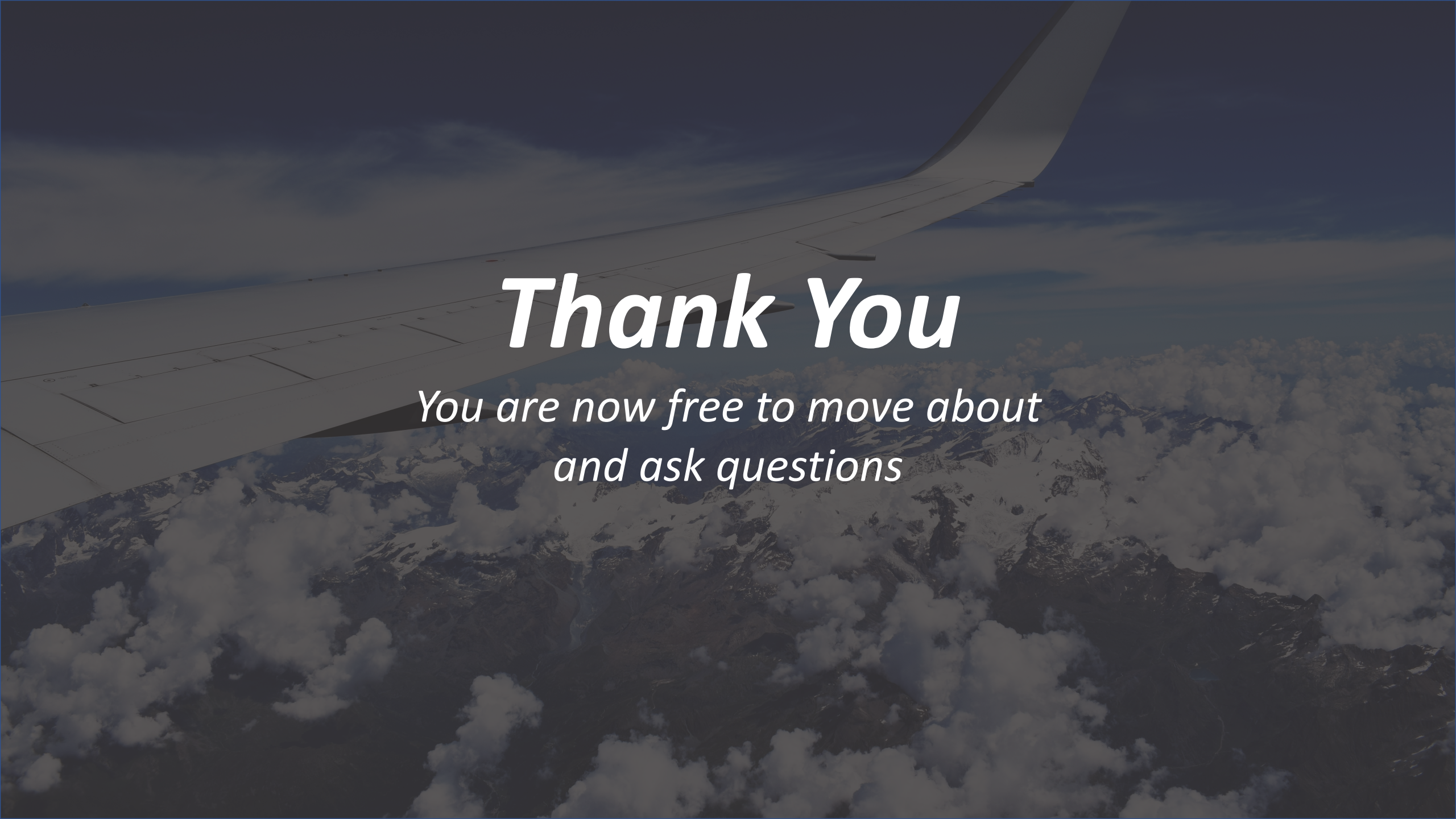
- Hour Delay Minute Connection Waiting
- Baby Pump Breast Bathroom Milk
- **Porn Child Movie Watch Showing**

Summary

- Topic Modeling a challenging subject especially on tweets
  - *Contains plenty of noise*
- How one ‘cleans’ could affect the outcome
- For Delta over two weeks
  - *Complaints of delays most prevalent*

