Deconstruct and Reconstruct:

Using Topic Modeling on an Analytics Corpus

LAK14

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Major Themes

- Answer the challenge (research trends)
- Our approach (deconstruct/reconstruct)
- Systematize the process

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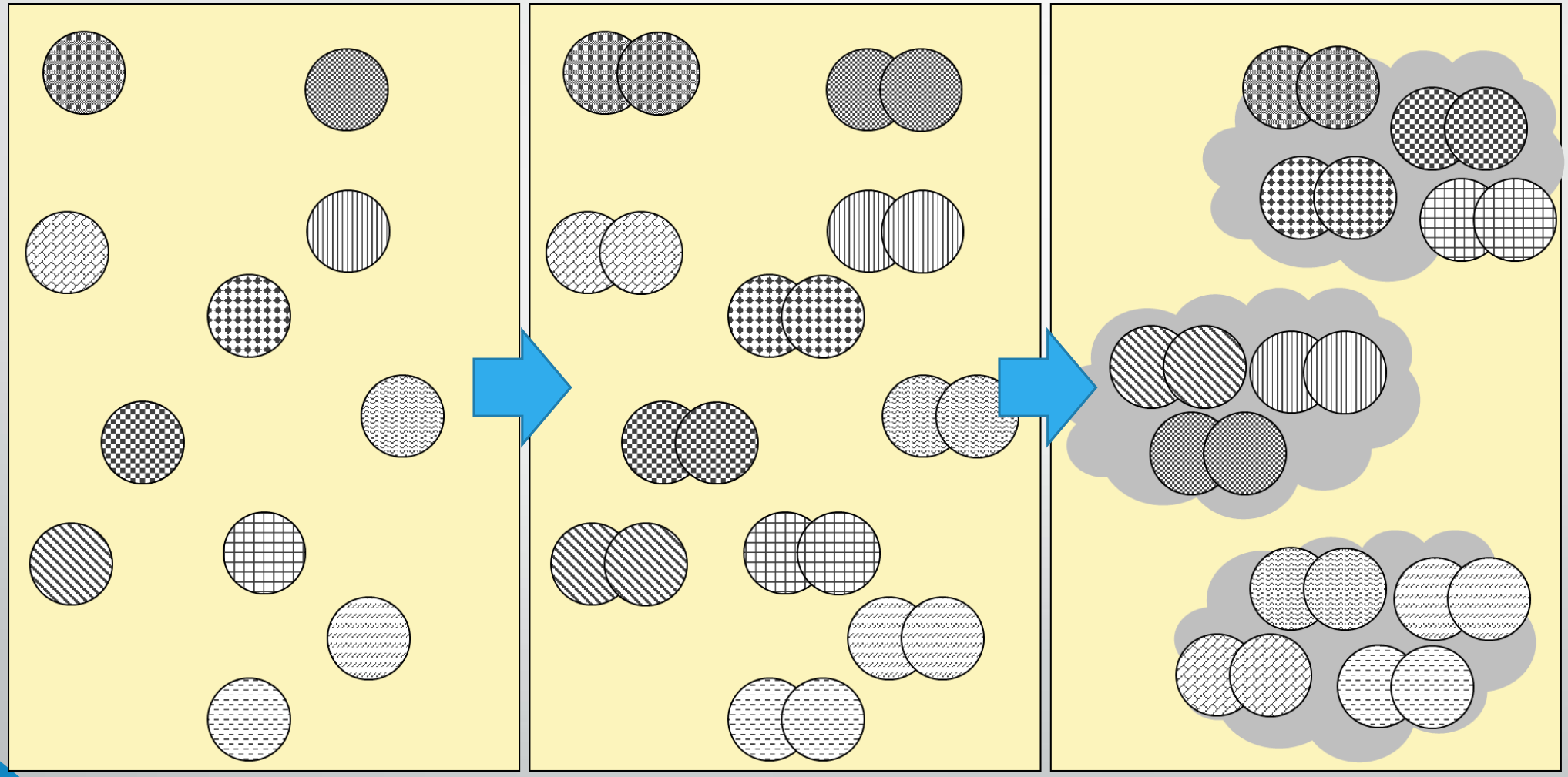
Focus on Topics & Concepts



