NLP
Introduction to NLP

Sentiment Analysis
Reviews of 1Q84 by Haruki Murakami

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  —Matt Staggs, Suvudu.com

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Sentiment about Companies
Other Examples

- Movie reviews
- Product reviews
- Debates
  - www.createdebate.com
Introduction

• Many posts, blogs
• Expressing personal opinions
• Research questions
  – Subjectivity analysis
  – Polarity analysis (positive/negative, number of stars)
  – Viewpoint analysis (Chelsea vs. Manchester United, republican vs. democrat)
• Sentiment target
  – entity
  – aspect
Introduction

• Level of granularity
  – Document
  – Sentence
  – Attribute

• Opinion words
  – Base
  – Comparative (better, slower)
Introduction

• Just counting negative words is not enough
• Negation analysis
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Product Reviews

Samsung Galaxy S5 Android Phone 16 GB - Shimmery White - Verizon - CDMA
$50 online, $50 nearby  ★★★★★  2,839 reviews

What people are saying

- battery
  - "This device has great battery life!"
- size
  - "Awesome phone, light weight, easy to use."
- camera
  - "Love the great pics you can take."
- features
  - "Great phone - love all the features and ease of use."
- screen
  - "Great phone, love the screen!!"
- design
  - "Love this phone, camera and overall functionality."
- speaker/headset
  - "Fast processor, great exceptions and clear speaker."

Larcom10 - Full review provided by Best Buy

★★★☆☆ so far I am on the fence - May 11, 2014

Ok I had an s3. I have had this phone for 3 weeks. Fingerprint reader worthless it tries 5 times but then you end up typing your password. My power button seems to only turn the phone on first push when it wants to. I tried to return it thinking defective but missed the 14 day return by 2 days, so I have to deal with samsung directly. Not happy about this. The screen scratches easy get a protector. There are more scratches in 3 weeks than 2 years on the s3. I don't think it's glass. Heart monitor worthless. Anyway I am not totally unhappy though. I could not go back to my s3 now. Volume is great. Pictures look great. Battery better than s3. Fitness software is cool I work outside and it tracks my steps. I went for a bike ride today, put it on bicycle and it was
Twitter Sentiment

Sentiment analysis for Samsung Galaxy S5

Tweets about: Samsung Galaxy S5

- "This Samsung Galaxy S5 Active is pretty nice. I prefer it over the Note 3." - murraylondo
- "TELLUS Learning Specialist: Understanding how to use my New Samsung Galaxy S5 Active." - MommyTurtle
- "Hi Elle, the Samsung Galaxy S5 SM-G900F is tested and support our LTE network." - AlfaTelecom
- "Samsung Galaxy S5 SM-G900V (Latest Model) - 16GB - Charcoal Black (Verizon)... $315.00 with 5m left." - ACPBeBayBot
Problems

• Subtlety
• Concession
• Manipulation
• Sarcasm and irony
SA as a Classification Problem

• Set of features
  – Words
    • Presence is more important than frequency
  – Punctuation
  – Phrases
  – Syntax

• A lot of training data is available
  – E.g., movie review sentences and stars
  – http://www.cs.cornell.edu/people/pabo/movie-review-data

• Techniques
  – MaxEnt
  – SVM
  – Naive Bayes
Resources

• CMU Twitter parser
  – http://www.ark.cs.cmu.edu/TweetNLP/
NLP