

# Sentiment Analysis and Opinion Mining

## Lecture 11: October 16, 2013

CS886-2 Natural Language Understanding  
University of Waterloo

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## Definition

- Liu *et al.* (2009) define a sentiment or opinion as a quintuple-  
 $\langle o_j, f_{jk}, so_{ijkl}, h_i, t_l \rangle$ , where
  - $o_j$  is a target object,
  - $f_{jk}$  is a feature of the object  $o_j$ ,
  - $h_i$  is the opinion holder
  - $t_l$  is a particular time
  - $so_{ijkl}$  is the sentiment value (+ve, -ve, or neutral, or a more granular rating) of the opinion of the opinion holder  $h_i$  on feature  $f_{jk}$  of object  $o_j$  at time  $t_l$

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## Sentiment Analysis

- Can be viewed as a classification problem
  - i.e., positive vs negative vs neutral
  - other ratings
- Common approaches
  - Support vector machines, naïve Bayes, decision trees, nearest neighbour

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## Challenges

- **Implicit Sentiment and Sarcasm**
  - *How can anyone sit through this movie?*
  - *One should question the stability of mind of the writer who wrote this book.*

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## Challenges

- **Domain Dependency**
  - *The story was unpredictable.*
  - *The steering of the car is unpredictable.*
  - *Go read the book.*

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## Challenges

- **Thwarted Expectations**
  - *This film should be brilliant. It sounds like a great plot, the actors are first grade, and the supporting cast is good as well, and Stallone is attempting to deliver a good performance. However, it can't hold up.*

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## Challenges

- **Entity identification**
  - *Samsung is better than Nokia*
  - *Ram defeated Hari in football.*

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## Challenges

- **Negation**
  - *I do not like the movie*
  - *I do not like the acting but I like the direction*
  - *Not only did I like the acting, but also the direction*

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