Paraphrase Detection for Short Answer Scoring

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Text

... Sent$_i$: The Hessian government wants to prevent this reform, because “when it comes to apple wine all Hessians agree.”

Sent$_{i+1}$: It’s easier for other apple wine nations like France or Spain.

Sent$_{i+2}$: There, the beverage is called “Cidre” or “Sidra” and may keep that name, because the term “wine” is not part of the name. ...
Motivation

Input Corpus CREG (Ott et al. 2012)

Text
... Sent\(_i\): The Hessian government wants to prevent this reform, because “when it comes to apple wine all Hessians agree.”

Sent\(_{i+1}\): It’s easier for other apple wine nations like France or Spain.

Sent\(_{i+2}\): There, the beverage is called “Cidre” or “Sidra” and may keep that name, because the term “wine“ is not part of the name. ...

Question
Do other European countries experience similar problems as Hesse. Why?

Target answer
No, in other apple wine nations like France or Spain the beverage is called “Cidre” or “Sidra” and may keep that name, because the term “wine“ is not part of the name.
### Text

... **Sent$_i$:** The Hessian government wants to prevent this reform, because “when it comes to apple wine all Hessians agree.”

**Sent$_{i+1}$:** It’s easier for other apple wine nations like France or Spain.

**Sent$_{i+2}$:** There, the beverage is called “Cidre” or “Sidra” and may keep that name, because the term “wine” is not part of the name. ...

### Question

Do other European countries experience similar problems as Hesse. Why?

### Target answer

No, in other apple wine nations like France or Spain the beverage is called “Cidre” or “Sidra” and may keep that name, because the term “wine“ is not part of the name.

### Learner answer (correct)

No. other countries, like France or Spain, have other name for apple drinking, like “Cidre”.
Question
Do other European countries experience similar problems as Hesse. Why?

Target answer
No, in other apple wine nations like France or Spain the beverage is called “Cidre” or “Sidra” and may keep that name, because the term “wine” is not part of the name.

Learner answer (correct)
No. other countries, like France or Spain, have other name for apple drinking, like “Cidre”.

Overall Workflow

Preprocessing ➔ Linking Items ➔ Parallel Corpus Extraction and Boosting

Word Alignment ➔ Paraphrase Fragment Extraction

learner answers ➔ target answers ➔ questions ➔ texts ➔ annotations
Main Contributions

- Using paraphrases for grading learner answers
- Applying (almost) unsupervised method for paraphrase detection to German
- Testing two extraction and two decoding methods
- Intrinsic and extrinsic evaluation of detected paraphrases
- Improvement on short answer scoring achieved by combination with existing models
Thank you for your attention!

Any questions?

Then come to our poster.
Main Contributions

Paraphrase Extraction Workflow

- word alignment
- lexical table

compute scores and assign polarity

refine alignment

smooth alignment

extract basic fragments

reset fragment boundaries

basic

chunk based

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