



University of Stuttgart
Institute for
Natural Language Processing

**Frowning Frodo, Wincing Leia,
and a Seriously Great Friendship**

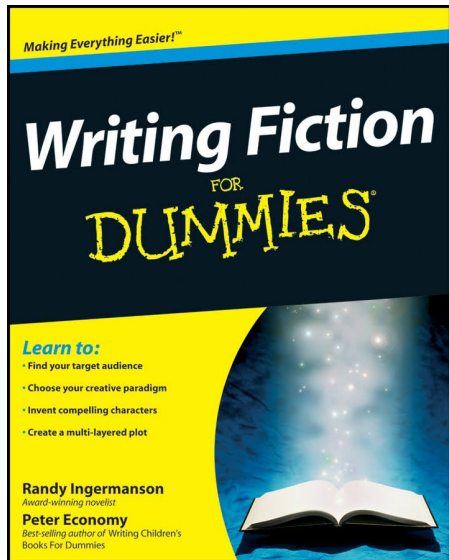
Learning to Classify Emotional Relationships of Fictional Characters

June 3rd, 2019

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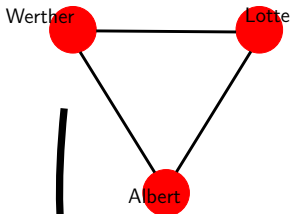
Motivation



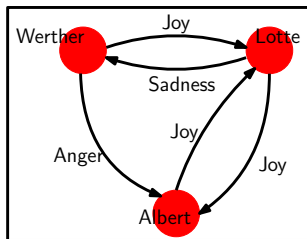
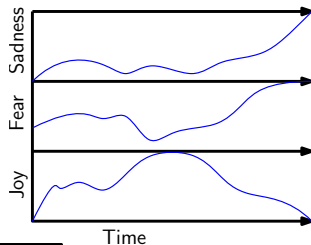
“A story consists of characters in conflict.”

Motivation

Social Network Analysis



Emotion Analysis



Outline

- 1 Previous Work and Our Research Question
- 2 Corpus
- 3 Methods
- 4 Experiments
- 5 Conclusion

Research Question and Goal

Goal:

- Develop a system that **predicts emotion relations** between characters.

Contributions:

- Propose the **new task of emotion relation classification** of fictional characters
- Provide a **corpus of fan-fiction annotated with emotion relations**
- Propose a **model for emotion relation extraction**

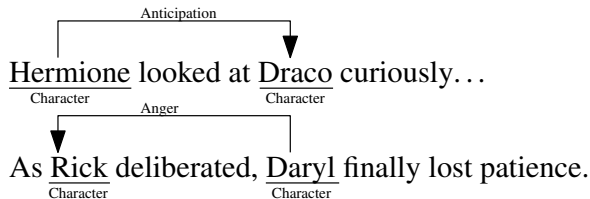
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Data and Annotation

- 19 stories from Archive of Our Own + 1 Joyce short story
- Emotion relation triple: $(C_{feeler}, e, C_{cause})$
 - Character C_{feeler} feels the emotion e
 - Character C_{cause} triggers the emotion e (can be empty)
 - Emotion
 $e \in \{\text{anger, anticip., disgust, fear, joy, sadness, surprise, trust}\}$
- Annotators label character mentions with canonical names

Data and Annotation

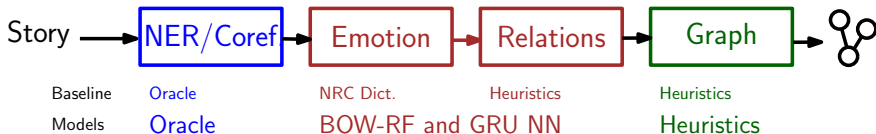


- Agreement limited on text level (<24 % F_1) but ok on graph level (<69 % F_1)
- 1742 feeler+emotion annotations
- 1335 feeler+emotion+cause annotations

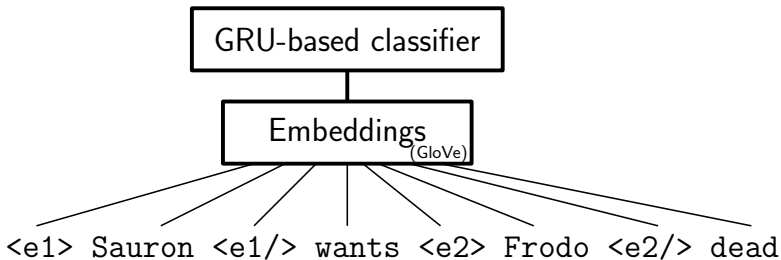
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Methods: Pipeline