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NLP Toolset

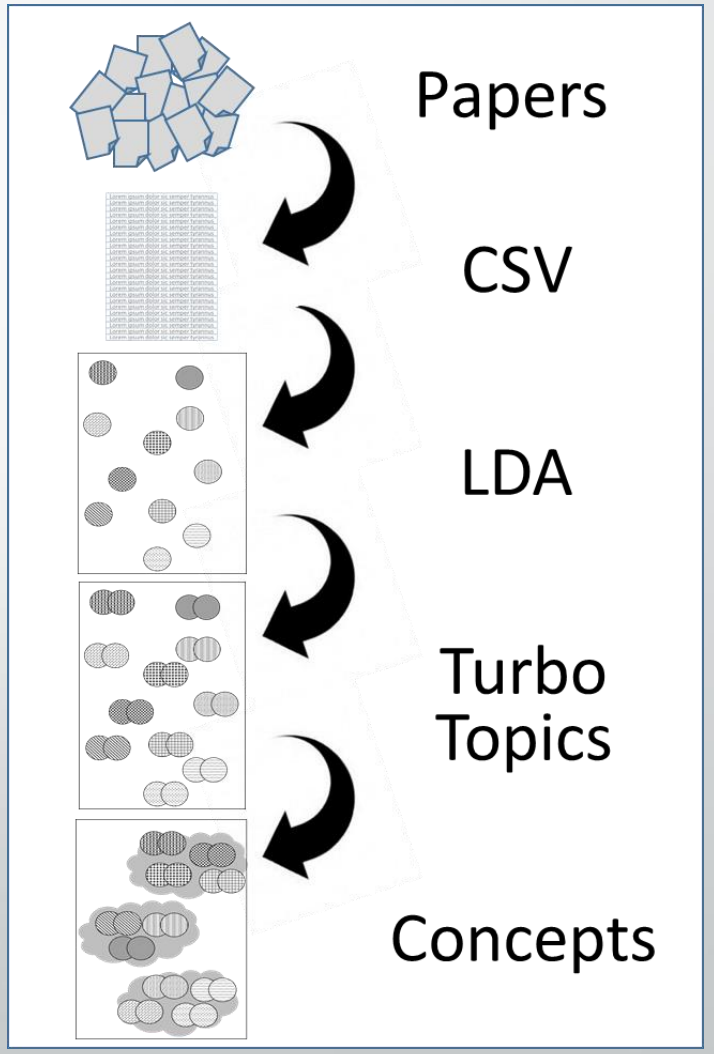
- LDA
- Turbo Topics
- Custom Java & Python

Acknowledgments to David Blei

http://www.cs.princeton.edu/~blei/topicmodeling.html

Overview of our Process

1) Use XML (courtesy of Taibi & Deitze, 2013)
2) CSV – one line per paper
3) Create stop word file (50 < x < 200)
4) Create vector of word counts
5) Run LDA using vector file
6) Use LDA output as input for Turbo Topics
7) Create n-gram result file
8) Visualize results



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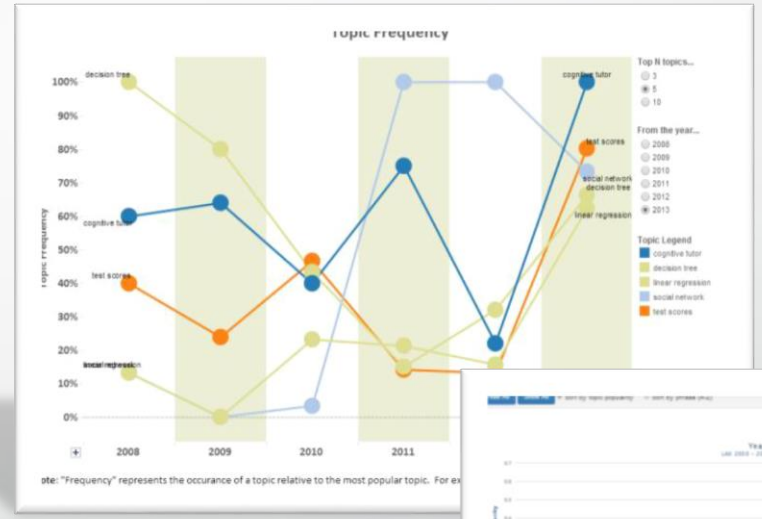
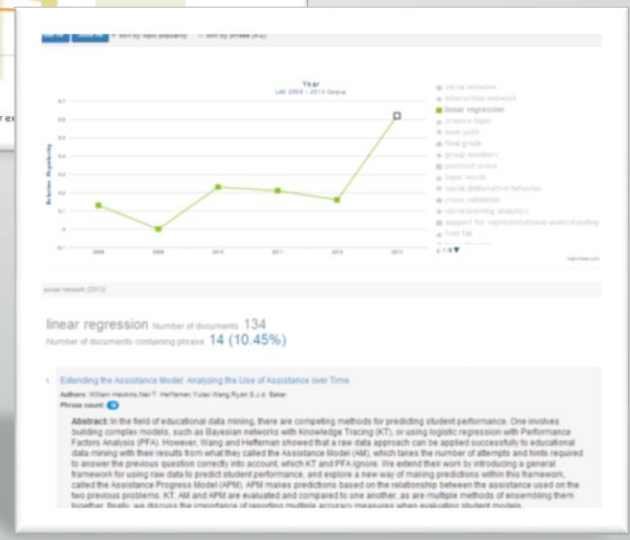
Data Presentation

