

Combining Similarity-based and Rule-based Approaches for the NTCIR-12 STC Task

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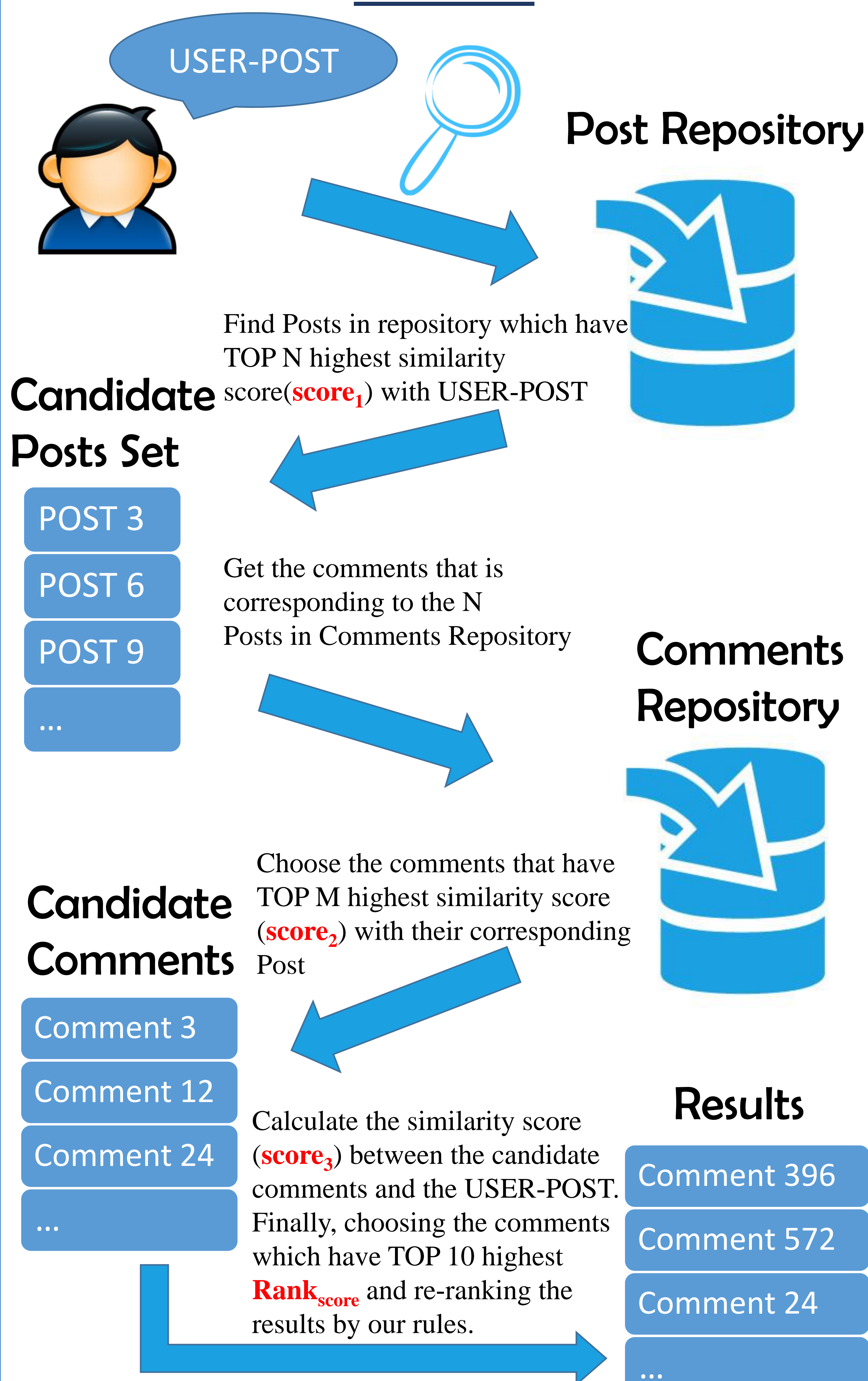
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INTRODUCTION

Natural language conversation between computer and human is a challenging task in natural language processing. Instead of multiple rounds of conversation, the NTCIR-12 STC task at hand, referred to as **Short-Text Conversation (STC)**, only considers one round of conversation, in which each round is formed by two short texts, with the former being an input (referred to as post) from a user and the latter a comments given by the computer. The NTCIR-12 STC task is an **information retrieval problem**. Given a post, we should choose 10 appropriate comments from the large post comments repository.

