Testing the world knowledge of LM (multilingual)

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Description/Deskribapena:
Language models (LMs) trained in larger datasets have proven to be very powerful in identifying language patterns and reproducing them in different scenarios. It has been argued that they learn word collocations as some words tend to appear together and it has also been argued that they learn how to do syntactic generalisations (Linzen and Baroni, 2021). But what about world knowledge? What do LMs know about real word relations and/or culture? Are they able to know if cats meow given that dogs bark?

In this exploratory work, we plan to generate a dataset in which world knowledge is tested to measure how much LMs encode or can use this information. Moreover, we know if there are biases in the information they encode.

Goals/Helburuak:
Creating a challenging dataset of tests (sentences) that contain world information and test the LMs in this dataset..

Requirements/Betebeharrak:
- Good knowledge of the target language
- Basic knowledge on WordNet and similar databases.
- Basic programming skills (e.g. Python for NLP)
- Basic knowledge of language models and neural classifiers (e.g. BERT)

Framework/Esparrua:

This study is framed in the current trend on analysing the LMs. We are encouraged to carry out this study in languages other than English.

Tasks and plan/Atazak eta plana:
- Selection of the knowledge and relations that will be the target of the experiment.
- Generation of the test dataset.
- Evaluation of the language model through the test dataset.

References/Erreferentziak:

Linzen, T., & Baroni, M. (2021). Syntactic structure from deep learning. Annual Review of Linguistics, 7, 195-212.

Safavi, T. & Koutra, D. (2021). Relational World Knowledge Representation in Contextual Language Models: A Review. Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing, 1053–1067. Association for Computational Linguistics https://aclanthology.org/2021.emnlp-main.81.pdf