Normalized Model Evaluation Concerning Social Abstract Argumentation

Sinan Eğilmez
Supervised by: João Leite

February 17, 2015

Outline

Outline

Motivation

- Interactions in Social Networks are unstructured, often chaotic.
- Prevents a fulfilling experience for those seeking deeper interactions and not just increasing their number of friends, likes, etc.

The Vision: A self-managing online debating system capable of accommodating two archetypal levels of participation:

- experts/enthusiasts - who specify arguments and the attacks between arguments.
- observers/random browsers - will vote on individual arguments, and on the specified attacks via GUI.
- autonomously maintaining a formal outcome to debates by assigning a strength to each argument based on the structure of the argumentation graph and the votes.

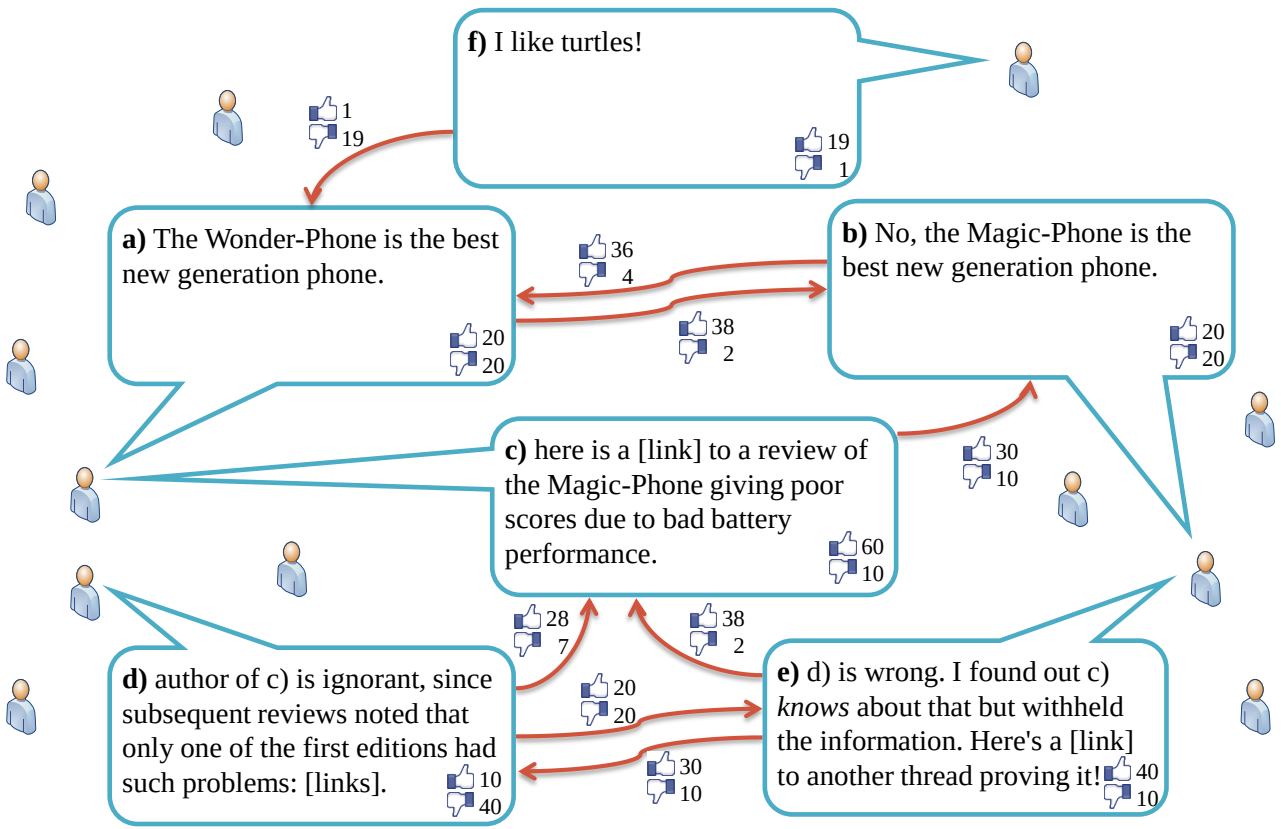
Motivation

- Interactions in Social Networks are unstructured, often chaotic.
- Prevents a fulfilling experience for those seeking deeper interactions and not just increasing their number of friends, likes, etc.