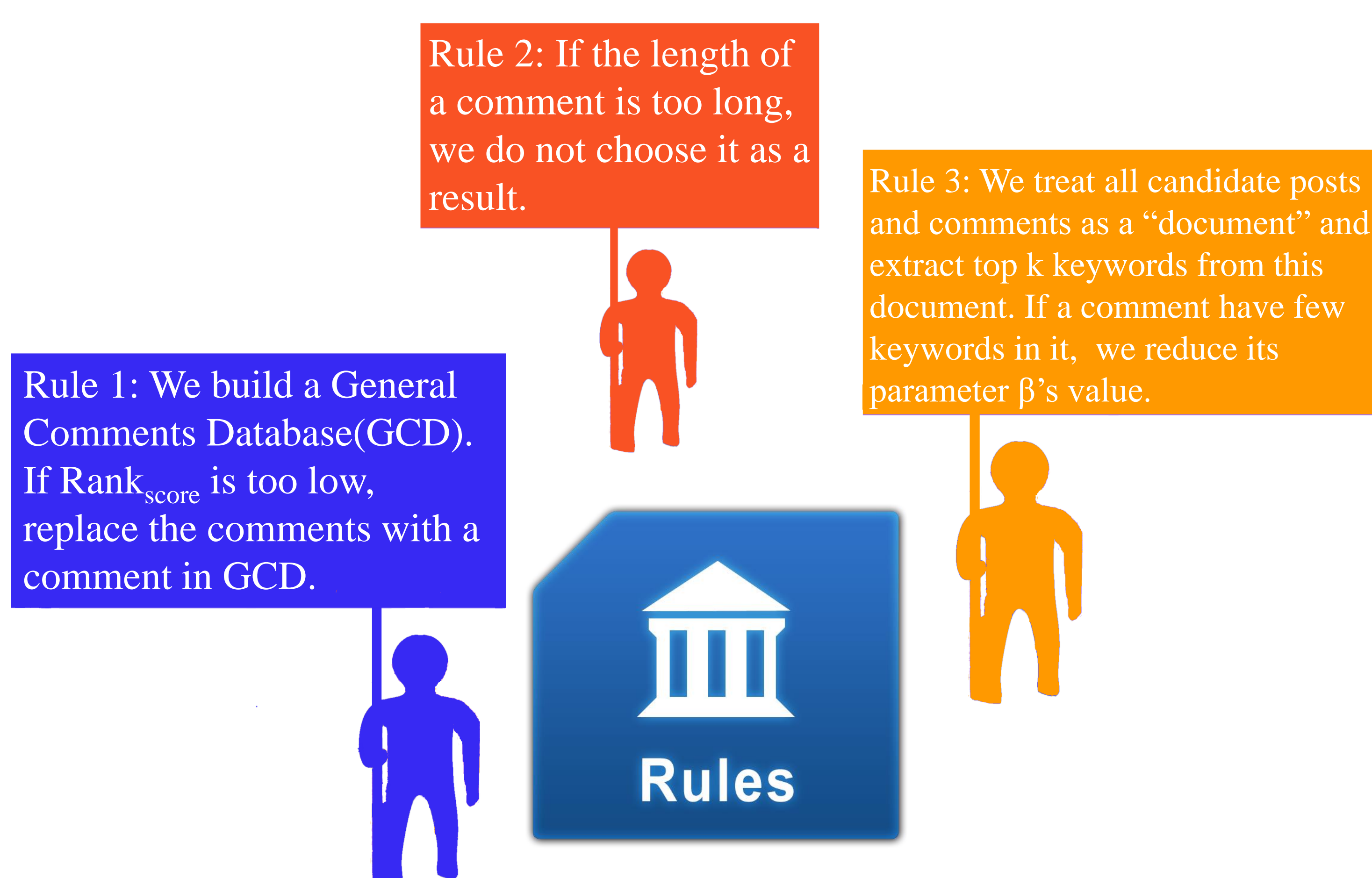
In NTCIR-12 STC Chinese subtask, we design a approach which is a combination of **similarity** and **handcrafted rules**. The human evaluation results show the effectiveness of our approach

METHODS



We train our word embeddings using the whole STC dataset and get the sentence embeddings by summing up the embeddings of every word in the sentence. We calculate the similarity score by **cosine similarity** between two sentence embeddings. $\text{Rank}_{\text{score}}$ is calculated as follows:

$$\text{Rank}_{\text{score}} = \alpha \times \text{score}_1 + \beta \times \text{score}_2 + \gamma \times \text{score}_3$$



RESULTS

We submit 3 runs: PolyU-C-R1, PolyU-C-R2 and PolyU-C-R3. We use rule 1 in PolyU-C-R1, rule 1 and 2 in PolyU-C-R2, rule 1, 2 and 3 in PolyU-C-R3. The table below shows the official results for the NTCIR-12 STC task of our approach.

Runs	Mean nDCG@1	Mean P+	Mean nERR@10
Average (all team)	0.2120	0.3475	0.3245
PolyU-C-R1	0.1900	0.3510	0.3314
PolyU-C-R2	0.1867	0.3603	0.3426
PolyU-C-R3	0.1667	0.2968	0.2771

CONCLUSIONS

- As the results show, our approach is efficient on this task. Rule 1 and 2 contribute a lot to our method. This means the similarity between sentences is very important and comments that are too long are easy to bring bad influence.
- In the future, we will try to do more generation work on the STC dataset.

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