

# LTTA applications & variations

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Workshop on Linguistic Temporal Trajectory Analysis

2018 European Symposium Series on Societal Challenges in Computational Social Science

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# LTTA variations

- Clustering
- Correlation
- Prediction

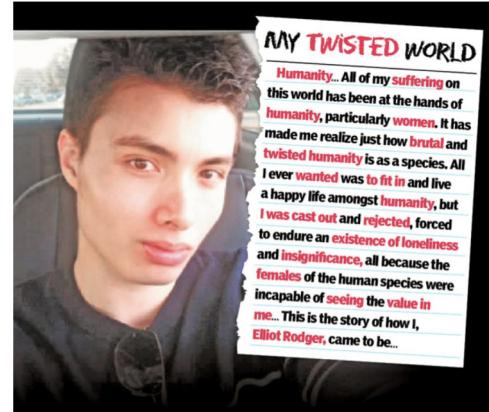
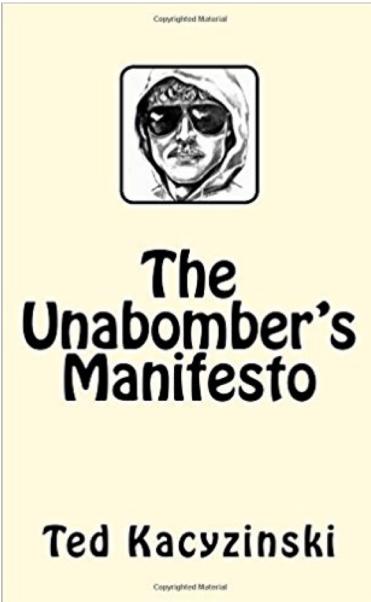
# LTTA variations

- Clustering
  - Correlation
  - Prediction
- lone-actor terrorist manifestos  
TED talks

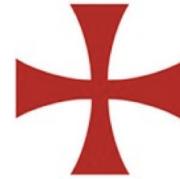
# Clustering example

van der Vegt, Kleinberg, Gill (forthcoming). Understanding Sentiment Trajectories in Lone-Actor Terrorist Manifestos.