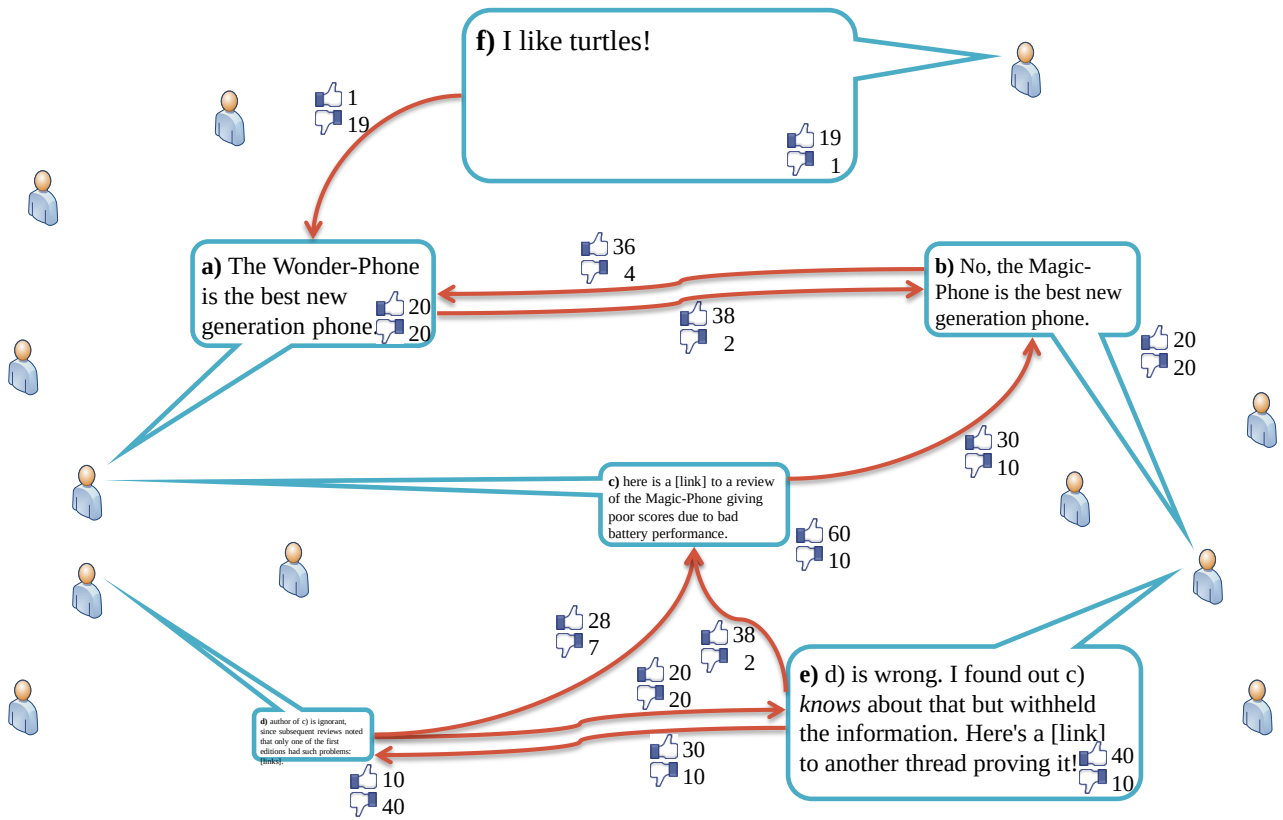
The Vision: A self-managing online debating system capable of accommodating two archetypal levels of participation:

- experts/enthusiasts - who specify arguments and the attacks between arguments.
- observers/random browsers - will vote on individual arguments, and on the specified attacks via GUI.
- autonomously maintaining a formal outcome to debates by assigning a strength to each argument based on the structure of the argumentation graph and the votes

