



University of
New Hampshire

Utilizing Passage and Entity Features for TREC Conversational Assistance Track

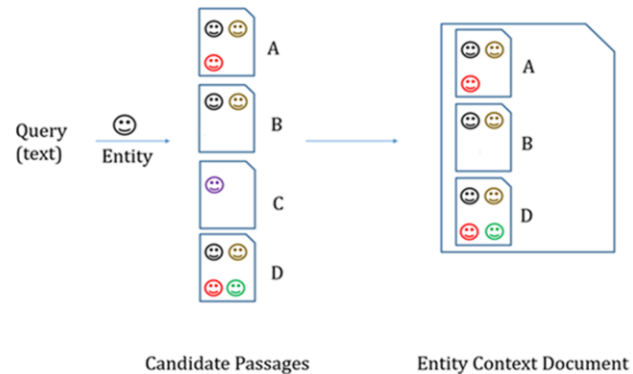
Shubham Chatterjee (sc1242@cs.unh.edu)

Pooja Oza (pho1003@cs.unh.edu)

Laura Dietz (dietz@cs.unh.edu)

University of New Hampshire

UNH-TREMA-ECN



$$P(\text{😊} | Q, \text{😊}) = 3$$

$$P(\text{😬} | Q, \text{😊}) = 2$$

$$P(\text{😄} | Q, \text{😊}) = 1$$

$$\text{Score}(A | Q, \text{😊}) = 3 + 2 + 0 = 5$$

$$\text{Score}(B | Q, \text{😊}) = 3 + 0 + 0 = 3$$

$$\text{Score}(D | Q, \text{😊}) = 3 + 2 + 1 = 6$$

$$\text{Score}(\text{Doc} | Q) = \sum_{e_i} (\text{Doc} | Q, e_i)$$

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

UNH-TREMA-ENT

Query



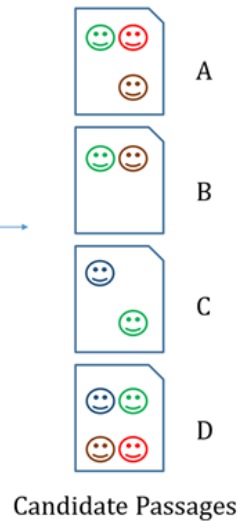
Document relevant for the Query

$\text{Score}(\text{Document} \mid \text{Query}) = 3$

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

UNH-TREMA-REL

Query
(text)



Pairs with ☺

$$\left[\begin{matrix} \text{☺} & \text{☺} \end{matrix} \right] = \frac{1}{3} + \frac{1}{4} = 0.58$$

$$\left[\begin{matrix} \text{☺} & \text{☹} \end{matrix} \right] = 0.25$$

$$\left[\begin{matrix} \text{☺} & \text{😊} \end{matrix} \right] = 0.25$$

$|E| = 4$

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

$$\text{Score}(D | Q) = \sum_{e \in D} \text{Score}(e | Q) + \text{Score}_{BM25}(Doc | Q)$$

$$\text{Score}(D | Q) = \text{Score}(\text{☺} | \text{Query}) + \text{Score}(\text{☺} | \text{Query}) + \text{Score}(\text{☹} | \text{Query}) + \text{Score}(\text{😊} | \text{Query}) + \text{Score}_{BM25}(D | Q)$$

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

Results

- No QA or dialogue tracking component.
- Retrieved only from the TREC CAR corpus.

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

*Thank
you!*