- Lone-actor terrorist manifestos
- Diverse ideologies
- Three clusters



2083

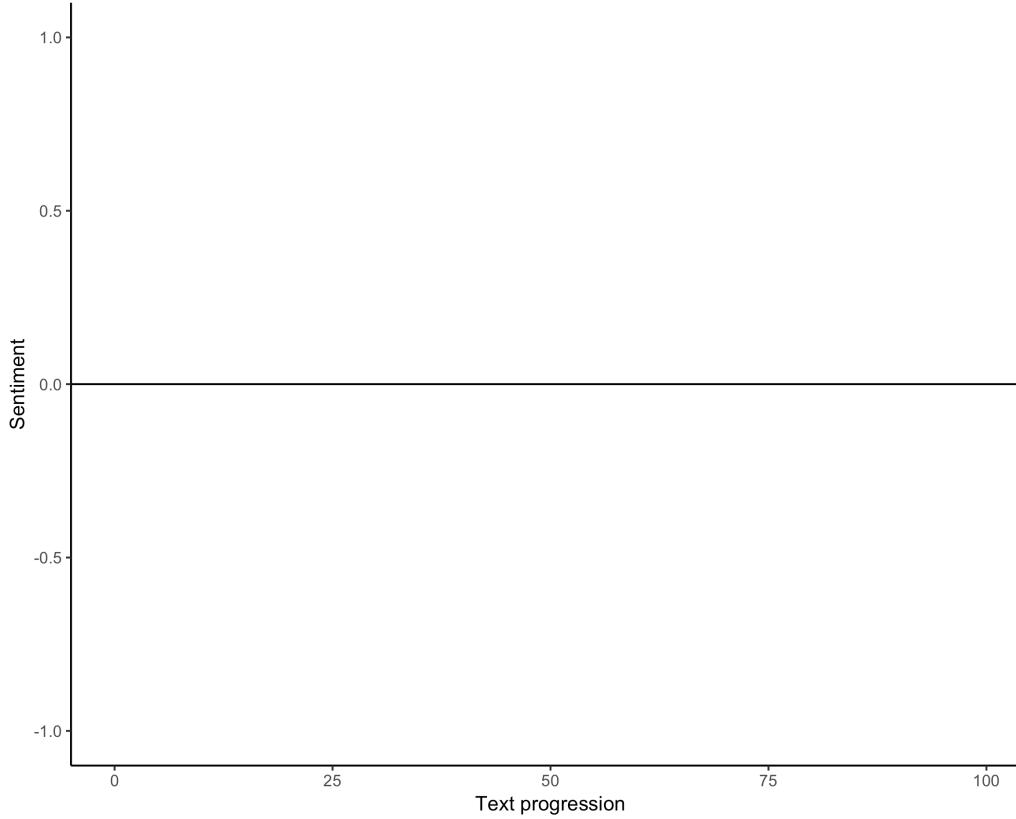


A European Declaration of Independence  
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# Clustering example

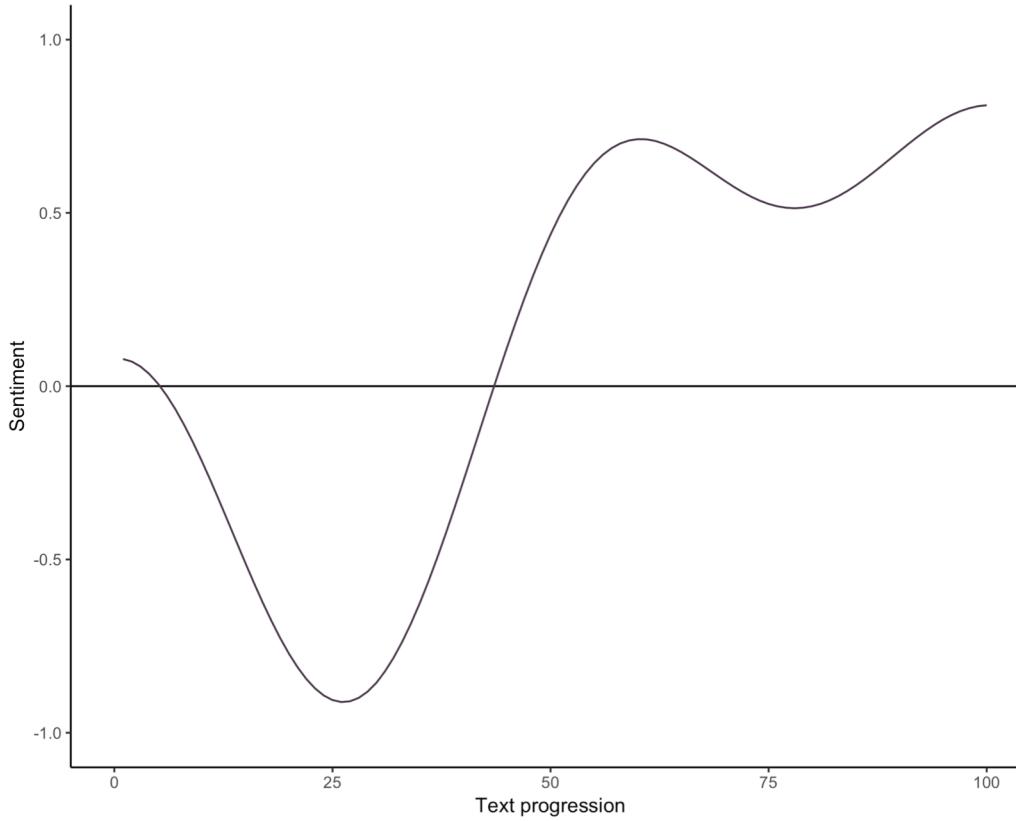
van der Vegt, Kleinberg, Gill (submitted). Understanding Sentiment Trajectories in Lone-Actor Terrorist Manifestos.