Envisioned Framework



Envisioned Framework Model

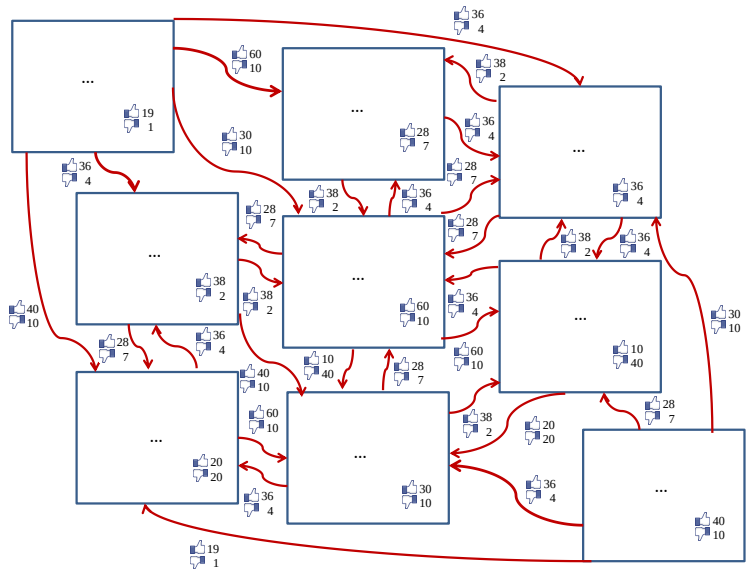


SAF - State of Art

Outline

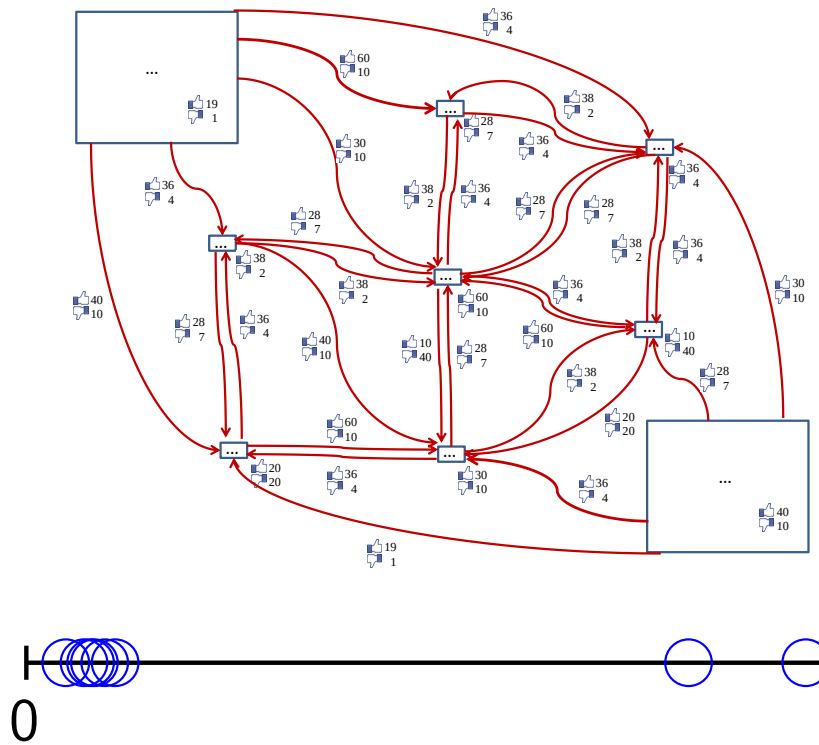
Problem motivation

- When the social argumentation graph is dense, the model evaluations tend to get smaller.



Problem motivation

- When the social argumentation graph is dense, the model evaluations tend to get smaller.



Formal Roadmap

- Characterization of a normalized dataset
  - Concepts from the field of Statistics
- Desired properties/mappings
  - Existence of arguments
  - Relative ordering of model evaluations
  - Relative ordering of distances
  - Upper limit by social support
- Construction of the algorithm
  - In alignment with classes of desired mappings

