Poster Lightning Talks

Poster Lightning Talks
Overview

1. The Swedish PoliGraph: A Semantic Graph for Argument Mining of Swedish Parliamentary Data
2. Towards Effective Rebuttal: Listening Comprehension Using Corpus-Wide Claim Mining
3. Lexicon Guided Attentive Neural Network Model for Argument Mining
4. Is It Worth the Attention? A Comparative Evaluation of Attention Layers for Argument Unit Segmentation
5. Argument Component Classification by Relation Identification by Neural Network and TextRank
6. Argumentative Evidences Classification and Argument Scheme Detection Using Tree Kernels
7. The Utility of Discourse Parsing Features for Predicting Argumentation Structure
8. Detecting Argumentative Discourse Acts with Linguistic Alignment
9. Annotation of Rhetorical Moves in Biochemistry Articles
10. Evaluation of Scientific Elements for Text Similarity in Biomedical Publications
11. Categorizing Comparative Sentences
12. Ranking Passages for Argument Convincingness
13. Gradual Argumentation Evaluation for Stance Aggregation in Automated Fake News Detection

Poster Lightning Talks

Poster 1 (demo)

The Swedish PoliGraph: A Semantic Graph for Argument Mining of Swedish Parliamentary Data

Stian Rødven Eide

A semantic graph of members of the Swedish parliament!


For named entity recognition/resolution and argumentation mining!

Keeps track of
speeches, debates,
roles and positions
of all MPs since 1990!

Poster Lightning Talks

Poster 2 (long)

Towards Effective Rebuttal: Listening Comprehension Using Corpus-Wide Claim Mining

Tamar Lavee, Matan Orbach, Lili Kotlerman, Yoav Kantor, Shai Gretz, Lena Dankin, Michal Jacovi, Yonatan Bilu, Ranit Aharonov, and Noam Slonim

Live debate held at San Francisco Feb 11th 2019

IBM Project Debater

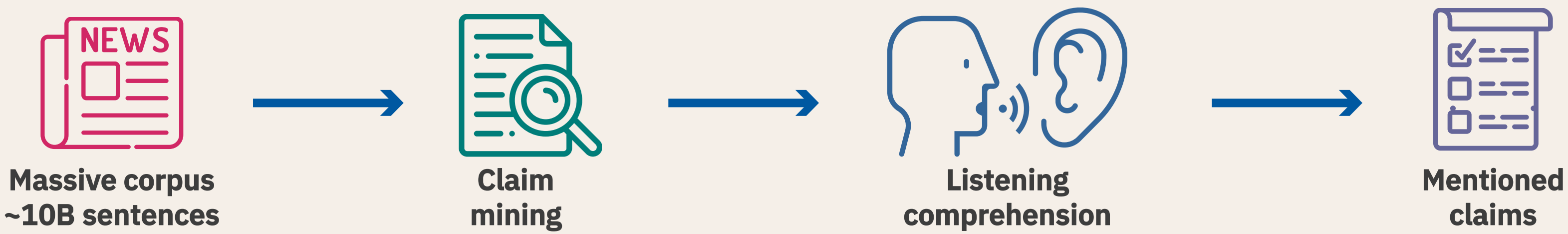
Expert human debater: Mr. Harish Natarajan

Engaging in a live debate requires rebutting your opponent’s arguments

- **What are those arguments?**

Towards Effective Rebuttal:
Listening Comprehension Using Corpus-Wide Claim Mining

Tamar Lavee, Matan Orbach, Lili Kotlerman, Yoav Kantor, Shai Gretz, Lena Dankin, Shachar Mirkin, Michal Jacovi, Yonatan Bilu, Ranit Aharonov, Noam Slonim



New dataset available online!

400 speeches on 200 different topics

4.8K claims

High quality annotation

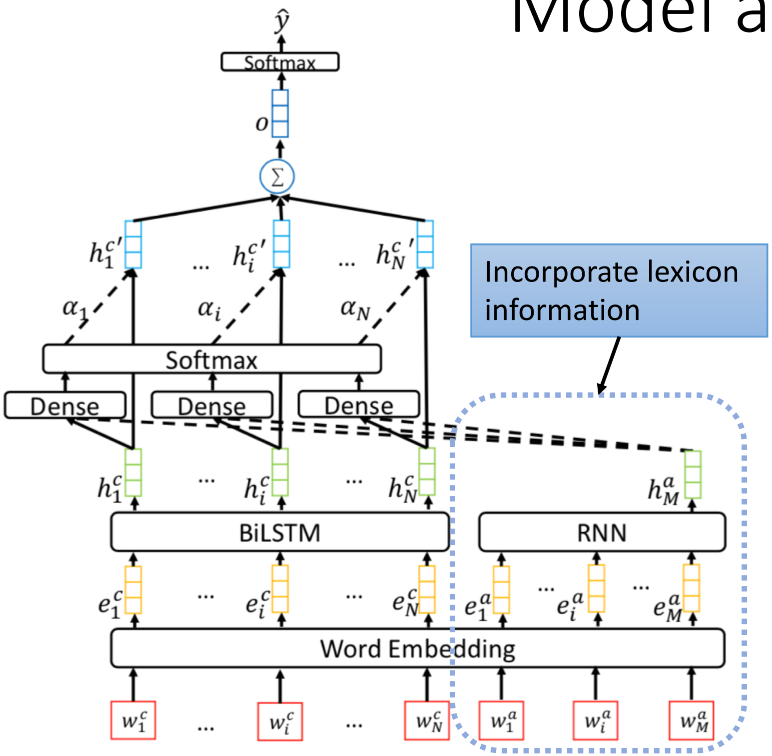
Lexicon Guided Attentive Neural Network Model for Argument Mining

Jian-Fu Lin, Kuo Yu Huang, Hen-Hsen Huang, and Hsin-Hsi Chen

Goal

- Use of lexicon information by neural networks
- The scarcity of the lexicon resources in AM
- Explore lexicons from different domains/sources
  - Argument mining
  - Sentiment analysis
  - Emotion detection
  - General

Model and Results



model	F_1	Lexicon size (#words)
BiLSTM	$.5337 \pm .0123$	n/a
ClaimLex*	$.5684 \pm .0222$	~600
SentimentLex*	$.5718 \pm .0165$	~6,800
EmotionLex*	$.5695 \pm .0129$	~6,500
WordNet*	$\mathbf{.5788 \pm .0142}$	~155,300

