



Interactive Exploration of Asynchronous Conversations: Applying a User-centered Approach to Design a Visual Text Analytic System

Enamul Hoque, Giuseppe Carenini

{enamul,carenini}@cs.ubc.ca
University of British Columbia

Shafiq Joty

sjoty@qf.org.qa
Qatar Computing Research Institute

The Problem

Asynchronous conversations such as a blog can generate a long and complex thread as comments are added by the participants



Information overload:

- ❑ The readers skip comments
- ❑ Generate short response
- ❑ Leave the discussion prematurely



Our Approach

User centered design

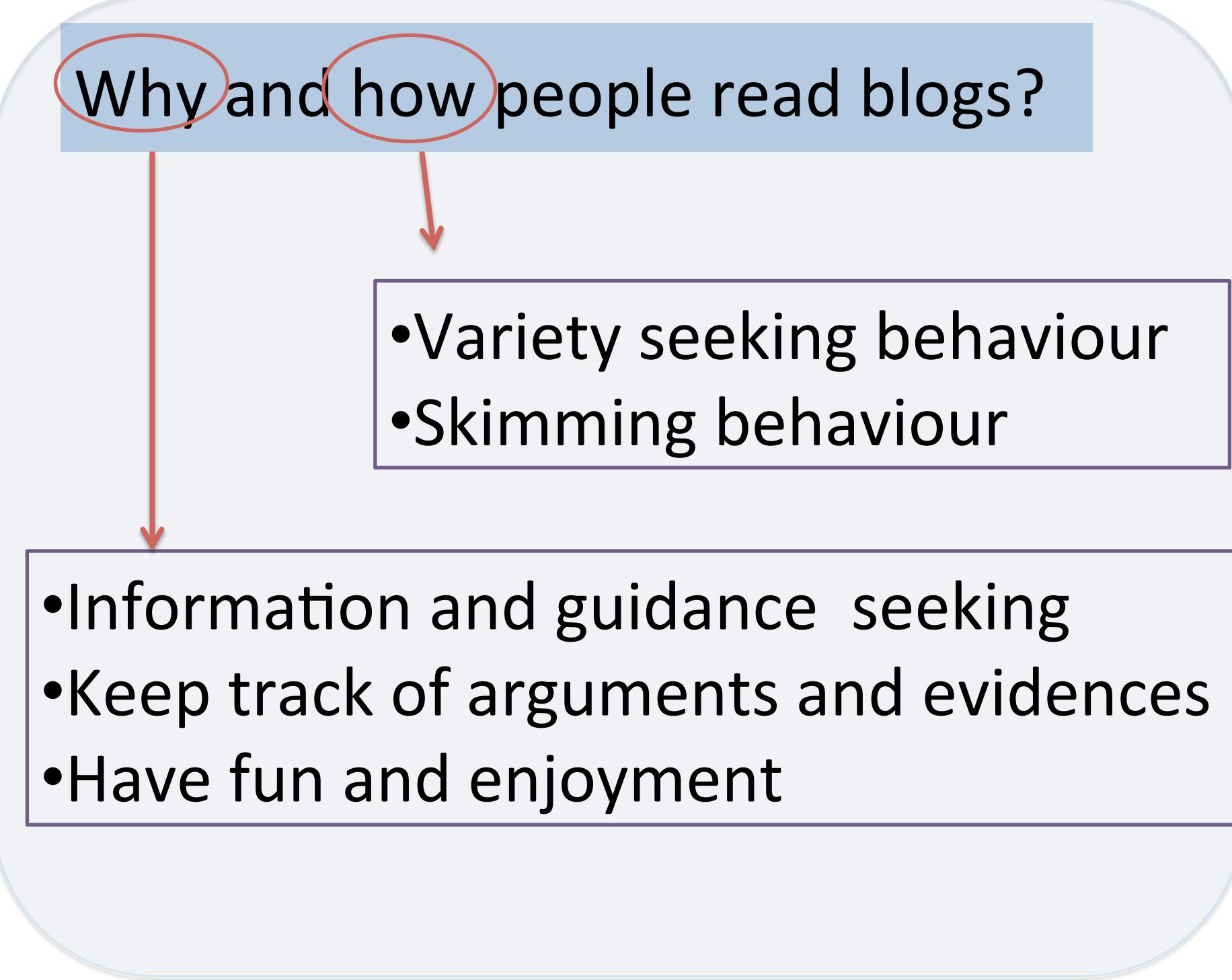
Apply Nested Model [Munzner 2009]

- What NLP methods should be applied?
- What metadata are important?
- How the information should be visualized?