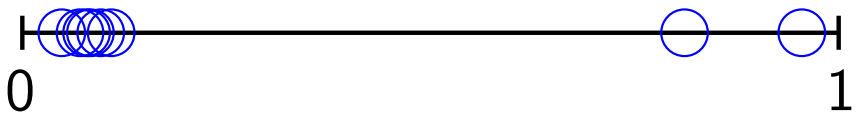
Formal Roadmap

- Characterization of a normalized dataset
  - Concepts from the field of Statistics
- Desired properties/mappings
  - Existence of arguments
  - Relative ordering of model evaluations
  - Relative ordering of distances
  - Upper limit by social support
- Construction of the algorithm
  - In alignment with classes of desired mappings

Formal Roadmap

- Characterization of a normalized dataset
  - Concepts from the field of Statistics
- Desired properties/mappings
  - Existence of arguments
  - Relative ordering of model evaluations
  - Relative ordering of distances
  - Upper limit by social support
- Construction of the algorithm
  - In alignment with classes of desired mappings

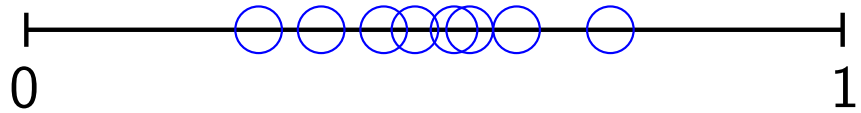
The Challenge



- We may construct the normalization algorithm with two components:

1. Labeling phase (by clustering)
   - Cluster density
   - Time/Space complexity
   - Clustering spacing
2. Normalizing phase (via update function)
   - Desirable properties
   - Time complexity

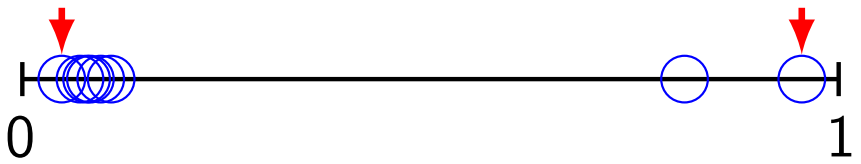
The Challenge



- We may construct the normalization algorithm with two components:

1. Labeling phase (by clustering)
   - Cluster density
   - Time/Space complexity
   - Clustering spacing
2. Normalizing phase (via update function)
   - Desirable properties
   - Time complexity

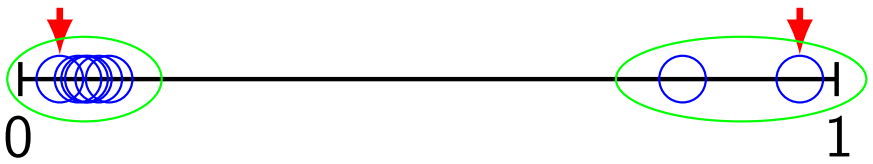
The Challenge



- We may construct the normalization algorithm with two components:

1. Labeling phase (by clustering)
   - Cluster density
   - Time/Space complexity
   - Clustering spacing
2. Normalizing phase (via update function)
   - Desirable properties
   - Time complexity

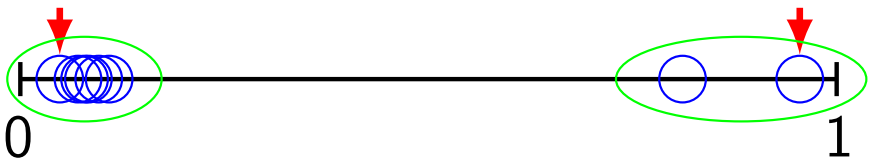
The Challenge



- We may construct the normalization algorithm with two components:

1. Labeling phase (by clustering)
   - Cluster density
   - Time/Space complexity
   - Clustering spacing
2. Normalizing phase (via update function)
   - Desirable properties
   - Time complexity

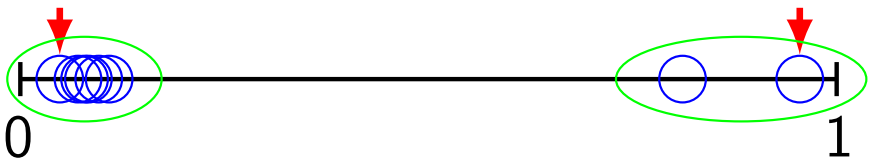
The Challenge



- We may construct the normalization algorithm with two components:

1. Labeling phase (by clustering)
   - Cluster density
   - Time/Space complexity
   - Clustering spacing
2. Normalizing phase (via update function)
   - Desirable properties
   - Time complexity