GRU models



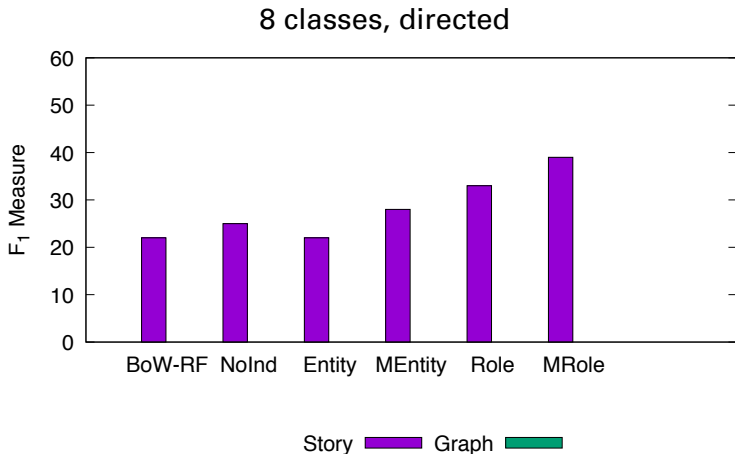
Entity Indicators

- **No-Ind**
Alice is angry with Bob
- **Entity**
`<entity> Alice</entity> ... <entity> Bob</entity>`
- **MaskedEntity** (MEntity)
`<entity> is angry with </entity>`
- **Role** (informs model about direction)
`<exp> Alice</exp> is angry with <cause> Bob</cause>`
- **MRole** (informs model about direction)
`<exp/> is angry with <cause/>`

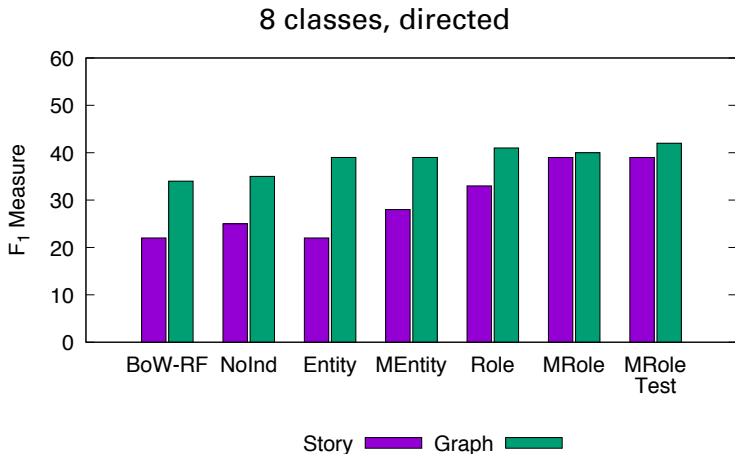
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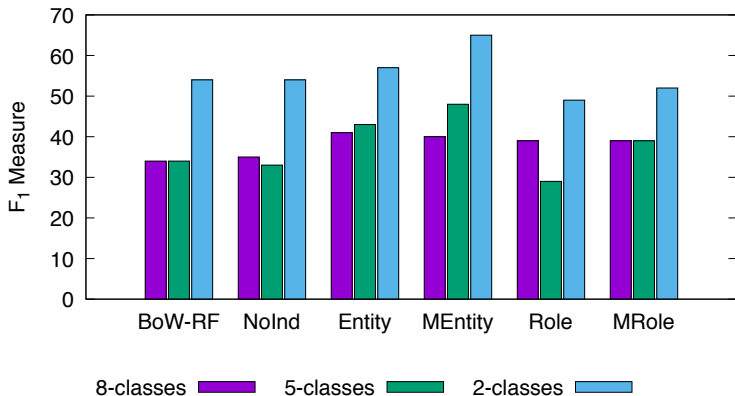
RQ 1: Which model works best? (story-level)



RQ 1: Which model works best? (graph-level)



RQ 2: Number of Classes? (graph-level)



- 8-class: all emotions.
- 5-class: join *anger-disgust*, *trust-joy*, *anticipation-surprise*.
- 2-class: positive vs. negative emotions.

Error Analysis: Correct Predictions

Joy

“Dance with me?” **Tony**’s face lit up as he let **Bucky** take him out on the dance floor.

Anger

... **Clint** rolled his eyes and made gagging noises over **Bucky** kissing Tony goodbye ...

Anticipation

Farrington watched her leave the room in the hope that **his wife** would look back at him ...

Error Analysis: Incorrect Predictions

Gold: *Trust*, Predicted: *Fear*

"We need specific vampire related knowledge." **Simon** nodded slowly, taking sympathy in **Alec** ...

Gold: *Anticipation*, Predicted: *Disgust*

...This time, **Drogo** broke the kiss and looked into **Dany's** eyes ...

Gold: *Anger*, Predicted: *Fear*

"That," **Izzy** said, "was officially the lamest love confession I've ever heard." **Simon** huffed.

Conclusion

- **New task of emotion relation classification**
- Joint version of **social network** and **emotion analysis**.
- **Corpus of fan-fiction annotated with emotion relations**
- **Polarity labels** are easier than **emotion labels**

- **Data:**
<http://www.ims.uni-stuttgart.de/data/relationalemotions>
- **More on classification/segmentation in emotion analysis:**
<http://www.ims.uni-stuttgart.de/data/emotion>



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