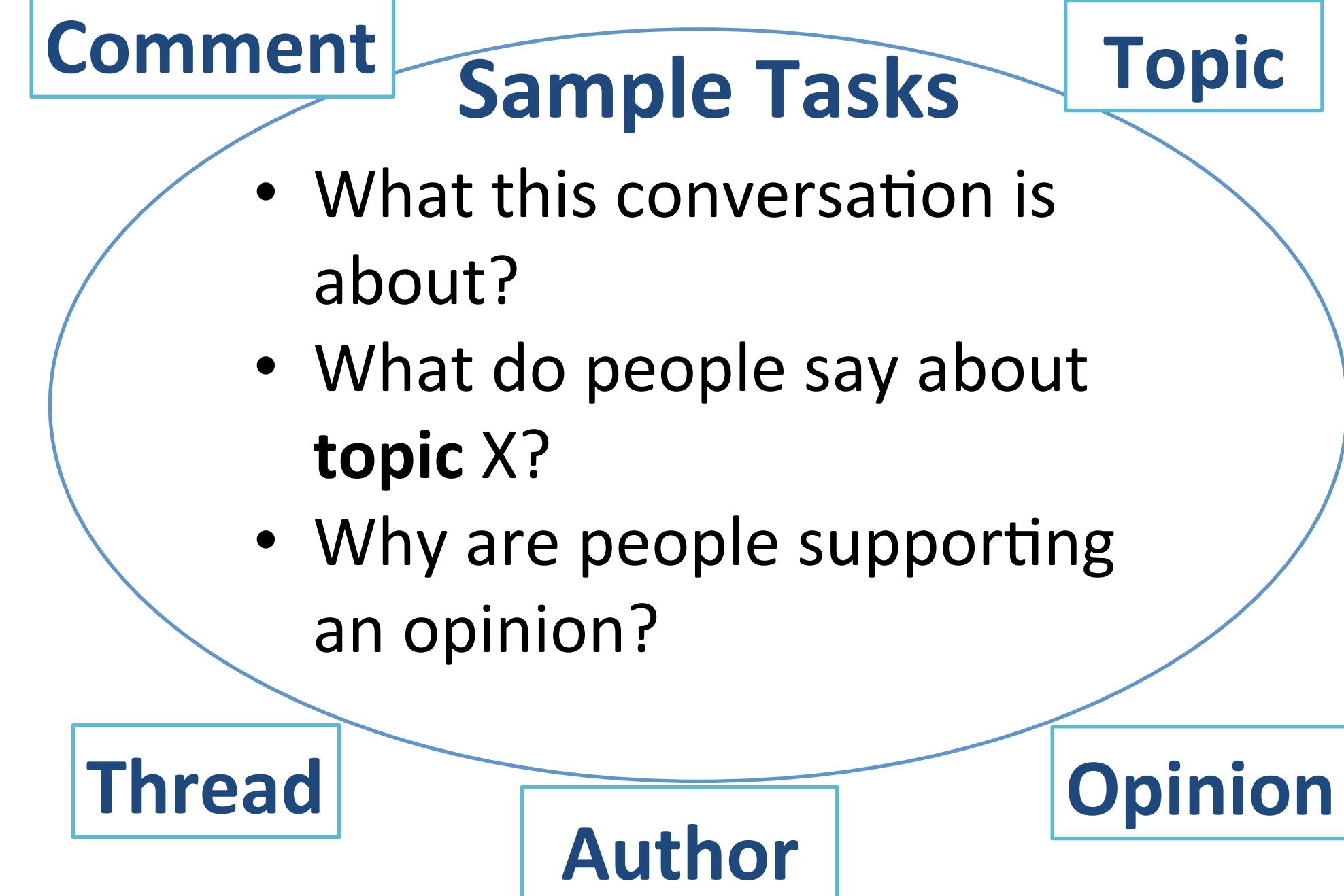
Tightly integrate NLP and InfoVis techniques

