

Opponent Review

for the master thesis

"Grammar Error Correction using Deep Reinforcement Learning"

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Summary

The master thesis by Mr. Ranar evaluates a reinforcement learning approach for grammar error correction (GEC). To date, most machine learning approaches for GEC are deep learning supervised learning problems and as such, require large amounts of labeled training data. The benefit of being able to train with unlabeled data is the primary motivation for replacing supervised learning with reinforcement learning approaches. A major difference of Mr. Ranar's thesis compared to other approaches is the usage of the Levenshtein distance within the reward and the action search function of the reinforcement learning algorithm.

Review

The overall research questions and goals of the thesis are clearly described, but since reinforcement learning approaches have only been applied rarely for GEC, the thesis lacks of more detailed explanations in the "Background" and "Related Work" sections. Brief descriptions in these sections make it hard to follow the overall goal of the thesis.

Technical descriptions of the proposed reinforcement learning approach are detailed. The differences to other reinforcement learning approaches could have been highlighted more. The results of Mr. Ranar's approach are promising, especially considering that the work has been done within a master thesis. Descriptions and discussions of achieved results are according to the standards in the field.

Both, the writing style and the figures in the thesis follow scientific standards, but are mostly quite brief.

Overall, I rate the thesis as **1.7**.

Deggendorf, 06.02.2023

Prof. Dr. Phillipp Torkler