Agree or Disagree: Predicting Judgments on Nuanced Assertions

Michael Wojatzki, Saif M. Mohammad,
Torsten Zesch Svetlana Kiritchenko

LANGUAGE TECHNOLOGY LAB
UNIVERSITÄT DUISBURG ESSEN Open-Minded
Canada NRC·CNRC

*One of the most basic reactions when reading a sentence is to agree or disagree with it.**

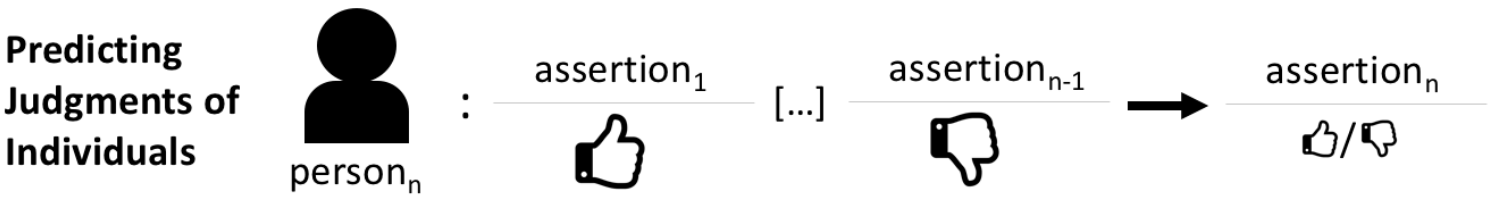
*You are probably thinking about whether you agree with that assertion right now.

Assertions

- explicit expressions of opinions, beliefs, claims, arguments, and points of view about a controversial issue; e.g.:
  - *A vegetarian diet is healthy and beneficial over a meat based diet.*
  - *It is possible to kill animals in a manner that is humane.*

- mean to describe one's position on an controversial issue (e.g. gun rights, veganism)

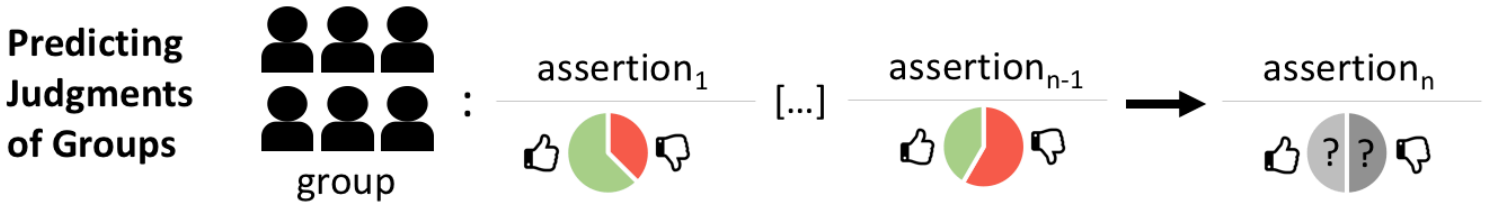
Prediction of Judgments of **Individuals**



- **given**: judgments on a set of assertions of a **person**
  - e.g. Donald Trumps likes/dislikes on posts

- **predict**: judgment of that **person** on a new assertion
  - e.g. Would he agree to "*Mueller is a fraud*"?