Applying User Centered Design

Characterizing the Domain of Blogs



Blog Data and Tasks Abstractions



Extracting Data from Blogs

Topic Model

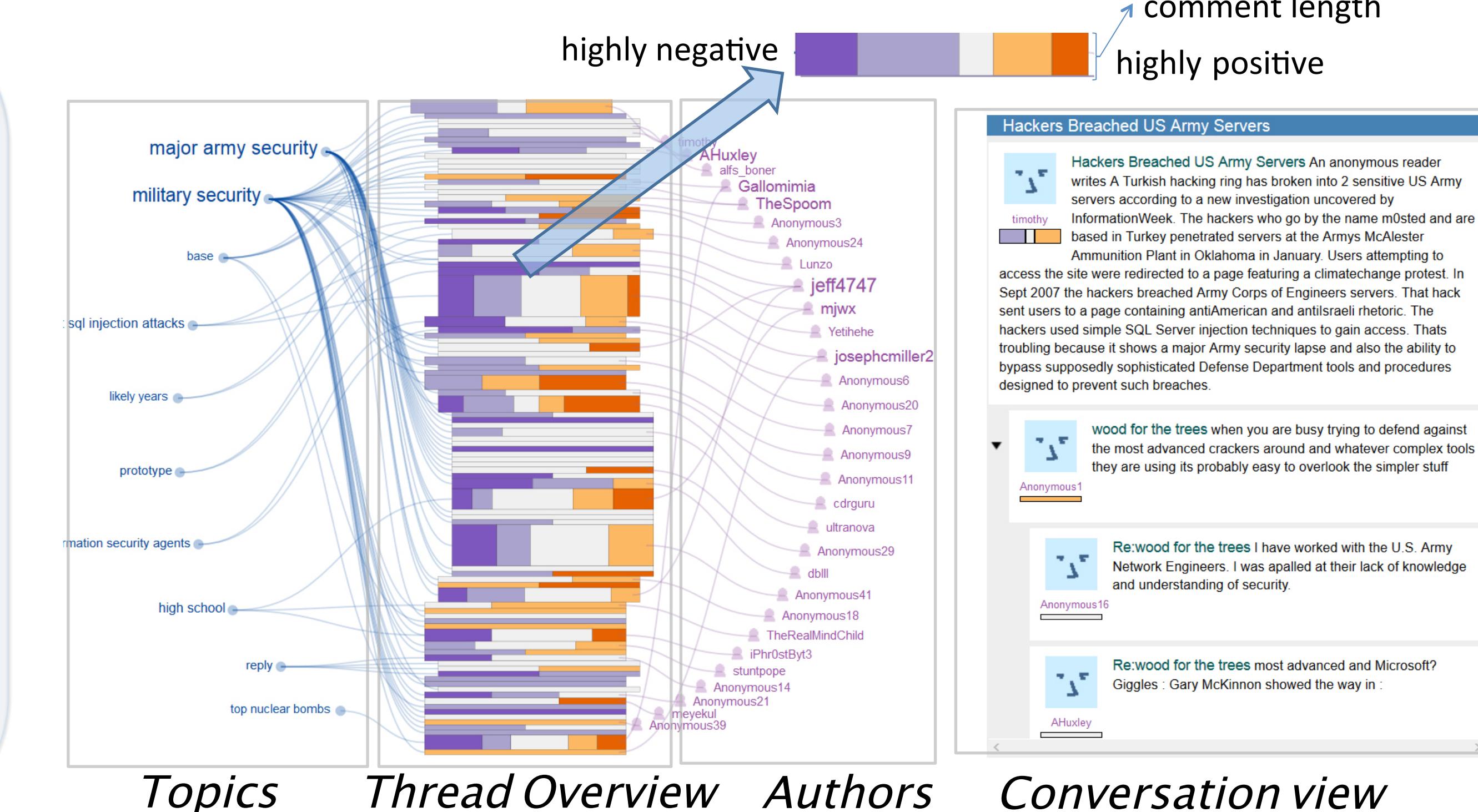
Segmentation: Use graph-based clustering model that considers lexical cohesion and conversational structure.

Labeling: Generate k keyphrases for each segment using graph-based co-ranking method.

Opinion extraction

- Apply Semantic Orientation CALculator
- Compute polarity distribution for each comment

ConVis: Interactive Visualization of Conversations



Interactive Topic model to Support User Tasks

Why?

Given an initial model:

- Topic model might be noisy
- Users may be different (e.g., in expertise)
- Task may require to change the topic granularity

Example: A system generated topic is "Military security".

It consists of sub-topics: "advance hacking", "defence facility" and "security lapses".