Next Steps…

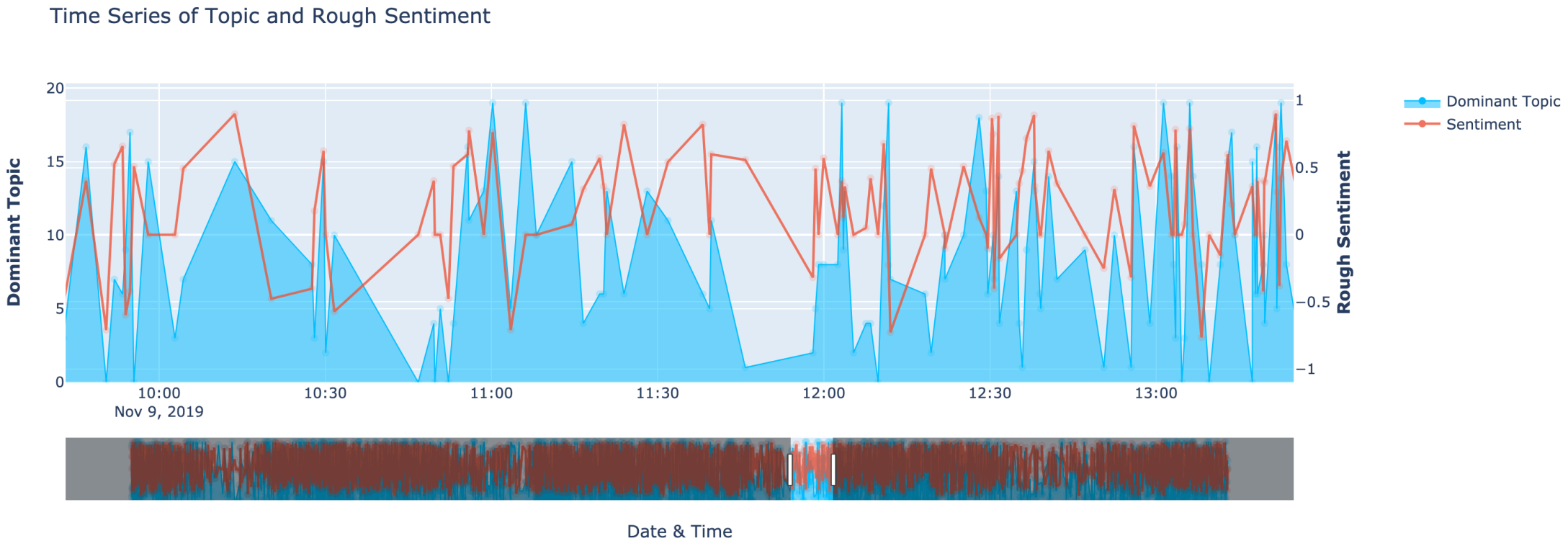
- Perform further cleaning & modeling
- Get more data over a longer period
  - *Topics can change over time*
- Real-time visualization of topics and sentiment
  - *Useful tool for airlines to anticipate outcomes & react*
- Could deep learning help filter through the noise?