Waiting in anticipation

# Clustering example

van der Vegt, Kleinberg, Gill (submitted). Understanding Sentiment Trajectories in Lone-Actor Terrorist Manifestos.



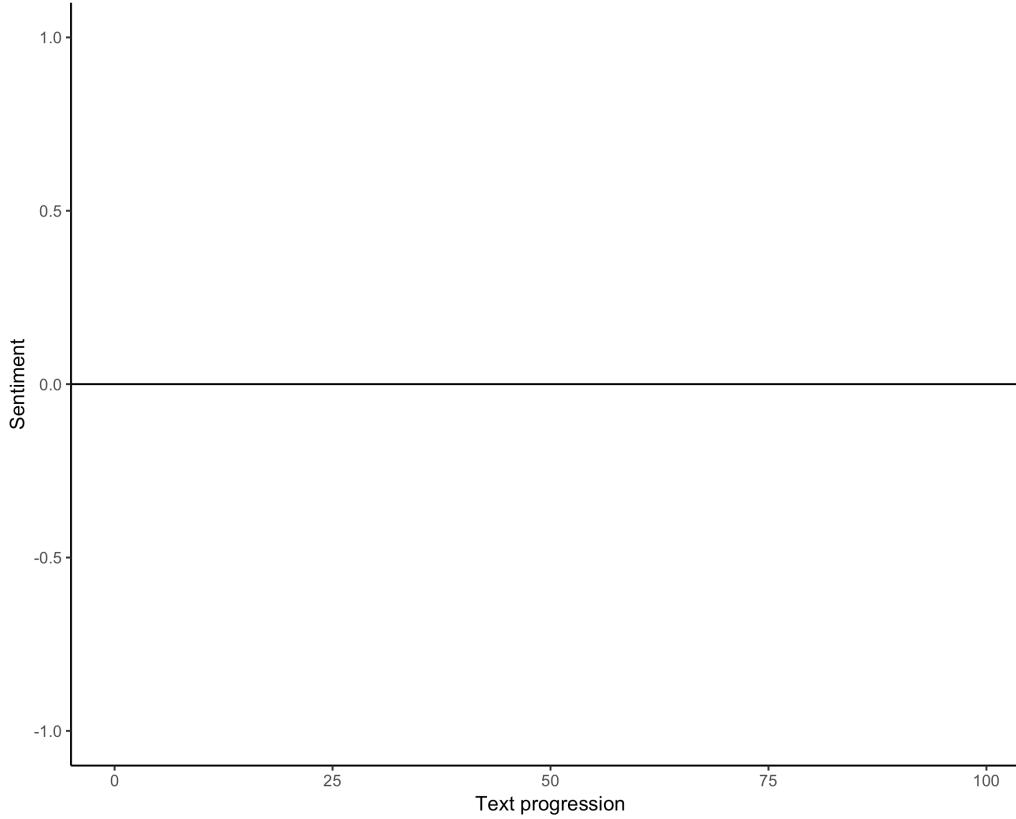
"I am grateful for having received this insight [...] this knowledge is an essential skill."

