NLP Assignment 3

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Github:
https://github.com/eivankin/i-hate-nlp/tree/master/assignment_3

First Solution | Zero-shot NER with GLiNER

Idea

I made a small research on pretrained nested NER models and have found quite recent paper "GLiNER: Generalist Model for Named Entity Recognition using Bidirectional Transformer" submitted last November. Authors report that their model outperforms LLMs at zero-shot NER and requires much less computation resources. Fortunately, their model had multilingual version and was accompanied by a nice wrapping Python library, so I decided to try it out.

Metrics

Metric	Value
F1 micro (train.jsonl)	0.40
F1 macro (dev.jsonl)	0.25

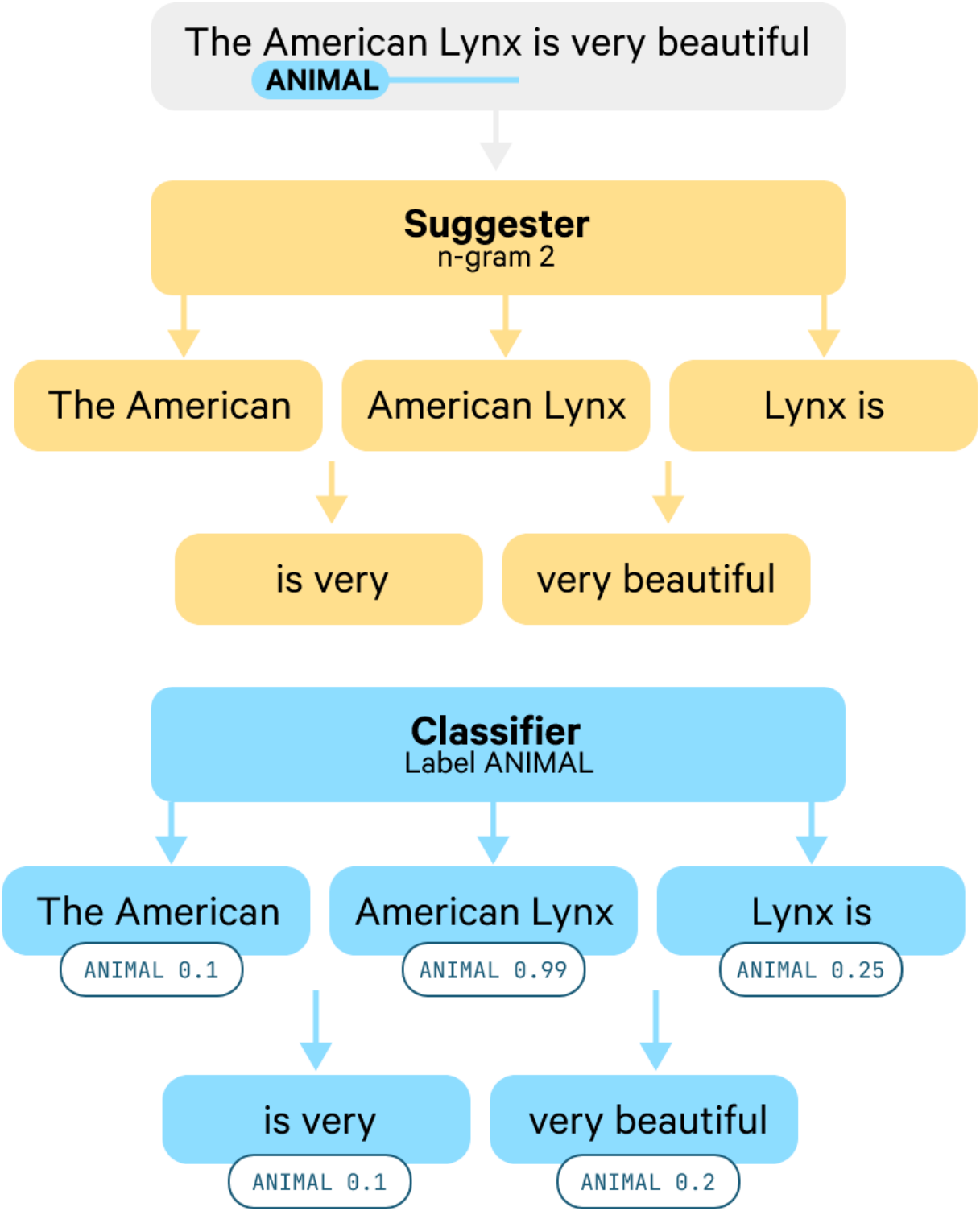
Conclusion

This solution was quite simple to implement, and I was able to run it on my laptop. However, metrics values are not the best, but can be used as baseline.

Second Solution | Spacy SpanCat

Idea

There exist an experimental feature in spacy that fits for nested NER task: Span Categorizer. It works quite like RCNN, but instead of boundary boxes for ROI it works with n-grams:



The Spancat architecture. Source: https://explosion.ai/blog/spancat

While implementing this solution I used the links above as sources.

Metrics

Metric	Value
F1 macro (val.spacy)	0.80
F1 macro (dev.jsonl)	0.67
F1 macro (test.jsonl)	0.73

Conclusion

This is the best solution in terms of F1 score. Unlike the previous solution, it requires more computation power and time to implement, but allows to fine-tune both tokenizer and model to get better results.