Prediction of Judgments of Groups

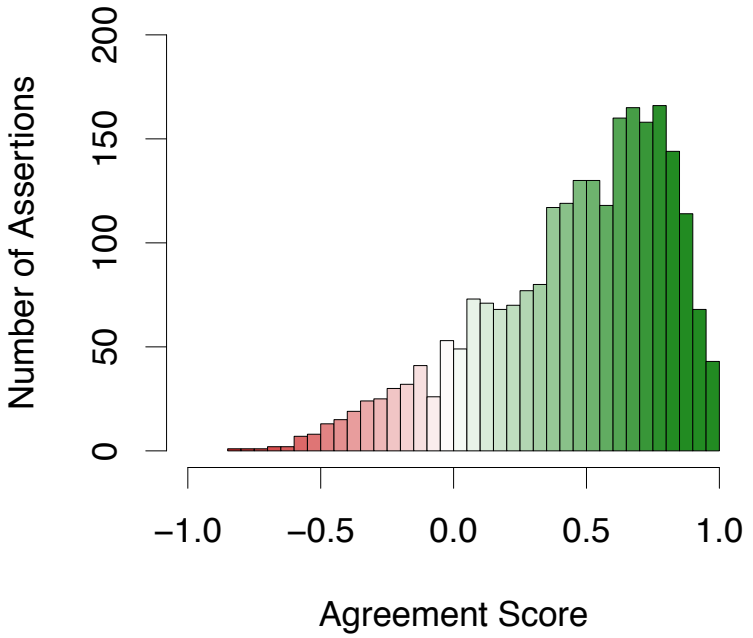


- **given**: judgments on a set of assertions of a **group**
  - **e.g.** thumbs up/thumbs down of Volkswagen customers on YouTube comments

- **predict**: judgment of that group on a new assertion
  - e.g. What percentage would agree to *"VW should be compensating its customers"*?

Dataset of **N**uanced **A**ssertions **o**n **C**ontroversial **I**ssues (NAoCI)

- 16 issues
- >2000 assertions
- >100,000 judgments
- >200 persons



Michael Wojatzki, Saif M. Mohammad, Torsten Zesch, and Svetlana Kiritchenko. 2018. Quantifying qualitative data for understanding controversial issues. In LREC 2018, Miyazaki, Japan

Our Approach

1. Automatically predict the degree to which assertions are judged similarly (**J**udgment **S**imilarity) based on Text
2. Predict judgment on **new** assertions based on most similar **seen** assertion

Our Approach – Example

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2. Predict judgment on **new** assertions based on most similar **seen** assertion

A vegetarian diet is healthy and beneficial over a meat based diet.

Living a vegan lifestyle makes you look good.

It is possible to kill animals in a manner that is humane.

Vegetarians have a reduced risk of suffering from serious illnesses.

?

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A vegetarian diet is healthy and beneficial over a meat based diet.  ⟷ *Vegetarians have a reduced risk of suffering from serious illnesses.* **?**

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Vegetarians have a reduced risk of suffering from serious illnesses.

Living a vegan lifestyle makes you look good.

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Judgment Similarity vs. Text Similarity

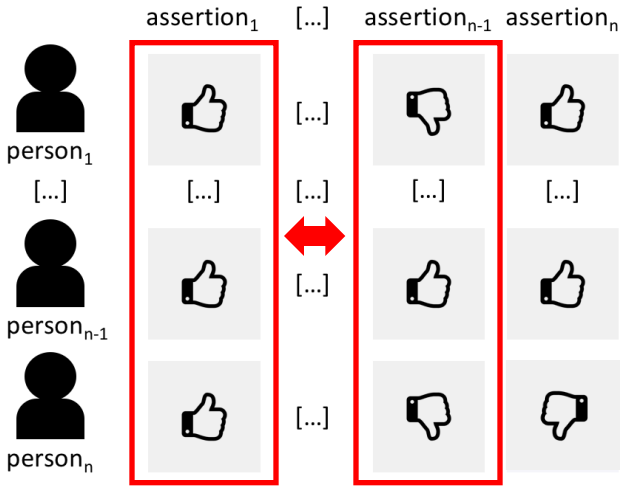
A vegetarian diet is healthy and beneficial over a meat based diet.  ⟷ *Vegetarians have a reduced risk of suffering from serious illnesses.* 

- several reasons why assertions are judged similarly
  - text similarity
  - paraphrases
  - entailment
  - underlying socio-cultural, political, or personal factors

