LANG4030 Presentation

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Commonsense Reasoning with Natural Languages

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Overview

Commonsense reasoning has been one of the key problems in the field of natural language processing. When humans communicate, we rely on a vast background of unspoken assumptions, known as implicatures, to make us communicate quickly and efficiently. This project aims to enhance language models' reasoning ability by extracting implicatures from commonsense knowledge datasets.

Objectives

- Construct a large-scale implicature dataset by automatic extraction/human annotating.
- Propose a deep learning model architecture to learn implicatures efficiently.
- Provide some insight on the contribution of implicature towards commonsense reasoning

Methodology workflow

Inspect commonsense knowledge datasets and define specific rules for implicature extraction.

Parse the commonsense knowledge and automatic extraction by the rules defined above.

Human annotation on unseen events and verification on the correctness of extracted implicatures.

Propose the deep learning model and train it based on the dataset collected. Perform commonsense reasoning tasks.

Analysis model's performance and do some zero-shot setting experiment to test the effect of collected dataset.

Current progress

Work Finished:
- Dataset inspection
- Extraction rule definition

Work in progress:
- Dataset compilation

Future Work:
- Implement the extraction rule
- Manually Check the quality of extracted knowledge

Conclusion

In conclusion, our project aims to construct a large-scale implicature dataset to help NLP models better learn the implicatures behind events. This may be a concrete step towards commonsense reasoning. We'll try our best to work this project out and make this resource public to contribute to the natural language processing research community.