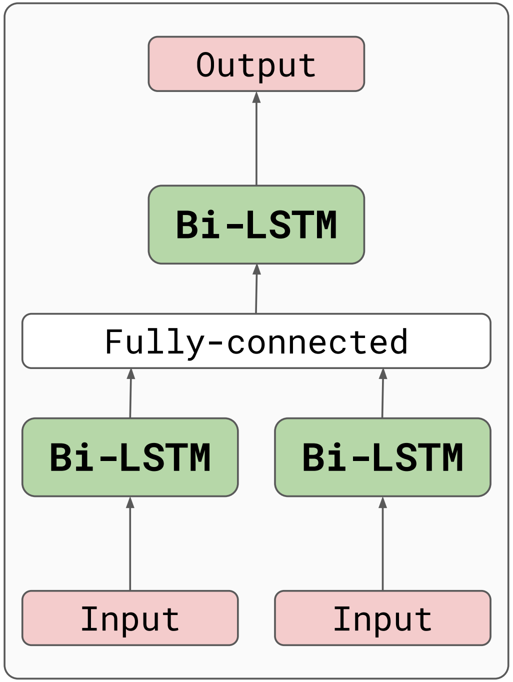
- The result confirms the effectiveness of the integration of lexicon information.
- The influence of the size and the type of a lexicon is discussed.

Poster Lightning Talks

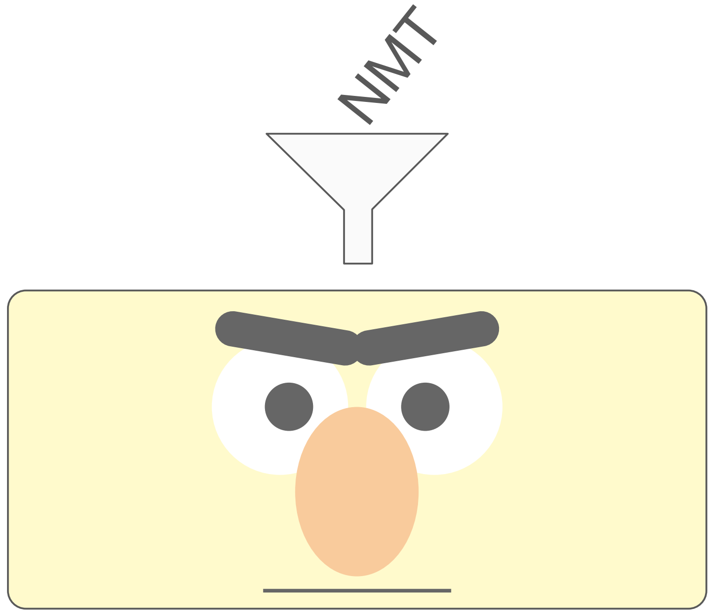
Poster 4 (long)

Is It Worth the Attention? A Comparative Evaluation of Attention Layers for Argument Unit Segmentation

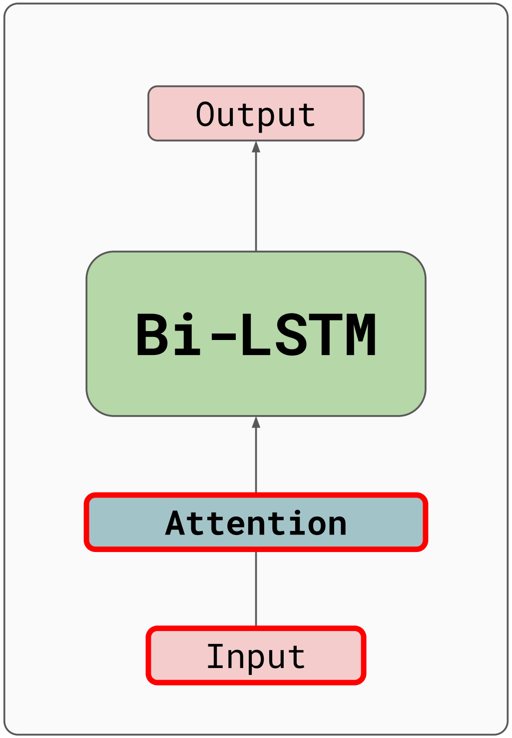
Maximilian Spliethöver, Jonas Klaff, and Hendrik Heuer



Ajjour, et al.



Devlin, et al.



→ Attention *layers*

→ Contextualized input embeddings

Poster Lightning Talks

Poster 5 (long)

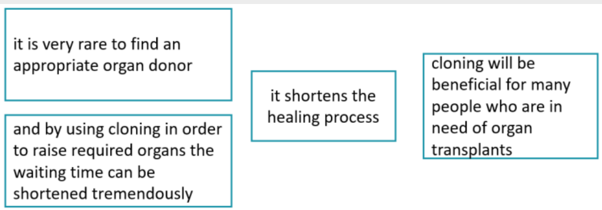
Argument Component Classification by Relation Identification by Neural Network and TextRank

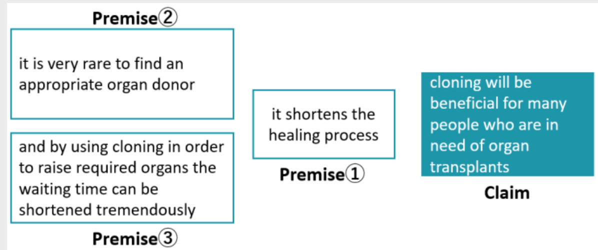
Mamoru Deguchi and Kazunori Yamaguchi

Argument Component Classification by Relation Identification by Neural Network and TextRank