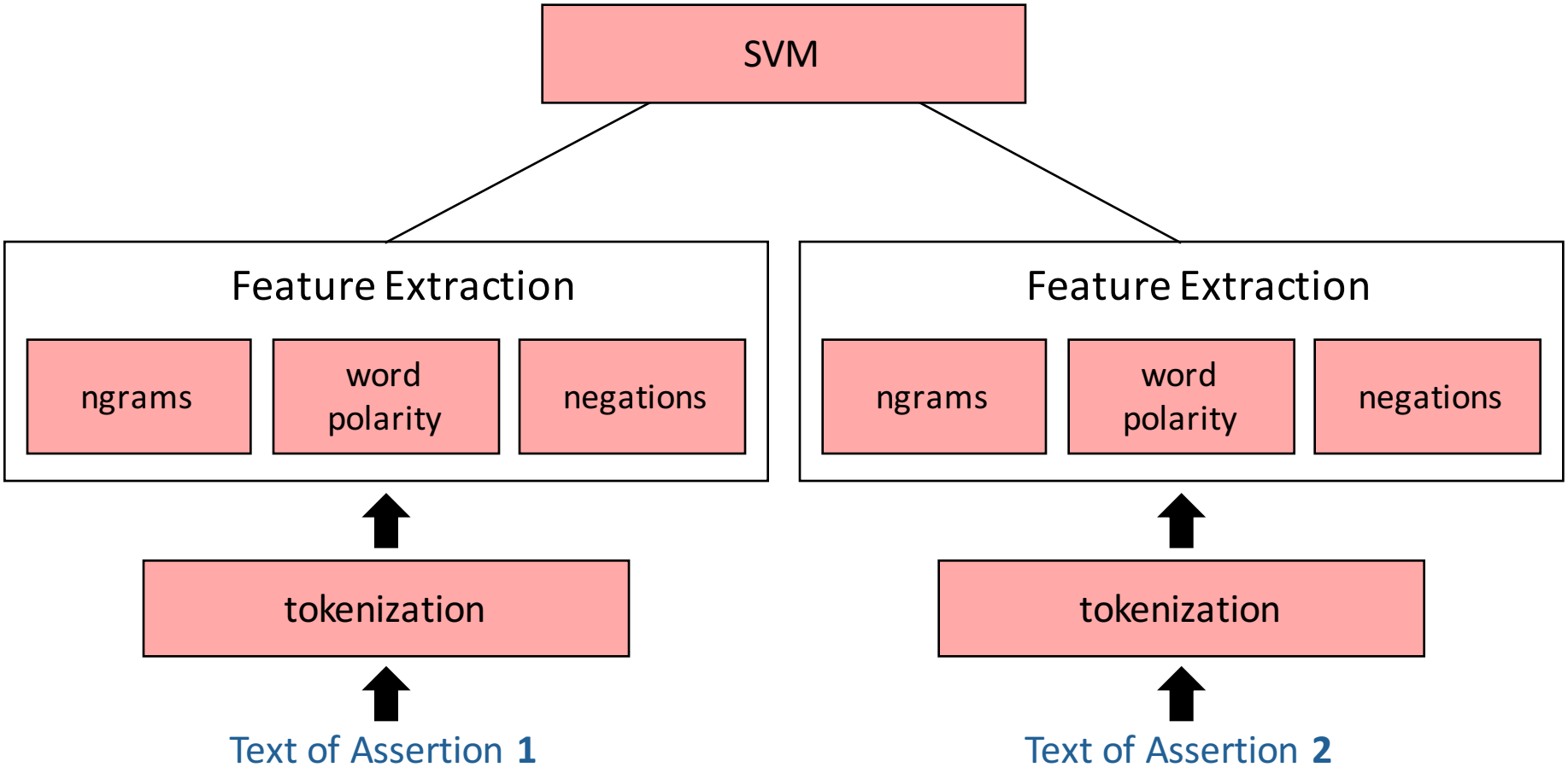
- new **j**udgment **s**imilarity measures needed