- *Anders Breivik Manifesto*

Waiting in anticipation

# Clustering example

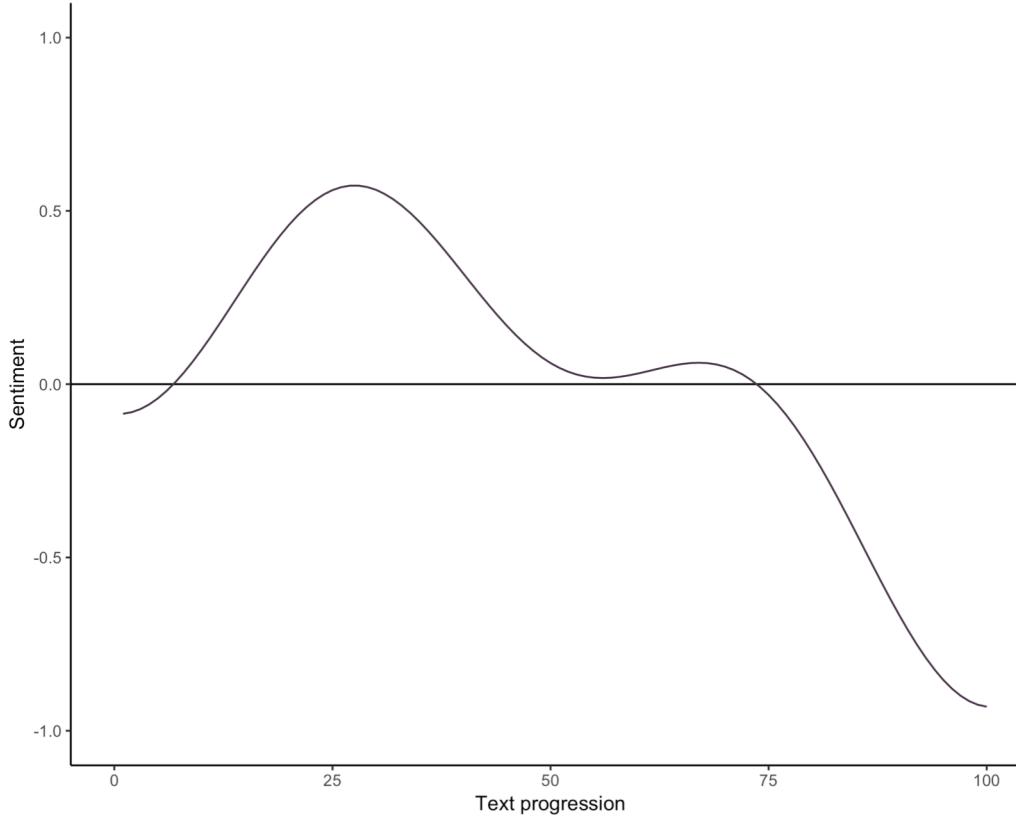
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Impending doom

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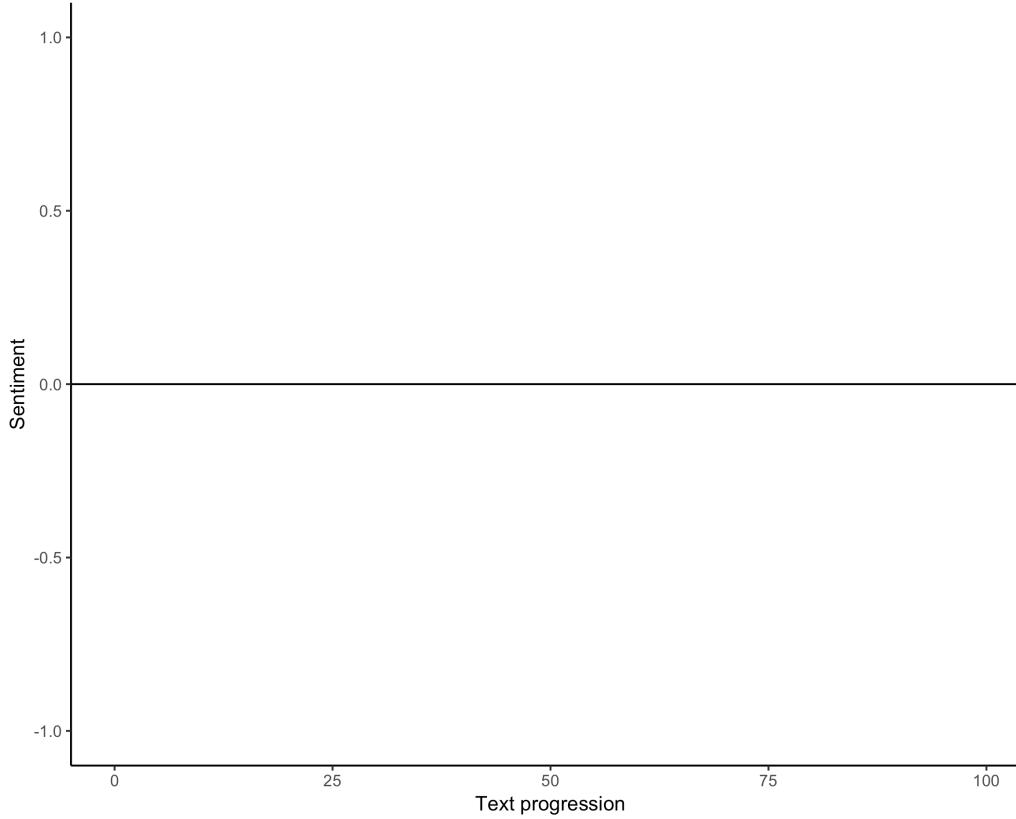