Mamoru Deguchi, The University of Tokyo

Purpose: Components Classification

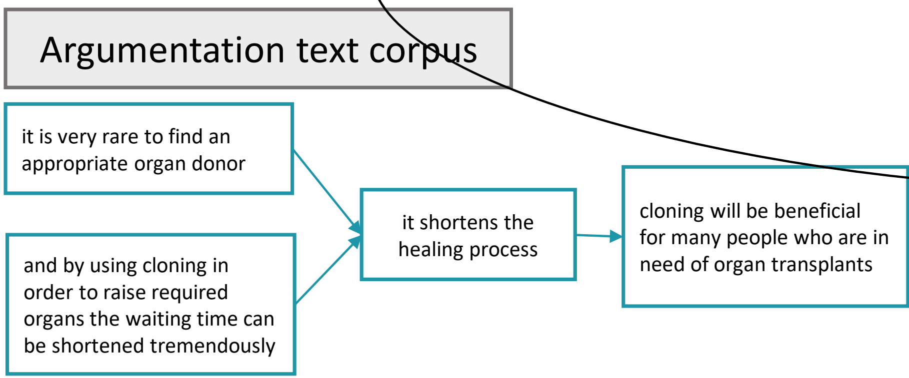


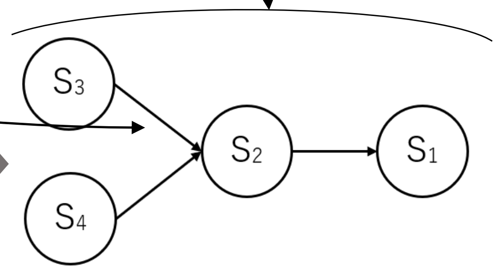


TextRank [Petasis 2016] Extracting a major claim or a claim by ranking the sentences using the **TextRank** on the basis of the similarity of sentences.

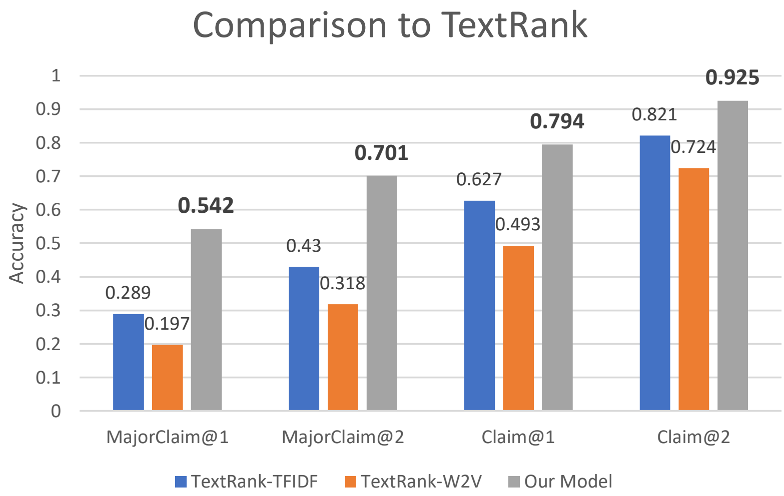
Proposed Method

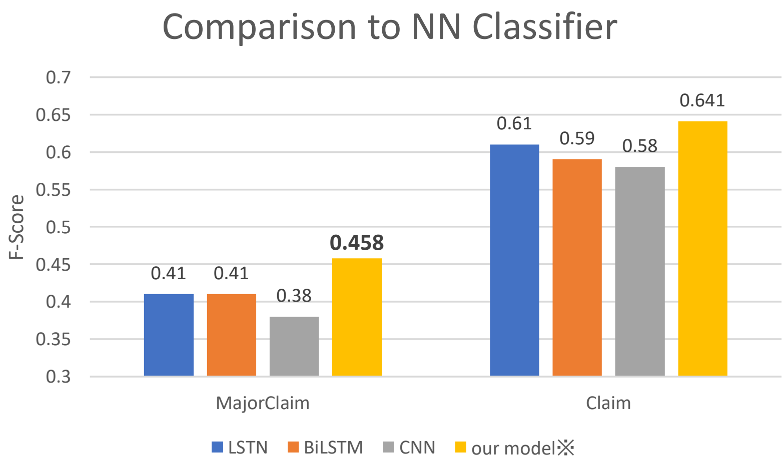
Weight prediction using corpus by NN + **Calculating scores from all the predicted weights by TextRank**





Experiment on Student Essay [Stab 2016]





※On comparison to NN Classifier, threshold k is 3 at MajorClaim, 7 at Claim.

Evaluation metrics

- MajorClaim@k

The target major claims ∈ top k
➡ correct

- Claim@k

The target claims or major claims ∈ top k
➡ correct

- Major Claim
  The standpoint of the author on the topic of the essay
- Claim
  An intermediate claim that supports or attacks the major claim
- Premise
  An assumption or a reason that supports or attacks a claim or another premise

Poster Lightning Talks

Poster 6 (short)

Argumentative Evidences Classification and Argument Scheme Detection Using Tree Kernels

Davide Liga

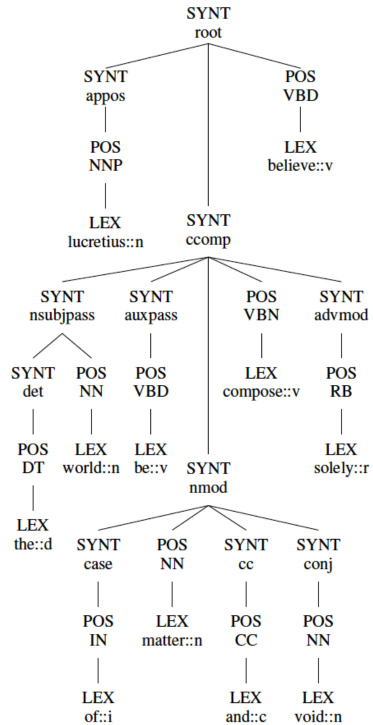
Assumptions:

Discriminating **argumentative stances of support/opposition** can **facilitate** the detection of **Argument Schemes**

Tree Kernels are optimal for this kind of classifications.