Judgment Similarity

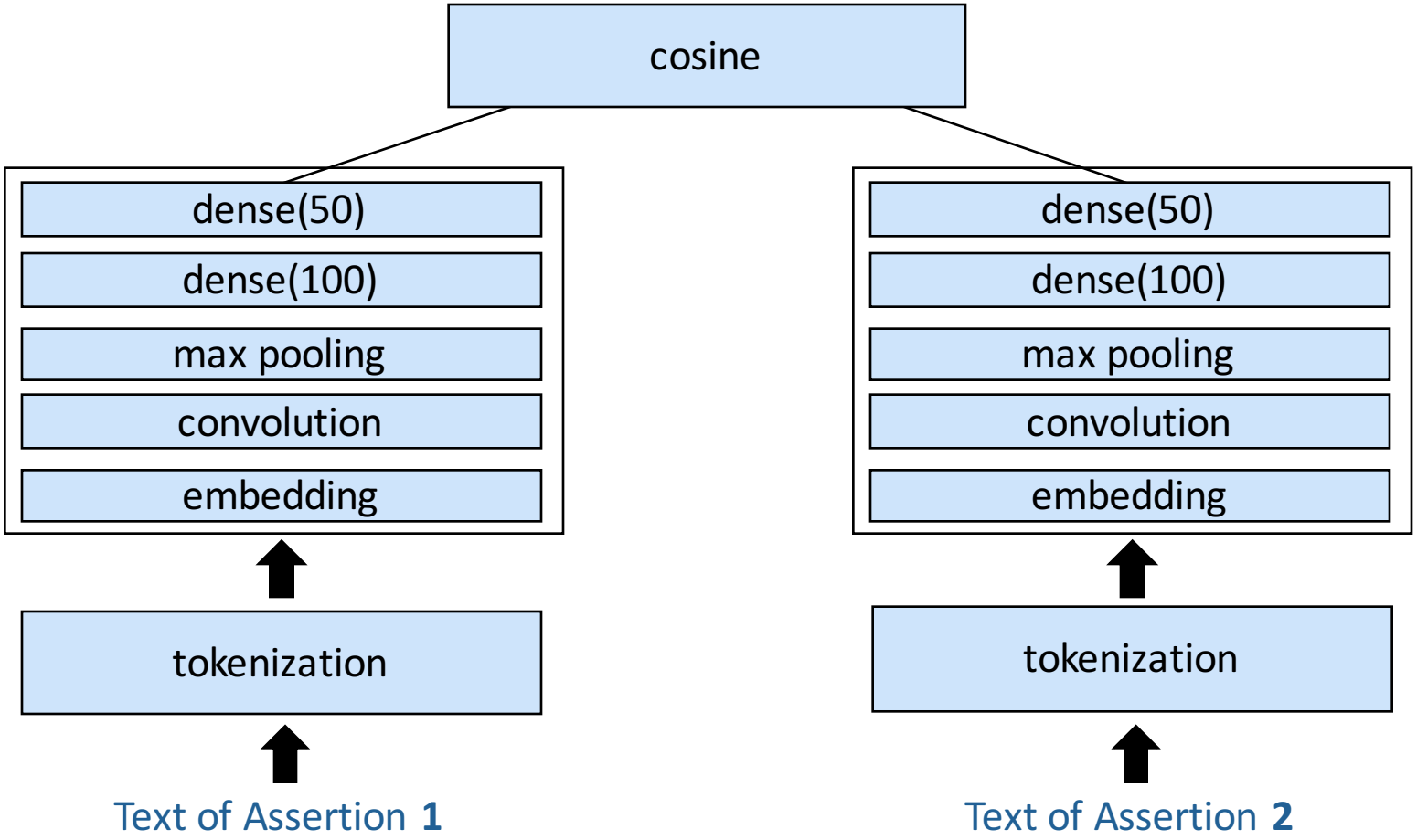
- degree to which two assertions are similarly judged by a large number of people
- cosine between judgment vectors (**gold**)
- needs to be estimated from the text (>11.000 pairs per issue)