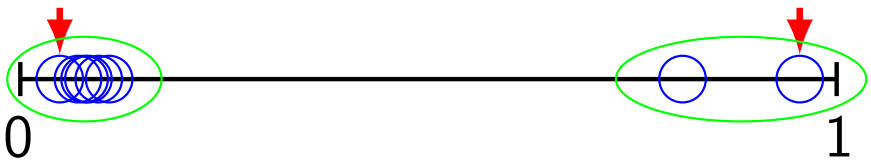
The Challenge



- We may construct the normalization algorithm with two components:

1. Labeling phase (by clustering)
   - Cluster density
   - Time/Space complexity
   - Clustering spacing
2. Normalizing phase (via update function)
   - Desirable properties
   - Time complexity

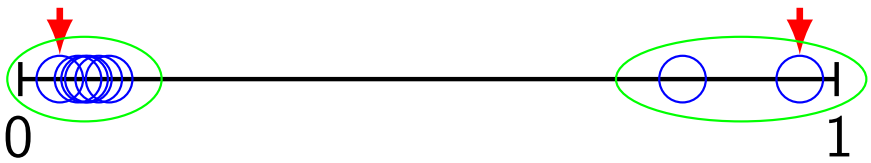
The Challenge



- We may construct the normalization algorithm with two components:

1. Labeling phase (by clustering)
   - Cluster density
   - Time/Space complexity
   - Clustering spacing
2. Normalizing phase (via update function)
   - Desirable properties
   - Time complexity

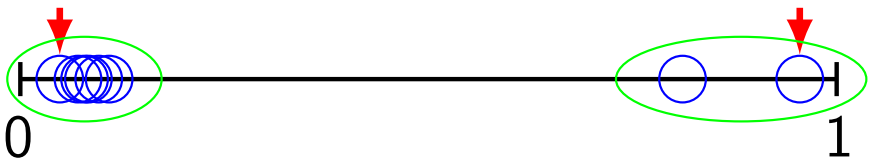
The Challenge



- We may construct the normalization algorithm with two components:

1. Labeling phase (by clustering)
   - Cluster density
   - Time/Space complexity
   - Clustering spacing
2. Normalizing phase (via update function)
   - Desirable properties
   - Time complexity

The Challenge



- We may construct the normalization algorithm with two components:

1. Labeling phase (by clustering)
   - Cluster density
   - Time/Space complexity
   - Clustering spacing
2. Normalizing phase (via update function)
   - Desirable properties
   - Time complexity

Ongoing Work

- Automated means for characterization.
  - Initial attempts rely on expert knowledge or constants.
- Investigation of desirable properties, stricter desirable mapping classes.
- Investigation of algorithms.

"Perhaps the most important principle for the good algorithm designer is to refuse to be content."

- Aho, Hopcroft, and Ullman, *The Design and Analysis of Computer Algorithms, 1974*

Ongoing Work

- Automated means for characterization.
  - Initial attempts rely on expert knowledge or constants.
- Investigation of desirable properties, stricter desirable mapping classes.
- Investigation of algorithms.

"Perhaps the most important principle for the good algorithm designer is to refuse to be content."

- Aho, Hopcroft, and Ullman, *The Design and Analysis of Computer Algorithms, 1974*

Bibliography

- J. Leite and J. Martins, **Social Abstract Argumentation**, *In Procs. of IJCAI 2011*.
- S. Egilmez, J. Martins and J. Leite, **Extending Social Abstract Argumentation with votes on attacks**, *In Procs. of TAFA 2013*.
- M. Correia, J. Cruz and J. Leite, **On the Efficient Implementation of Social Abstract Argumentation**, *In Procs. of ECAI 2014*.


THANK
YOU
GRACIAS
ARIGATO
SHUKURIA
DANKSCHEEN
BIYAN
SHUKRIA
TINGKI
YAQHANYELAY
TASHAKKUR ATU
SUKSAMA
EKHMET
MEHRBANI
GRAZIE
MAAKE
KOMAPSUMNIDA
GOZAIMASHITA
EFCHARISTO
JUSPAXAR
PALDIES
BOLZÏN
MERCI