University of New Hampshire

TREMA-UNH at TREC CAST 2019

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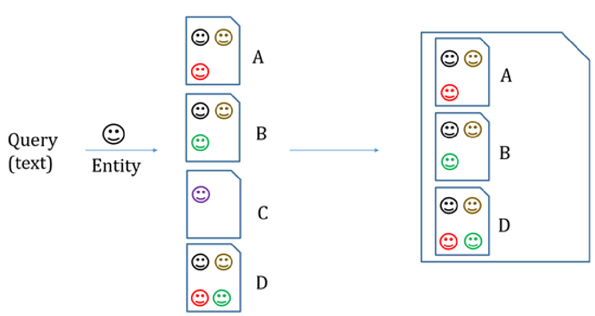
Abstract

We study the performance of methods based on text and entity features on a conversational assistance dataset from TREC CAST. Our methods do not make use of any question answering or dialogue tracking component. We apply methods which make use of entities in context to another entity and entity pairs

UNH-TREMA-ECN

- Based on Entity Context Document and Entity Marginalization.
- Entities predicted by an entity ranking system.



P(😊 | Q, 😊) = 3

P(😡 | Q, 😊) = 2

P(😀 | Q, 😊) = 1

Score(A | Q, 😊) = 3 + 2 + 0 = 5

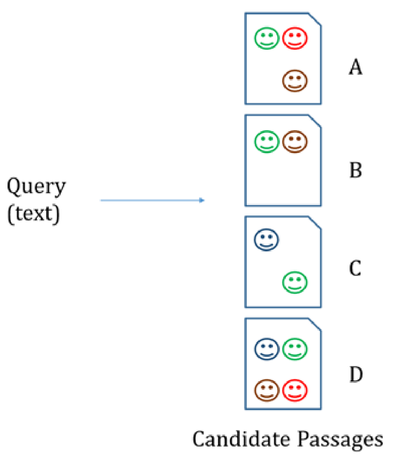
Score(B | Q, 😊) = 3 + 1 + 0 = 4

Score(D | Q, 😊) = 3 + 2 + 1 = 6

Rank	Document	Score
1	D	6
2	A	5
3	B	4

UNH-TREMA-REL

- Based on ranking entity pairs and reranking an initial feedback set.



Pairs with 😊
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😊 😀 $= \frac{1}{3} + \frac{1}{4} = 0.58$

😊 😡 $= 0.25$

😊 😐 $= 0.25$

| E | = 4

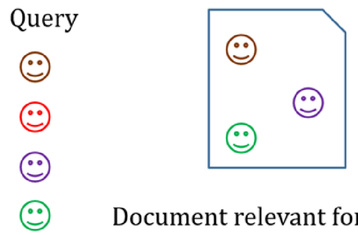
Score(😊 | Query) $= \frac{0.58 + 0.25 + 0.25}{4} = 0.27$

$$Score(D \mid Q) = \sum_{e \epsilon D} Score(e \mid Q) + Score_{BM25}(Doc \mid Q)$$

Score(D | Q) = Score(😊 | Query) + Score(😀 | Query) + Score(😡 | Query) + Score(😐 | Query) + $Score_{BM25}(D \mid Q)$

UNH-TREMA-ECN

- Score of each passage based on how many relevant entities are in the passage.



Score(Document | Query) = 3

Results

- Since our methods only retrieved from the TREC CAR corpus, Table 1 shows the results on TREC CAR subset.
- Table 2 shows official CAST results.

Table 1: Results obtained on CAR subset

	MAP	P@R	MRR
UNH-TREMA-REL	0.18	0.23	0.54
UNH-TREMA-ENT	0.17	0.23	0.54
UNH-TREMA-ECN	0.16	0.22	0.51

Table 2: Official TREC CAST Results

	MAP@5	NDCG@5
UNH-TREMA-ENT	0.03	0.24
UNH-TREMA-REL	0.03	0.23
UNH-TREMA-ECN	0.02	0.22
Median	0.04	0.29