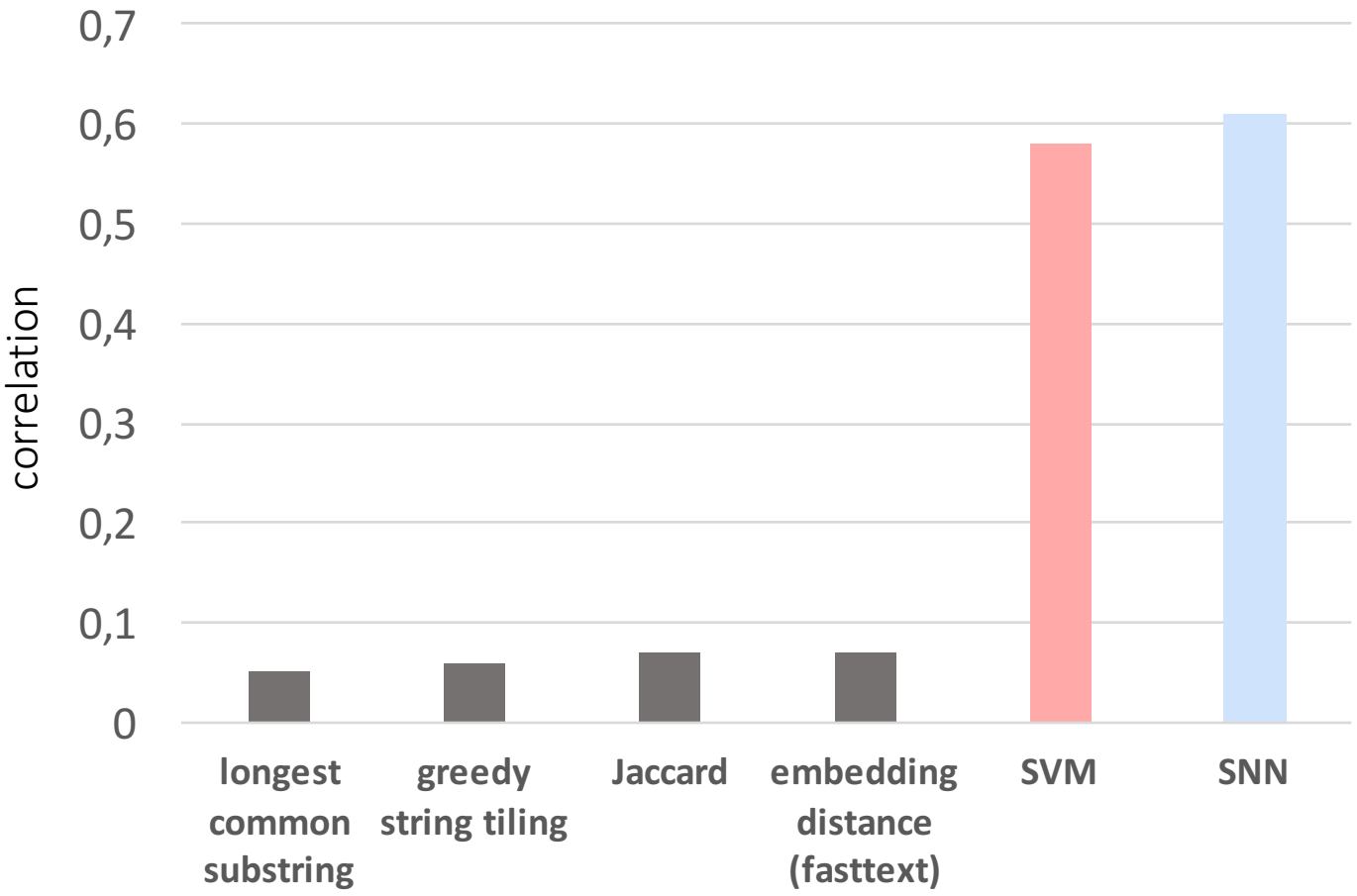
Predicting Judgment Similarity – SVM



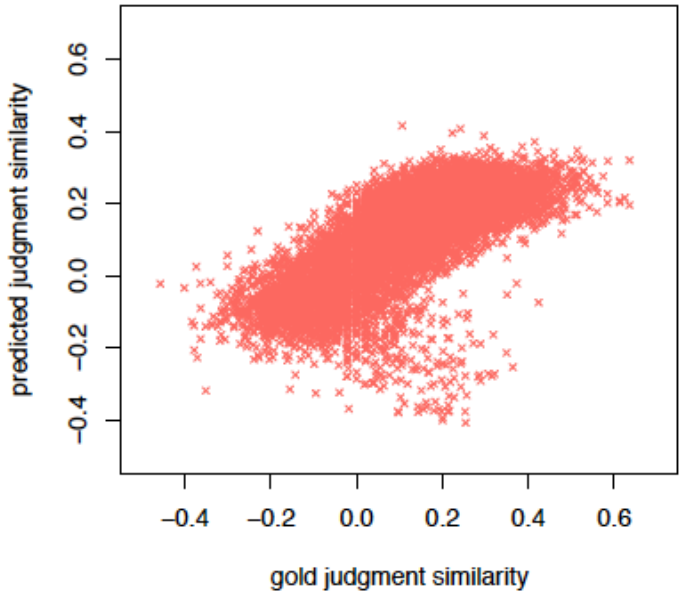
