



## Learning to Reason for NLP

### Motivation

Despite the recent advances in natural language processing and human-level performances of state-of-the-art neural models on common benchmarks, recent models lack various reasoning capabilities. For instance, they struggle on datasets that require performing coreference or arithmetic reasoning [Wu et. al, 2021, Moosavi et al., 2021]. In this regard, we explore two different directions: (1) developing innovative models that have improved reasoning capabilities to solve the existing reasoning-aware challenge datasets, and (2) creating new benchmarks for less-explored reasoning skills.

### Possible Tasks

- Novel benchmarks for less-explored reasoning skills
- Multilingual reasoning-aware benchmarks based on English datasets
- Improved representations for numbers in pre-trained language models
- Novel techniques with improved coreference reasoning
- Novel techniques with improved arithmetic reasoning

### References

- Mingzhu Wu, Nafise Sadat Moosavi, Dan Roth, Iryna Gurevych. 2021. "Coreference Reasoning in Machine Reading Comprehension". Proceedings of the Joint Conference of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (ACL-IJCNLP 2021)
- Nafise Sadat Moosavi, Andreas Rücklé, Dan Roth, Iryna Gurevych. 2021. "Learning to Reason for Text Generation from Scientific Tables". arXiv:2104.08296

### Contact

Analysis



Programming



Literature



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