Comparative Snippet Generation

Saurabh Jain, Yisong Miao, Min-Yen Kan
ECNLP 2022

Introduction

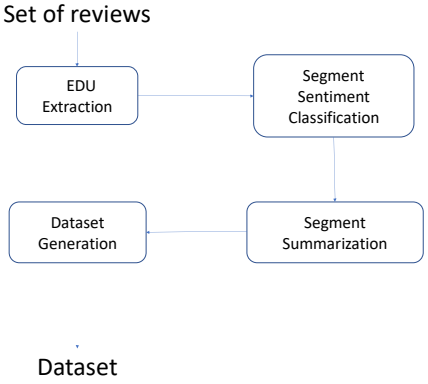
QA System on e-commerce reviews results one side of opinion, either positive or negative. We investigate performance of BERT to generate comparative snippet expressing both types of opinions.

Problem Statement

Given a positive and a negative opinion regarding a product, generate a single sentence comparative response.

Input: *Display is awesome. Sound quality is bad.*
Output: *Display is awesome. However, a few users have complained that sound quality is bad.*

Dataset Creation



Fine-tuned base BERT model struggles to generate comparative text snippets combining a positive and a negative opinion on a product.

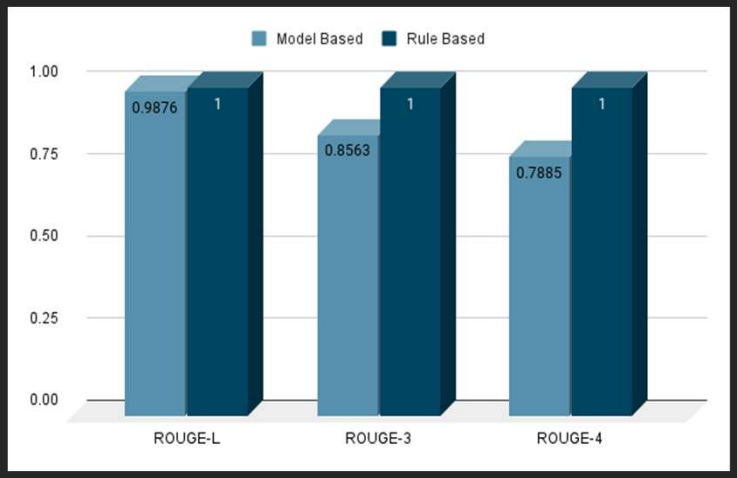
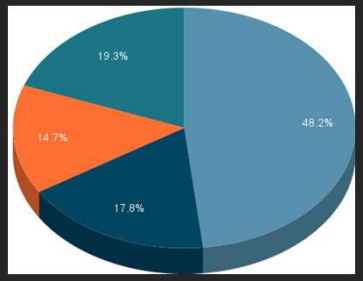
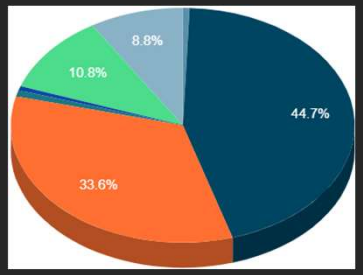


Fig.: Comparison of model-based generations against rule-based generations. ROUGE-L is used to measure input information preservation. ROUGE-3 and ROUGE-4 are used to measure quality of overall generations.



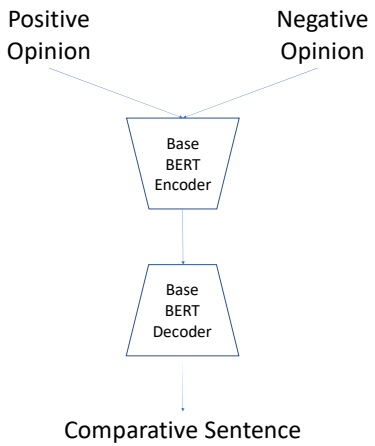
- Incorrect mixing
- Missing "Although" word
- Single word "on" insertion
- Input information modification



- however
- on the other hand,
- on the other hand, a few users have complained that
- however, there are people who have complained that

Fig.: Pie chart shows distribution of main error types (Left). Pie chart shows distribution of connecting strings.

Architecture



Examples Of Main Error Types

Incorrect mixing:
the entire set is comfortable. on the other hand, right few users have complained that right side slides down.

Insertion of "on":
the 415's are a great upgrade from the oem earbuds. on, it is super uncomfortable.

Missing "Although" word:
the the retractil system works fine, according to a few users the pads are sort of squarish.

Information modification:
Input: sound is pretty good. but, the movement is actually more like a saw.
Output: sound is pretty good. however, the movement is actually more like a see.

Scan to read full paper.

Scan to send an email.