Predicting Judgment Similarity – **S**iamese **N**eural **N**etwork



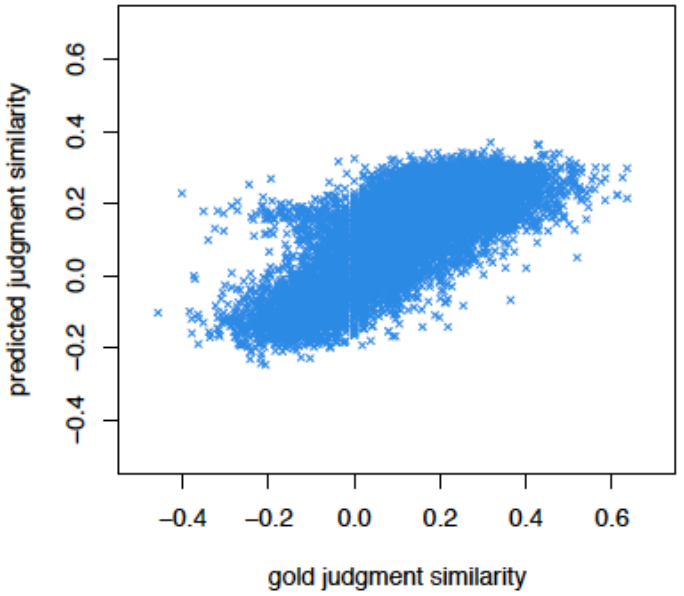
Predicting Judgment Similarity – Results