The advantages of Tree Kernels

- Avoiding **highly-engineered features**
- Generalization by **leveraging structural information**



The experiment

Binary classification:
STUDY vs **EXPERT**

Contributions

- **TKs can outperform traditional features**, while **keeping a high generalization**
- **Successful combination** of two important datasets

F1 scores range **from 0.71 to 0.92**

Trained on **DS1** (Al Khatibet et al. 2016)

TESTED ON:	TFIDF	SPTK	SPTK+TFIDF
Same Dataset	★ [2nd] 0.91	0.87	★ [1st] 0.92
Other Dataset	0.72	★ [2nd] 0.75	★ [1st] 0.76

Trained on **DS2** (Aharoni et al. 2014)

TESTED ON:	TFIDF	SPTK	SPTK+TFIDF
Same Dataset	0.71	★ [1st] 0.73	★ [2nd] 0.72
Other Dataset	0.74	★ [2nd] 0.82	★ [1st] 0.84

★ [1st] → Best performance

★ [2nd] → Second best performance

Poster Lightning Talks

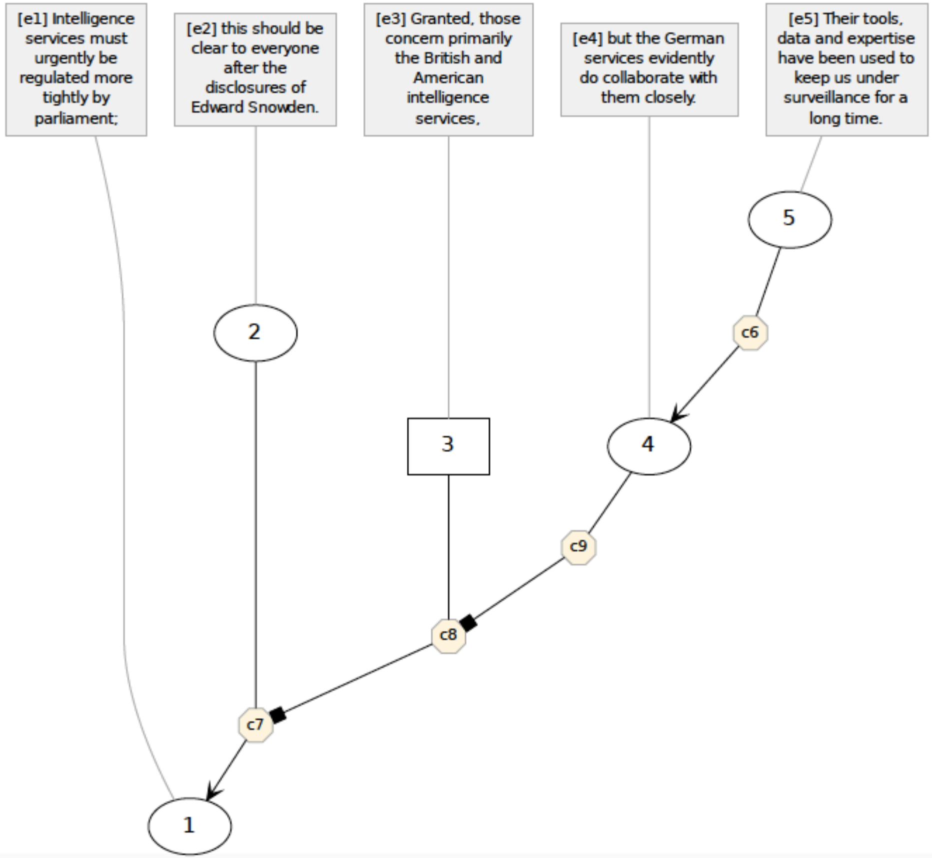
Poster 7 (short)

The Utility of Discourse Parsing Features for Predicting Argumentation Structure

Freya Hewett, Roshan Prakash Rane, Nina Harlacher, and Manfred Stede

Hewett et al.: Discourse parsing for argument mining

- **Arg. Microtexts** corpus
- Ca. 5 segments per text
- **Function:** support / attack
- **Role:** proponent / opponent



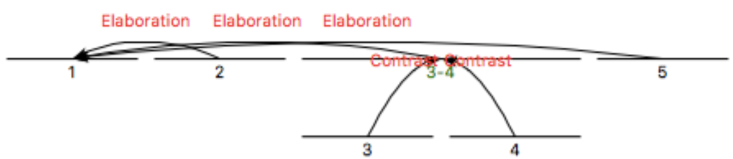
Hewett et al.: Discourse parsing for argument mining

Penn Discourse Treebank (Shallow Discourse Parsing)

1:[Intelligence services must urgently be regulated more tightly by parliament;] 2:[this should be clear to everyone after the disclosures of Edward Snowden.] 3:[Granted, those concern primarily the British and American intelligence services,] *Comparison.Contrast* 4:[**but** the German services evidently do collaborate with them closely.] 5:[Their tools, data and expertise have been used to keep us under surveillance for a long time.]

PDTB parser: Ziheng Lin, Hwee Tou Nh, and Min-Yen Kan. 2014. A pdtb-styled end-to-end discourse parser. Natural Language Engineering , 20:151–184.

Rhetorical Structure Theory

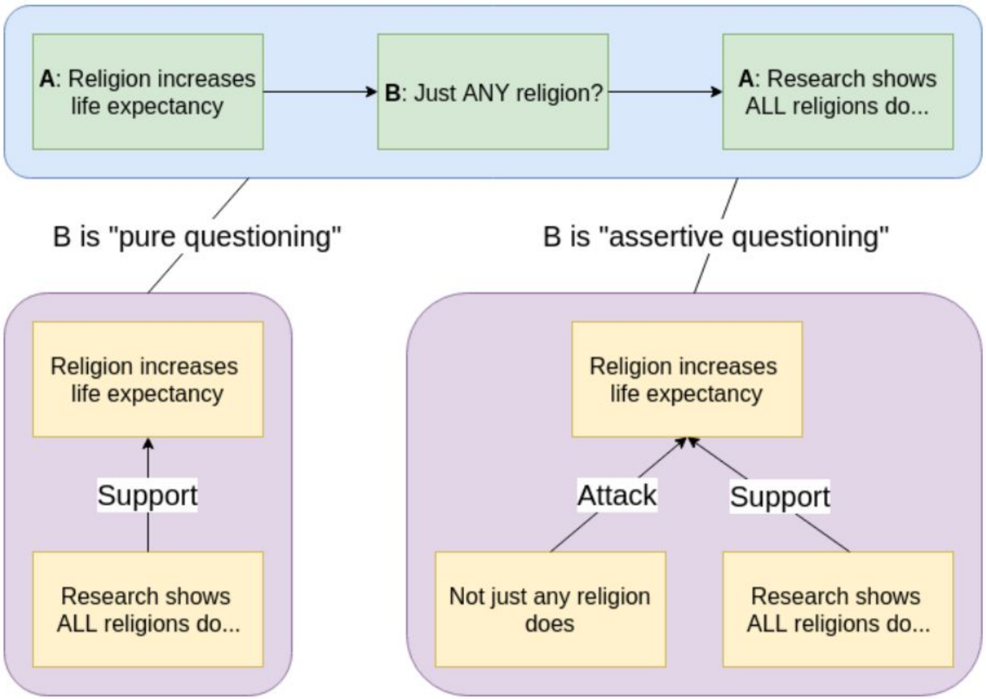


RST parser: Vanessa Wei Feng and Graeme Hirst. 2014. A linear time bottom-up discourse parser with constraints and post-editing. In Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics , pages 511–521.