- Context:
  - Who is viewing the data
  - What questions are they trying to answer
- Tableau reports
  - Interactive exploration of metrics
- Topic Browser & High Charts
  - Interactive drill down into corpus





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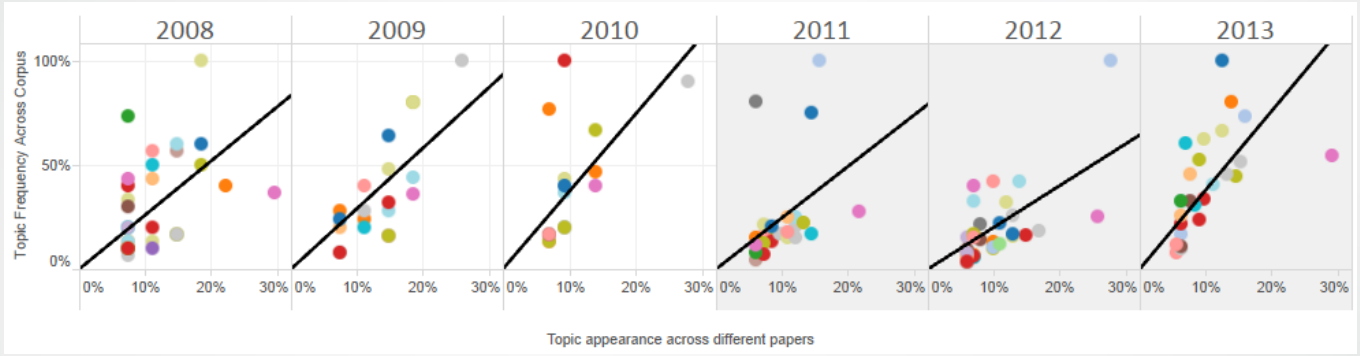
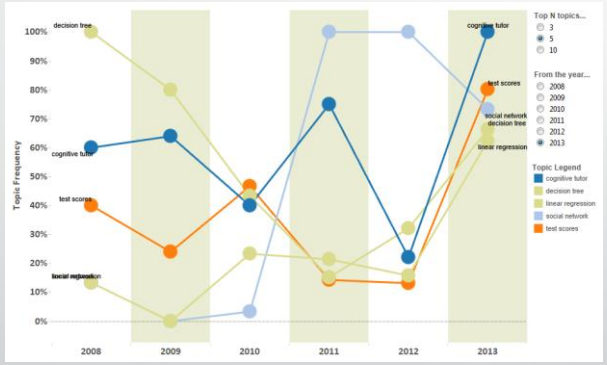
Findings

- Topic Convergence



- Concept Trends



The influence of 'Social Network'

Post Mortem

- Many areas for subjectivity (stop words, concept grouping). Open to biases
- Topic convergence chart is open to multiple interpretations

- Extremely strong team (coauthor: data janitor)
- Building on work from LAK13 Data Challenge
- Laid the foundation for automation/pipeline
- Applications in other areas
  - End of course survey analyses
  - White-label social networks

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Thank You!

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