Error Analysis

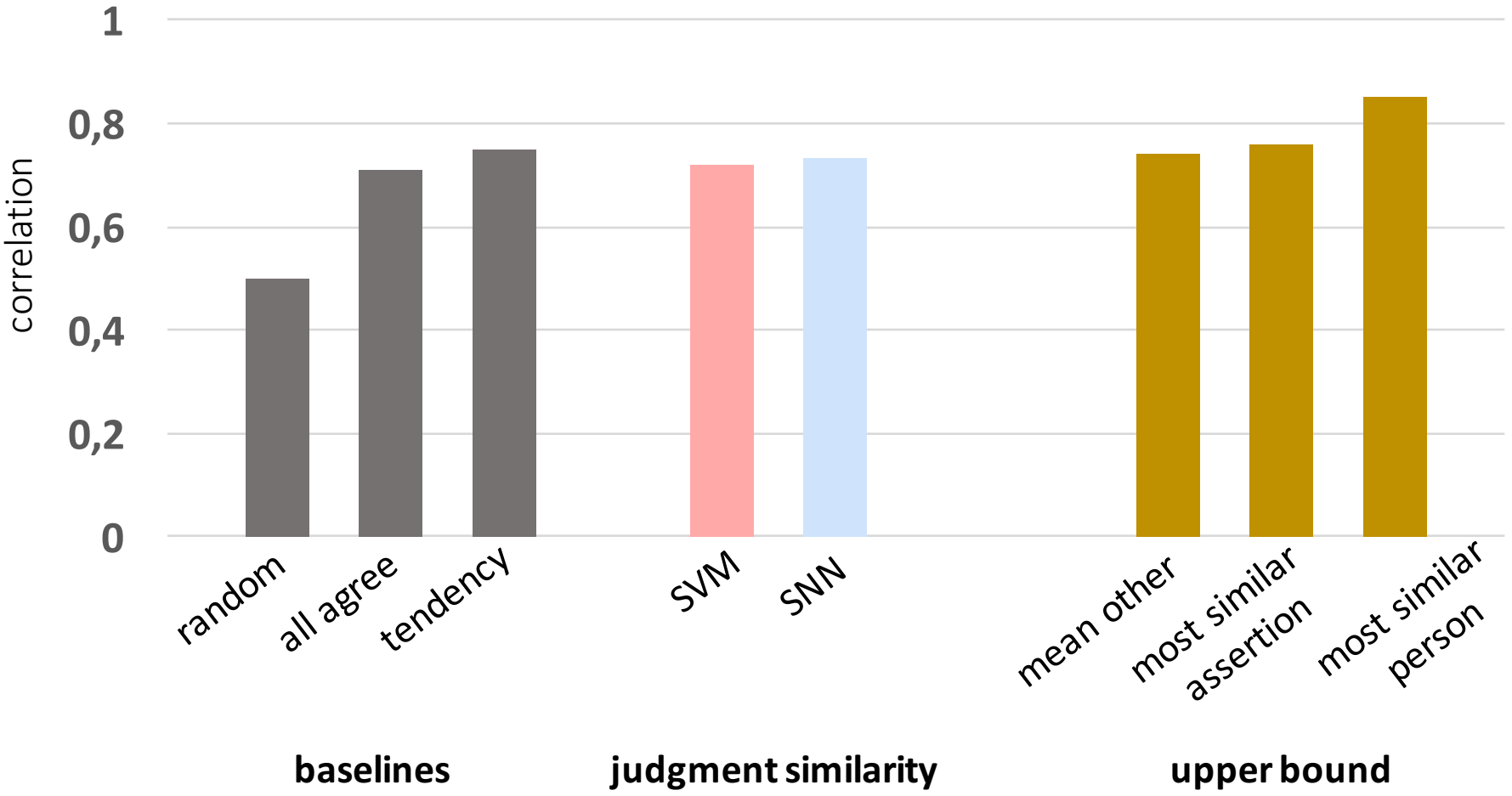


(a) SVM

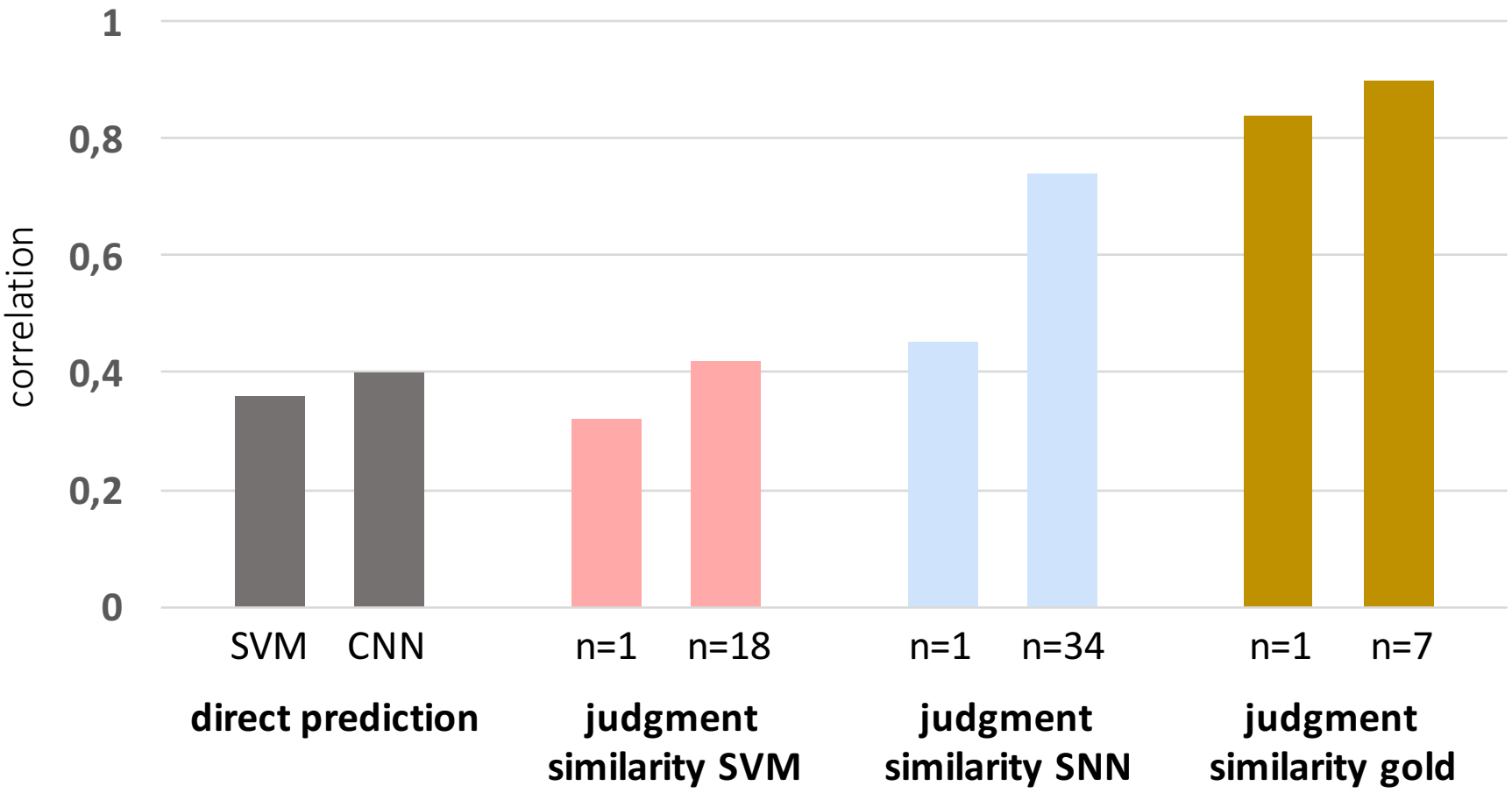


(b) SNN

Prediction of Judgments of **Individuals** – Results



Prediction of Judgments of **Groups** – Results



Conclusion

- new task: predicting agreement
  - for individuals
  - for groups
- our approach: make prediction based on most similar seen assertion (judgment similarity)
- for individuals: hard task with strong baselines
- for groups: promising results for SNN
- data: https://sites.google.com/view/you-on-issues/
- code: https://github.com/muchafel/judgmentPrediction