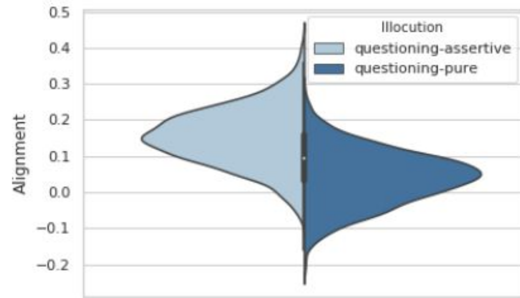
Detecting Argumentative Discourse Acts with Linguistic Alignment

Timothy Niven and Hung-Yu Kao

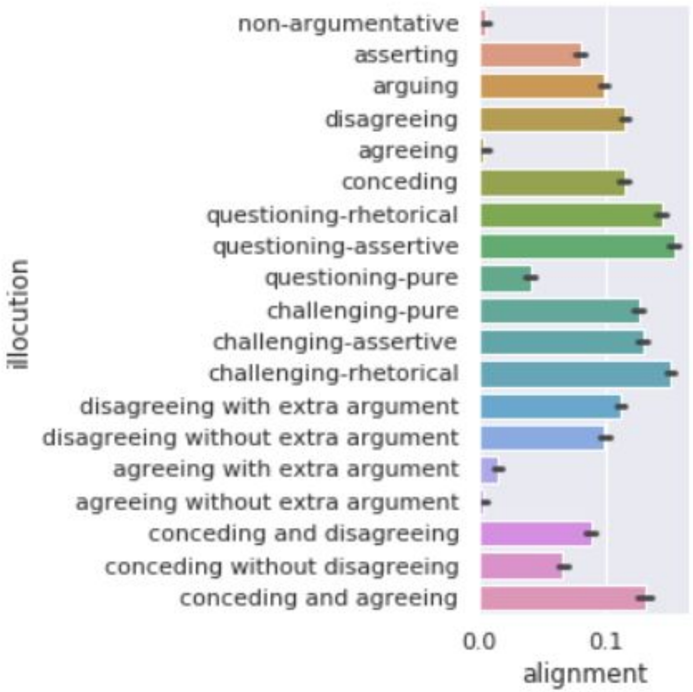
Detecting Argumentative Discourse Acts with Linguistic Alignment

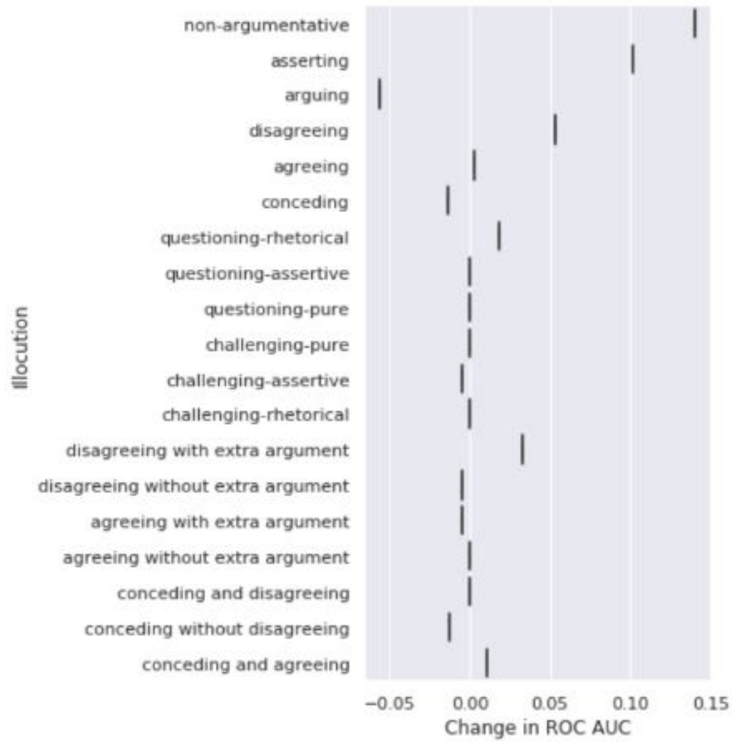


	B's reply	
A's message	has pronoun	no pronoun
has pronoun	8	2
no pronoun	5	5



Detecting Argumentative Discourse Acts with Linguistic Alignment





Poster Lightning Talks

Poster 9 (long)

Annotation of Rhetorical Moves in Biochemistry Articles

Mohammed Alliheedi, Robert E. Mercer, and Robin Cohen

Annotation of Rhetorical Moves in Biochemistry Articles

Mohammed Alliheedi, Robert E. Mercer, and Robin Cohen
David R. Cheriton School of Computer Science, University of Waterloo, Waterloo, Ontario, Canada
Department of Computer Science, The University of Western Ontario, London, Ontario, Canada

- Detecting rhetorical moves: a step towards argument structure
- Argumentation can enable validating scientific claims, etc.
- Rhetorical move taxonomy based on Kanoksilapatham and Swales' CARS model
- Hypothesis: moves correlate with experimental procedures
- Verbs are strongly associated with these procedures
- We propose a ***procedurally rhetorical verb-centric frame semantics*** to analyze sentence meaning to understand the moves

Annotation of Rhetorical Moves in Biochemistry Articles

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David R. Cheriton School of Computer Science, University of Waterloo, Waterloo, Ontario, Canada
Department of Computer Science, The University of Western Ontario, London, Ontario, Canada

Poster outline:

- A brief background and motivation for this work is given
- Our developed annotation scheme for experimental events including rhetorical moves and semantic roles is described
- The annotation guidelines are introduced
- Then, the labelling for semantic roles and rhetorical moves using GATE is shown
- Finally, we provide the results of our annotation study

Poster Lightning Talks

Poster 10 (long)

