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Spring 2020 Short Homework Assignment 1

Due April 15 at Midnight

Calculate B-cubed precision, recall and F-score given the coreference entities in the system output and answer key. Fill in this information in the boxes provided below for the answers. You can edit the pdf to fill in the boxes if you have a way of doing so. Alternatively, you can print out this question, fill in the boxes in pen, and then scan the answered question in to create a .pdf file. Submit this pdf file to Gradescope (Short Homework 1).

For this example, the answer key has 3 entities and the system has assumes exactly five entities. **Note: Only consider the NPs that are part of the answer key and system output. Other NPs in the passage are irrelevant**. A with subscripts indicate one answer key entity and B with subscripts indicate another answer key entity. The actual context is provided below with the entities marked in square brackets. Note that *his crew* and the substring *his* constitute two distinct NP instances (A_3 and C_2).

Answer Key:

1. A_1 = **the Bellman**, A_2 = **he**, A_3=**his**,A_4 = **I**, A_5 = **I**, A_6 = **I**
2. B_1 = **each man**, B_2 = **his**
3. C_1 = **his crew**, C_2 = **the crew**

System Output:

1. A_1 = **the Bellman**, A_2 = **he**, A_3=**his**, B_2 = **his**
2. A_4 = **I**, A_5 = **I**, A_6 = **I**
3. B_1 = **each man**
4. C_1 = **his crew**
5. C_2 = **the crew**

The above entities were taken from the following passage from Lewis Carroll's *Hunting of the Snark* (1876):

> "Just the place for a Snark!" **the Bellman**[A_1] cried,
> As **he**[A_2] landed [**his**[A_3] **crew**][C_1] with care;
> Supporting **each man**[B_1] on the top of the tide
> By a finger entwined in **his**[B_2] hair.
>
> "Just the place for a Snark! **I**[A_4] have said it twice:
> That alone should encourage **the crew**[C_2].
> Just the place for a Snark! **I**[A_5] have said it thrice:
> What **I**[A_6] tell you three times is true."

Answer:

Precision:

3/4 of each A1, A2, A3
1/4 of B2
4/4 of each A4,A5,A6
2/2 of each B1, C1, C2

(3/4(3) + 1/4(1) + 1(3) + 1(3))/10
= .85

Recall:

3/6 recall of A chains
1/2 recall of B chains
1/2 recall of C chains

(6(3/6) + 2(1/2) + 2(1/2))/10 = 5/10 = .5

F-Measure:

2/ (1/(1/2) + 1/(85/100)) = .63