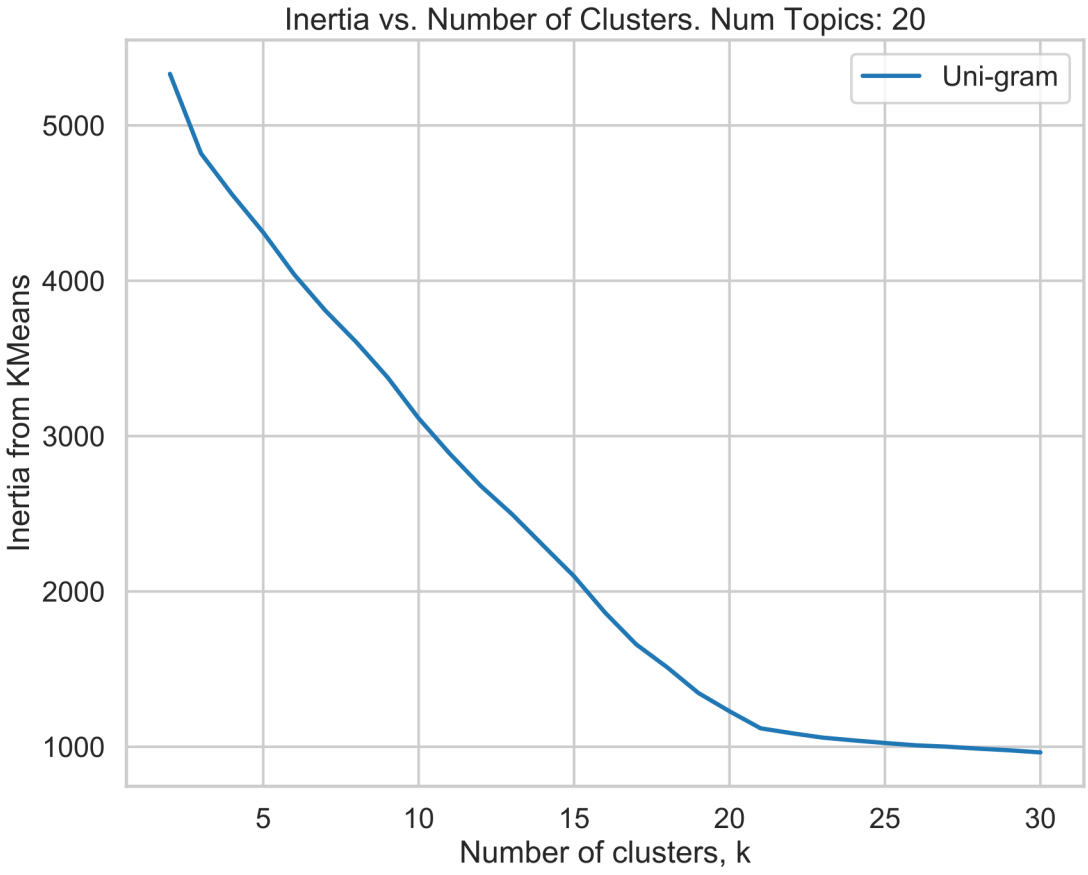
Thank You

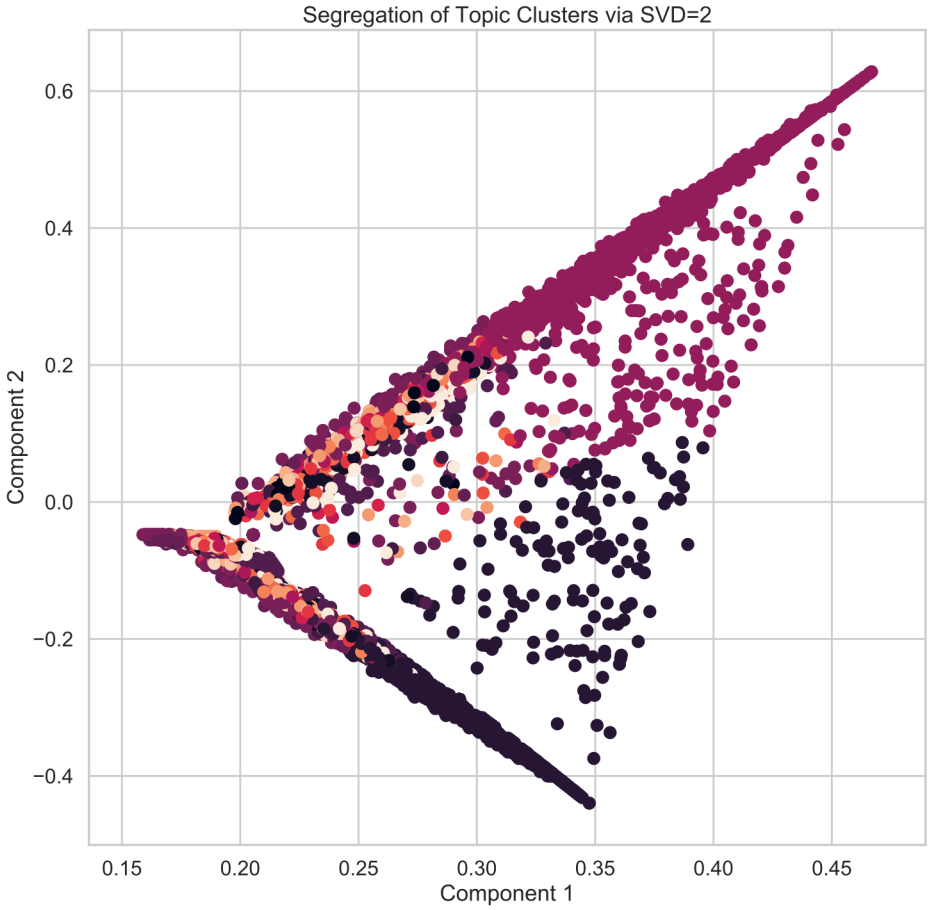
You are now free to move about and ask questions

Time Series of Topic and Sentiment

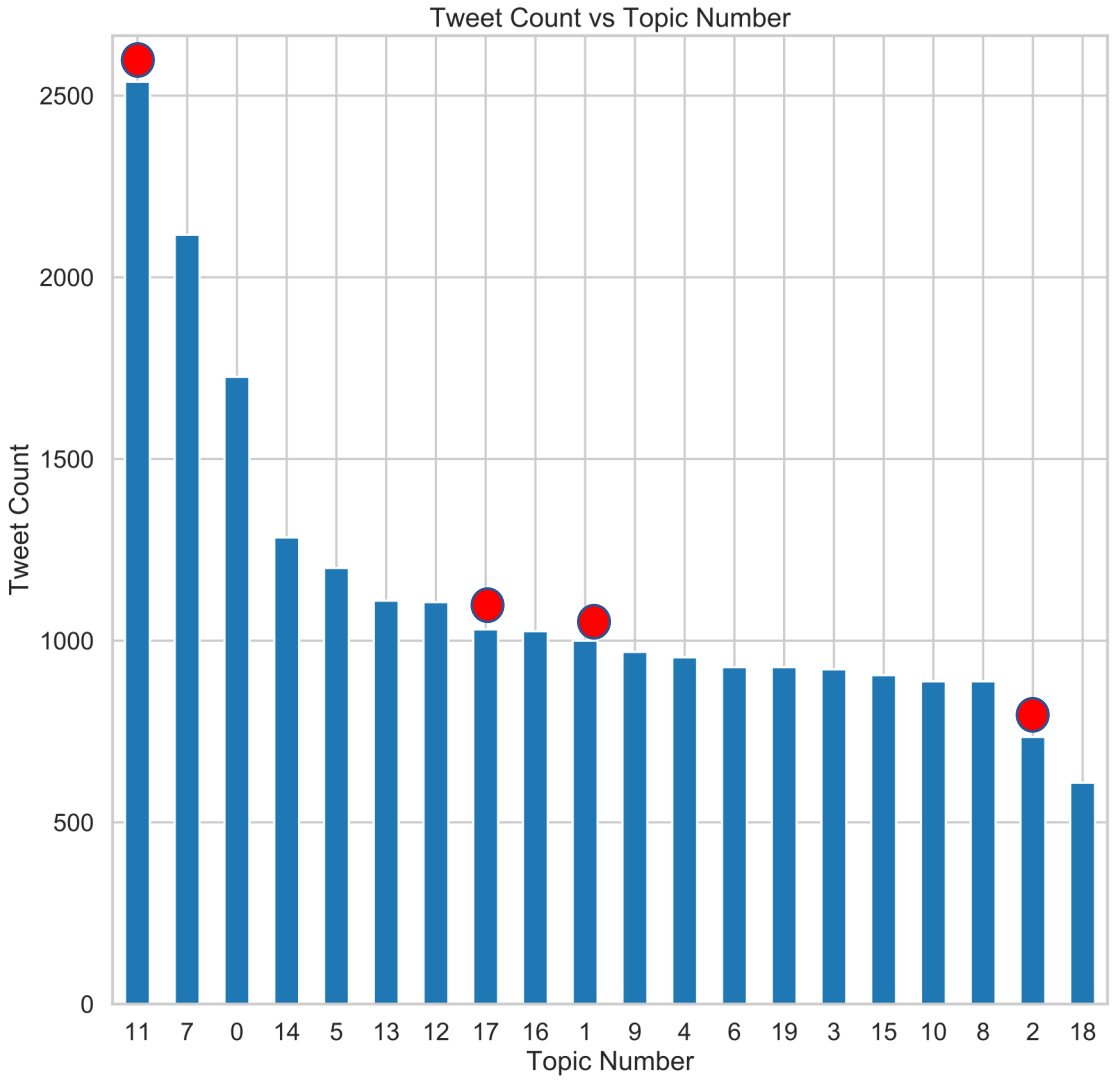
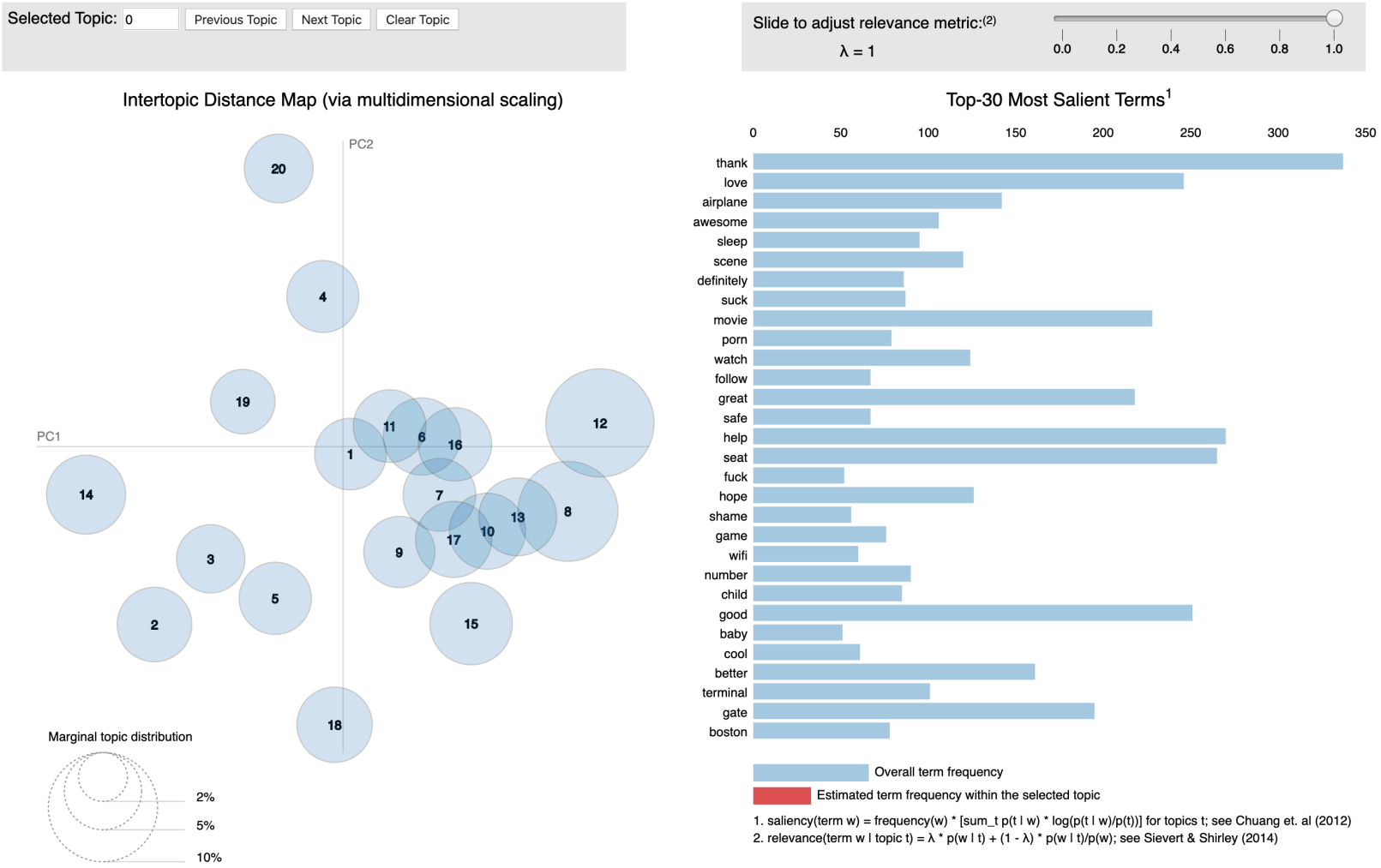


Extra Slides (K-Means for LDA)





Topic Distribution



pyLDAviz for 20 Topics