"I will kill them all and make them suffer, just as they have made me suffer."  
- *Elliot Rodger manifesto*

Impending doom

# Clustering example

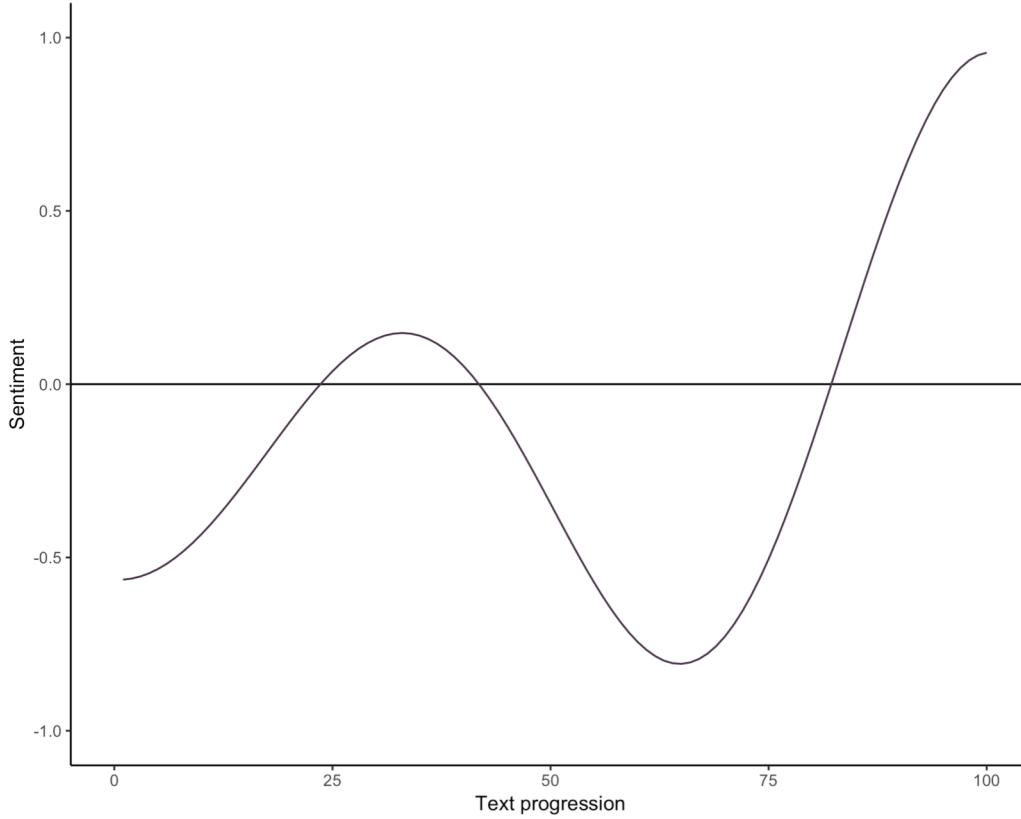
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Violent mood swings

# Clustering example

van der Vegt, Kleinberg, Gill (submitted). Understanding Sentiment Trajectories in Lone-Actor Terrorist Manifestos.