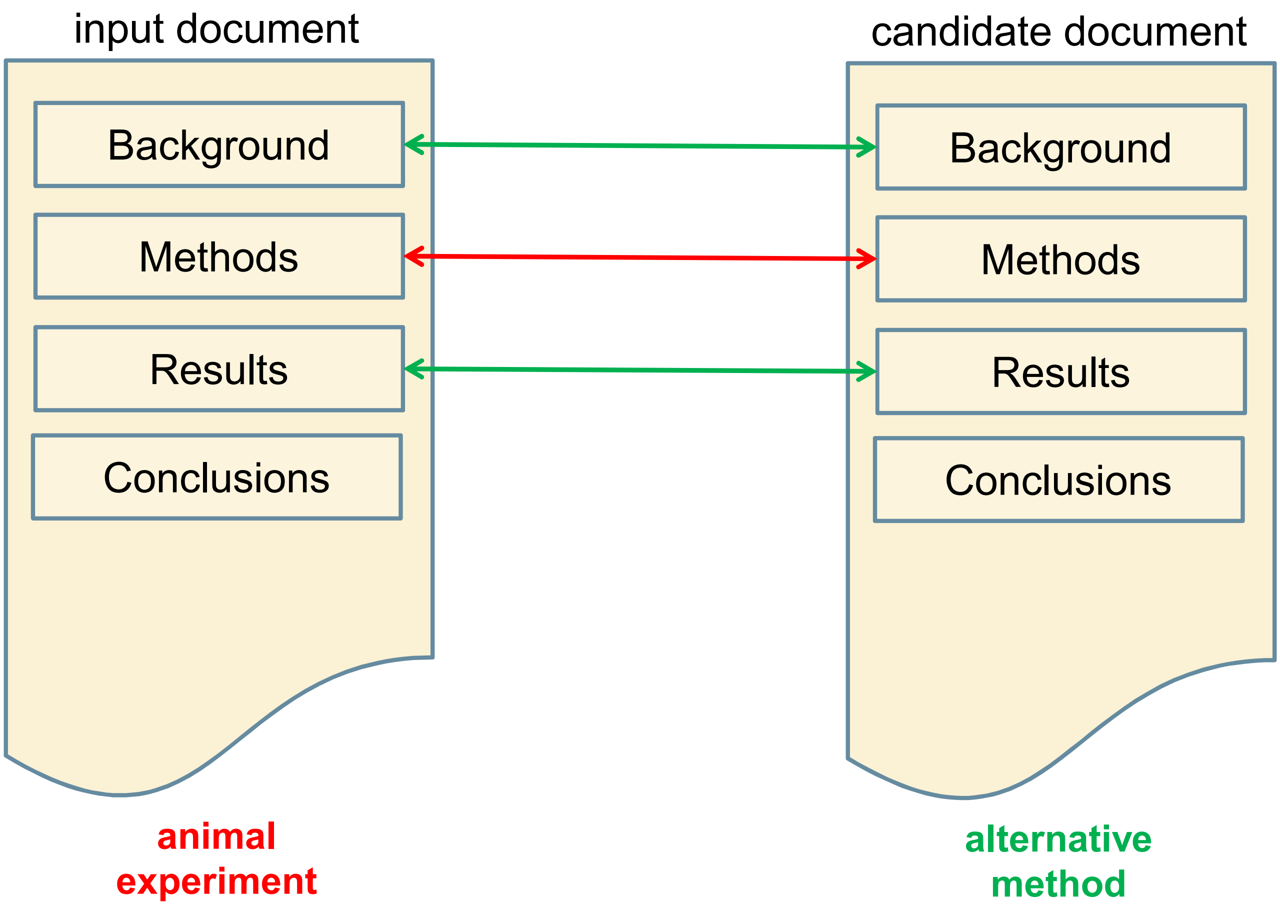
Evaluation of Scientific Elements for Text Similarity in Biomedical Publications

Mariana Neves, Daniel Butzke and Barbara Grune

Evaluation of Scientific Elements for Text Similarity in Biomedical Publications

- short survey on existing schemes for rhetorical elements in scientific publications
- identification of the schemes for which corpora are available
- identification of the schemes for which tools are readily available for use
- evaluation of the available tools on a biomedical use case for text similarity

Evaluated of the tools for text similarity: mining alternative methods to animal experiments



Poster Lightning Talks

Poster 11 (long)

Categorizing Comparative Sentences

Alexander Panchenko, Alexander Bondarenko, Mirco Franzek, Matthias Hagen, and Chris Biemann

Categorising Comparative Sentences: A New Cross-Domain Dataset

Sample sentences:

Domain	Sentence	Label
CompSci	This time **Windows 8** was roughly 8 percent slower than **Windows 7**.	WORSE
CompSci	I've concluded that it is better to use **Python** for scripting rather than **Bash**.	BETTER
Brands	These include **Motorola**, Samsung and **Nokia**.	NONE
Brands	**Honda** quality has gone downhill, Hyundai or **Ford** is a much better value.	WORSE
Random	Right now, I think **tennis** is easier than **baseball**.	BETTER
Random	I've grown older and wiser and avoid the **pasta** and **bread** like the plague.	NONE

Statistics of the dataset:

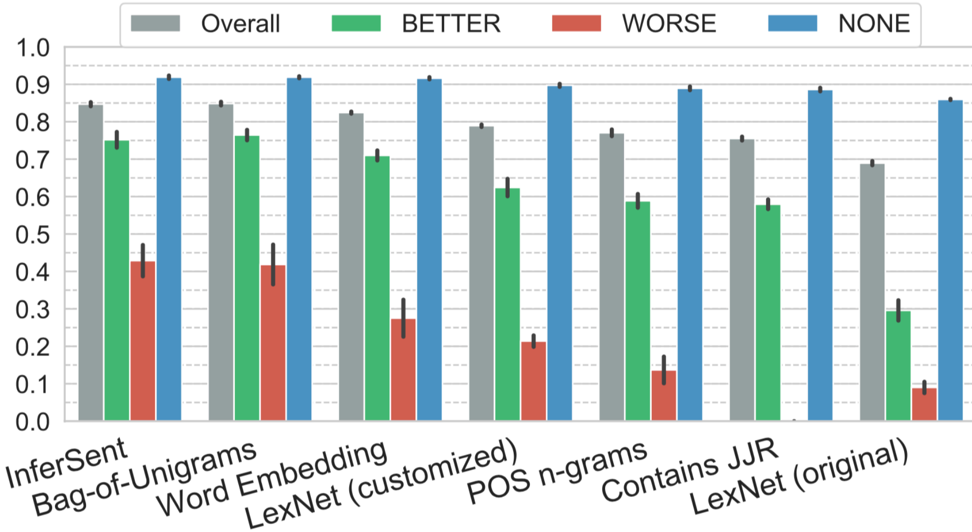
	Label			
Domain	BETTER	WORSE	NONE	Total
CompSci	581	248	1,596	2,425
Brands	404	167	1,764	2,335
Random	379	178	1,882	2,439
Total	1,364	593	5,242	7,199

Results

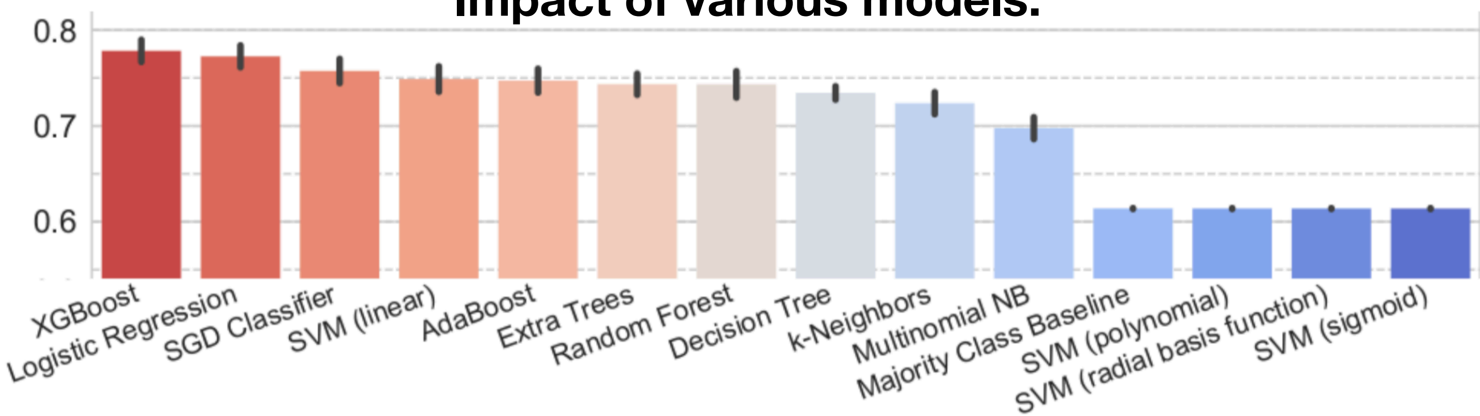
Good cross-domain transfer:

Train \Test	CompSci	Brands	Random
CompSci	0.82	**0.84**	**0.84**
Brands	0.76	**0.83**	**0.83**
Random	0.79	0.84	**0.86**

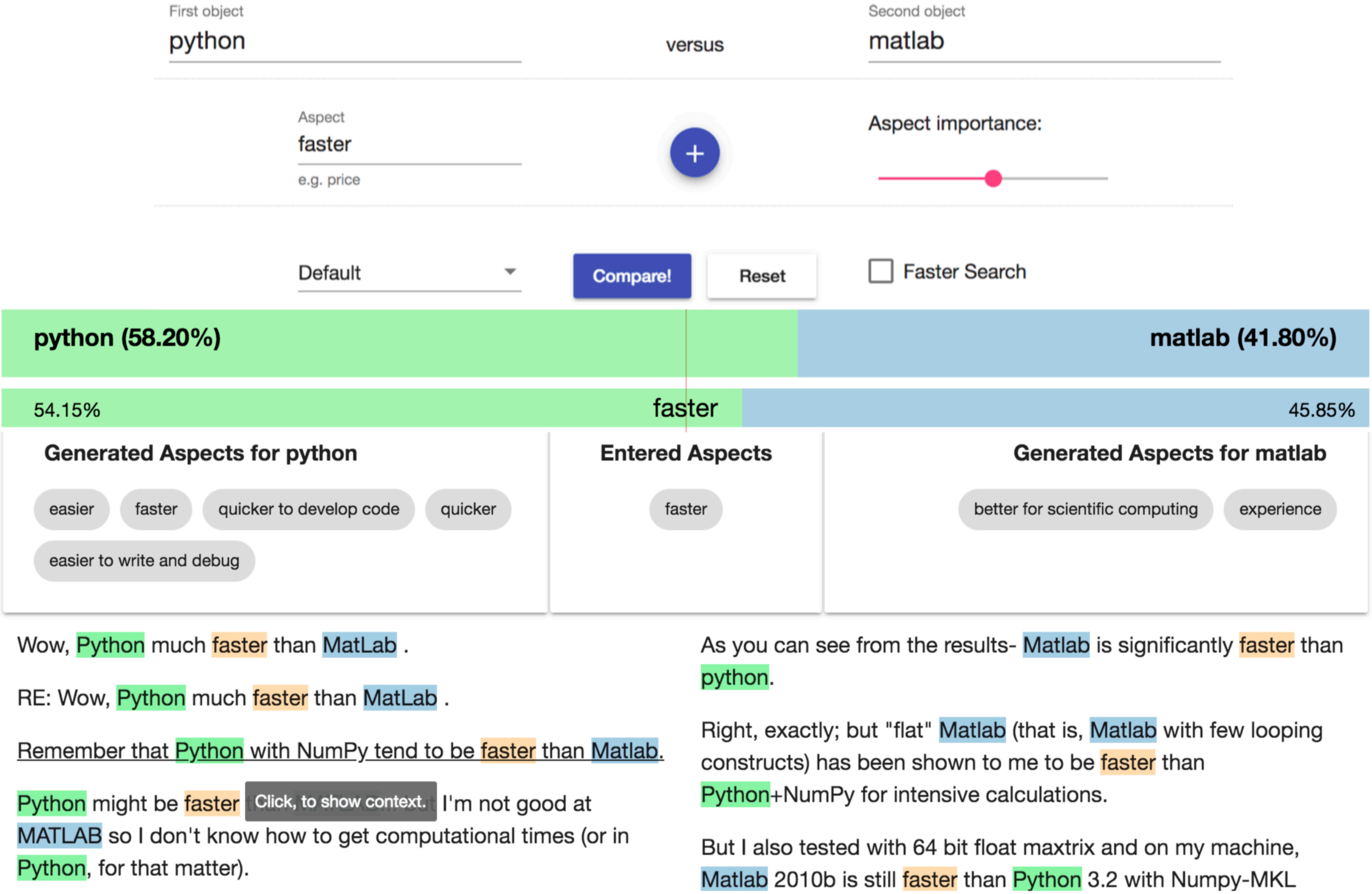
Various feature representations:



Impact of various models:



Application: Comparative Argumentative Machine (CAM)



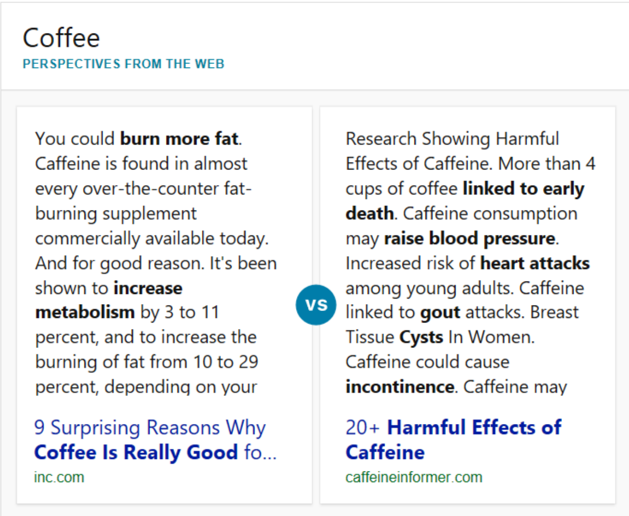
Poster Lightning Talks

Poster 12 (long)

Ranking Passages for Argument Convincingness

Peter Potash, Adam Ferguson, and Timothy J. Hazen

Motivation



Query: reasons why nafta is good	
Passages with a "Pro" stance	**Passages with a "Con" stance**
Candidate 1: NAFTA has six advantages. First, it quadrupled trade between Canada, Mexico, and the United States. That's because the agreement eliminated tariffs. Trade increased to $1.14 trillion in 2015. Second, it lowered prices. The United States imports Mexican oil for less than before the agreement.	**Candidate 1:** Is NAFTA a Bad Deal? The North American Free Trade Agreement (NAFTA) has come under fire recently, with some labeling it a disaster and claiming that it is the driving force behind the relocation of American firms like Ford Motor Company to Mexico.
Candidate 2: Because it helps in political interests. NAFTA is meant to lower tariffs and therefore create pro business alliances between the three signing nations. This allows for the U.S. to buy products cheaper from Canada and tears down the barriers to trade such as tariffs fees etc.	**Candidate 2:** Best Answer: see... the problem is... people who support NAFTA only compare it to either all out free trade... or no trade. trade is good and needed... but that doesn't mean it has to be, or should be FREE trade... so stop with these false comparisons of we have to trade...

Approach

Test various ranking approaches

Regression to scalar target
- PageRank
- Win-Rate

Pairwise training objective

Test effects of data filtering

Filter individual examples based on annotation confidence

Filter full sets of passages if cycles exist in passage-graphs induced by pairwise annotation

Poster Lightning Talks

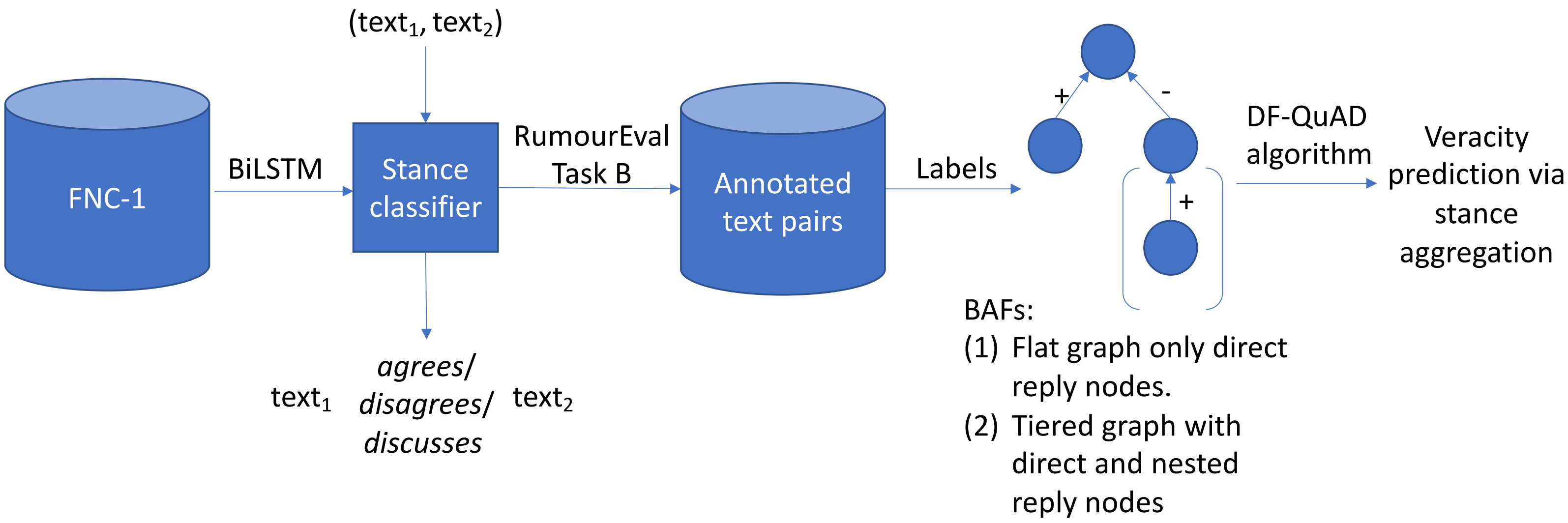
Poster 13 (long)

Gradual Argumentation Evaluation for Stance Aggregation in Automated Fake News Detection

Neema Kotonya and Francesca Toni

Imperial College London

Gradual Argumentation Evaluation for Stance Aggregation in Automated Fake News Detection



Neema Kotonya and Francesca Toni

Department of Computing, Imperial College London

Announcements

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Poster session after lunch

- Starts at 14:00.
- Right outside of HALL 6.

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Your task during lunch (if you like)

Think of an argument from your work or private life that has actually changed your stance.

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Introducing the chairs of (potential) ArgMining 2020

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Introducing the chairs of (potential) ArgMining 2020

- Elena Cabrio
- Serena Villata