Task: What opinions are expressed about "security lapses"?

The user needs to split "Military security" into further sub-topics.

How?

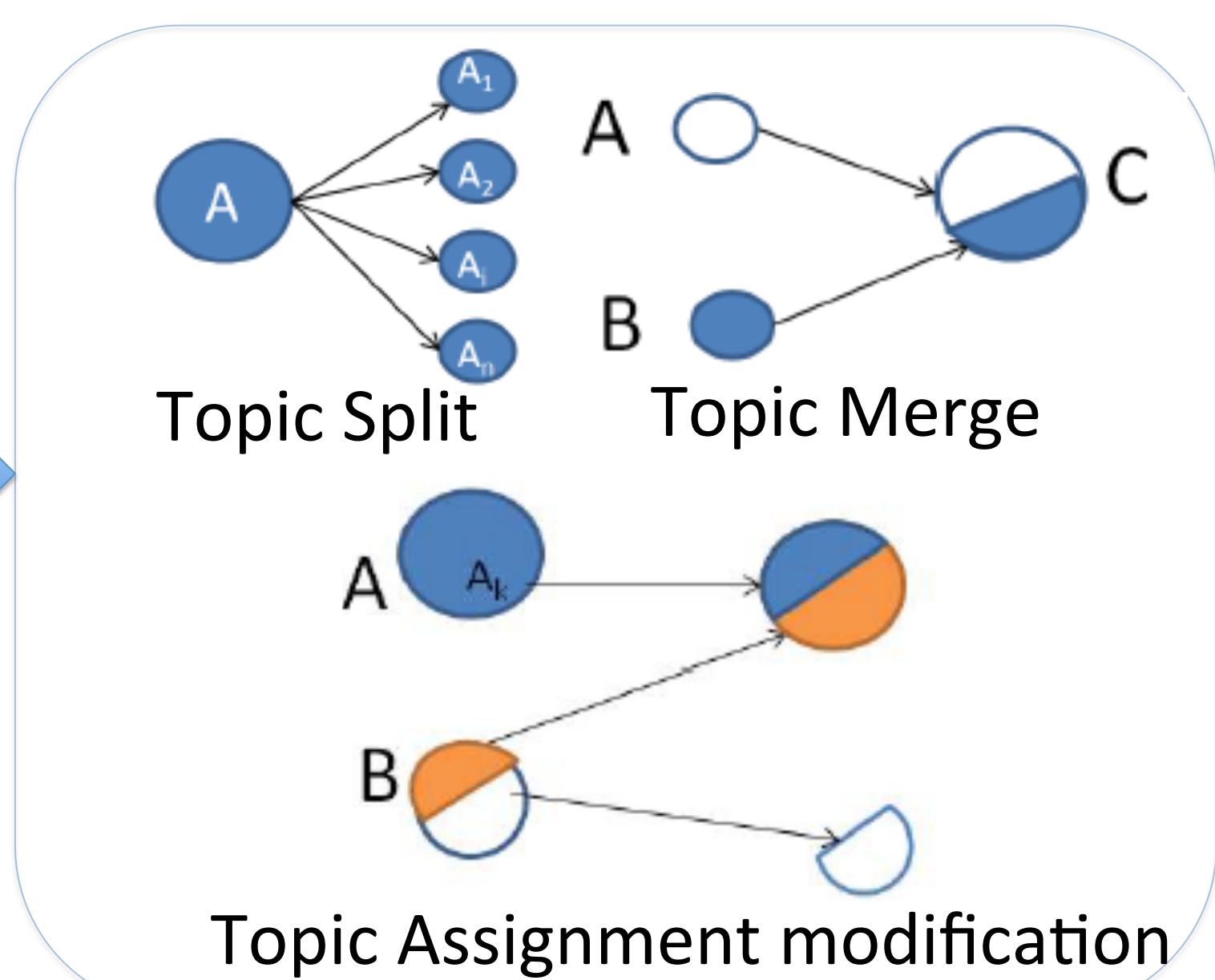
Underlying Topic Model

updates

User feedback

Visual Interface

- Supports user feedback interactions
- Visualizes the changes in the results



Future Directions

- ❑ Couple advanced NLP Methods with Interactive Visualizations
- ❑ Run a summative evaluation

For live demo and related papers:
<http://www.cs.ubc.ca/~enamul/convis/>

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