"Praise God for his  
deliverance and shout the  
good news!"  
- *Paul Hill manifesto*

Violent mood swings

# Correlation example

Tanveer, Samrose, Baten, & Hoque (2018). Awe the Audience: How the Narrative Trajectories Affect Audience Perception in Public Speaking.

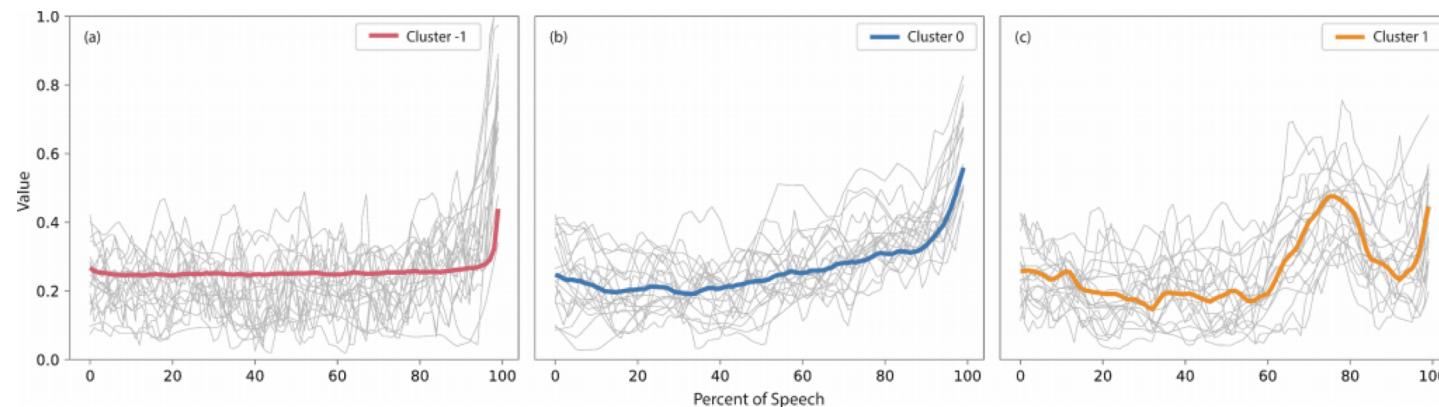
- Transcripts of TED talks
- Narrative trajectories
  - Emotion: anger, disgust, fear, joy, sadness
  - Personality: openness, conscientiousness, extraversion, emotional range, agreeableness
  - Language: analytical, confident, tentative
- Viewer annotations: e.g. informative, funny, long-winded



# Correlation example

Tanveer, Samrose, Baten, & Hoque (2018). Awe the Audience: How the Narrative Trajectories Affect Audience Perception in Public Speaking.

- Three clusters in data
- Differences in “beautiful”, “long-winded”, “OK”, “confusing”, and “unconvincing” ratings across clusters
- Flat trajectory correlated with “long-winded” ratings



# Prediction example

Tanveer, Samrose, Baten, & Hoque (2018). Awe the Audience: How the Narrative Trajectories Affect Audience Perception in Public Speaking.

- Time-wise statistics as features (min, max, mean, sd)
- Classification
  - Highly rated vs. poorly rated for each audience rating
  - “Beautiful” and “persuasive” highest AUC and classification accuracies

# Prediction example

Tanveer, Samrose, Baten, & Hoque (2018). Awe the Audience: How the Narrative Trajectories Affect Audience Perception in Public Speaking.

- Time-wise statistics as features (min, max, mean, sd)
- Regression
  - Predicting continuous ratings for each audience rating
  - “Informative” and “fascinating” highest correlation between predicted and actual ratings

# Summary

- Clustering
- Correlation with clusters
- Prediction
  - Possible features: summary statistics vs. trajectory coordinates