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Conference on Empirical Methods in Natural Language Processing

EMNLP 2018

Author Response

Title: Named Entity Analysis and Extraction with non-Common Words
Authors: Xiaoshi Zhong, Erik Cambria and Jagath Rajapakse

Instructions

Dear authors,

The author response period for EMNLP 2018 has begun.
This page shows you the reviews for your submission, and allows you to enter comments that will be shared with the reviewers, area chairs and program chairs.
At the bottom of this page, you also have the option to enter confidential comments that will only be shared with the area and program chairs, but this should only be used if absolutely necessary.

You can enter your response until **Friday, July 13** (23:59pm Pacific Daylight Saving Time (UTC -7h)).

Guidelines

- For an explanation of our review form and the scores used for the overall recommendation, see
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- After your reviews, you will first see one text box for each of your reviews and one box for general comments to the reviewers. Please use this first set of text boxes to respond to the points raised in the reviews, or to answer any questions the reviewers may have asked. This information will be shared with all reviewers.
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Reviews

Review #1

What is this paper about, and what contributions does it make?

They analyze Named Entity in two datasets and proposed an extraction algorithm. They separate the task or recognition and classification because they think each task is based on syntax and semantic, and refer Chomsky theory, they report only recognition evaluation.

What strengths does this paper have?

The analyses of fun to see, but not very surprising

What weaknesses does this paper have?

1) The analyses of fun to see, but not very surprising

2) They left some interesting questions in the analyses untouched (e.g. What are the 7.09% (100-92.91) in Table 2? What are the NNs in Table 3)

3) How do you define t=1/0.95. These have to be done by optimizing the system based on decv data etc.

4) No one can never look at the content of test data (Table 2), even just a statistics. You can never do any experiment when you analyze it like this.

5) For my view, they have NOT proved the claim that the recognition of NE is based on syntax and the classification is based on semantic. Counting non-common words and common words are merely frequency of words (I don't say it is syntax). POS is syntax, but it is obvious that NE and NNP/NNPS are closely related; many people have been using it for NER. You can only prove it when you make the complete system which separate the recognition and classification and show that the accuracy is better than the standard method.

6) The definition of common word is very artificial for me. It is all the words in the dataset other than NE string. It is so simple (in particular, when t=1) that the notion just distinguish the words in NE and words in the dataset other than NE. It may work for closed domain setting (same NEs are repeated in the dataset), but not in general, e.g. articles in tomorrow's newspaper.

7) The features used in the system (in section 4.4.1) are very standard features. No novelty here, in particular, the definition of P and M are very naive. What are P and M in "United states of America", "United Kingdom of Grate Britain and Northan Ireland", "Barack Hussein Obama" and so on.

Overall Recommendation: 1.5

Questions for the Author(s)

Refer the weakness

Review #2

What is this paper about, and what contributions does it make?

This paper shows that just by including syntactic features, we can achieve performance on the named entity extraction tasks comparable to previous systems which incorporate both syntax and semantic features. This paper introduces interesting features such as non-common words and set of entity-related word lexicons as features to extract named entities. There are very interesting observations included in the paper such as the length of the entities follow a power law distribution. Also, this paper introduced using POM tagging scheme for identifying named entities different from standard BILES/BILOU tagging scheme.

What strengths does this paper have?

The main strengths of this paper are the different observations that they make about the named entities and use these features such as identifying the non-common words, the word lexicon, POM pre-tag features. It is impressive that these features using a CRF-like learning can perform comparable to the neural network based features which automatically extracts syntactic as well as semantic features. Also, they find that if they include semantic features with the use of word embeddings to their model then it does not improve the performance of the system. Thus, they show that named entity extraction is a syntactic task where as the classification is a semantic task.

What weaknesses does this paper have?

The different features that were introduced for the named entity extraction task are very interesting. However, we wonder how useful these features are for extracting named entities in an unsupervised manner. The observation that was made regarding the length of the named entities was not used in the model was not used in the model and it might be important for unsupervised learning. Also, it would be interesting to see the performance based solely on the pre-tag features. And, then how the CRF-based learning on these features improve the recall on entity extraction. Some error analysis on the named entity extraction task would also be insightful.

Overall Recommendation: 3

Questions for the Author(s)

I was wondering why the authors needed to include the semantic types of the entities in their learning for comparing their model with the previous systems. Instead, I would expect the authors to not include the semantic types of the entities when training the previous models and then compare the results. Also, if semantic features are important

for named entity classification then it would be interesting to see the performance of this model on the full named entity extraction and classification task when including and not including semantic features. How do you think this model will perform on the task of entity mentions and not only the named entities.

Missing References

None

Presentation Improvements

The paper is well-written and easy to follow.

Typos, Grammar, and Style

None

Review #3

What is this paper about, and what contributions does it make?

This paper proposes a new feature concerning non-common words to recognize named entities. The proposed NE extraction system achieves an accuracy of 95%.

What strengths does this paper have?

The feature of "non-common words" seems useful. The POM tagging scheme is also inspiring which gives the readers a new idea to tag target sequence besides using BIOES.

What weaknesses does this paper have?

It would be better not to use the name "POM" as a feature type and a class type at the same time. It would be confusing for the readers.

Overall Recommendation: 4

Presentation Improvements

It would be better not to use the name "POM" as a feature type and a class type at the same time, because their meanings are slightly different in two cases. An uncommon word in a sentence is not necessarily a predictor in a name of an entity. The occurring of a trigger word or a generic modifying word does not always hint the occurrence of a named entity (so it is not a modifier here). How about using UGTO instead to denote uncommon words, generic modifiers, trigger words, and other words, respectively?

Do the authors consider to use a different term other than "modifier" in the POM scheme? It confused me when I read the paper at the first time. One example from the authors is "Chicago University" where "Chicago" is the predictor and "University" is the modifier. But to me, "University" is the head of this name and "Chicago" is the modifier.

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Response to Review #1: