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Three Natural Language Understanding tasks

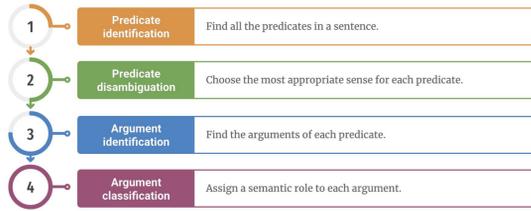
Word Sense Disambiguation (WSD) is the task of associating a word in context with its correct meaning from a finite set of possible choices.

The quick brown fox jumps over the lazy dog.

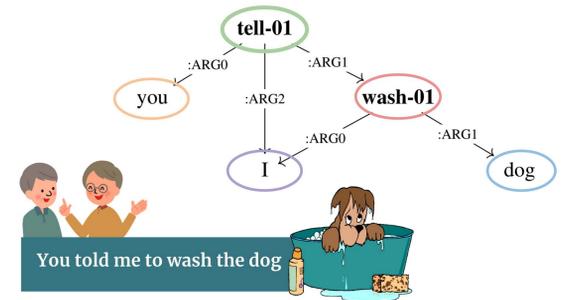
WordNet

- fox.n.01: carnivorous mammal with [...].
- fox.n.02: a shifty deceptive person.
- fox.n.03: the grey or reddish-brown fur of a fox.
- fox.n.04: [...].

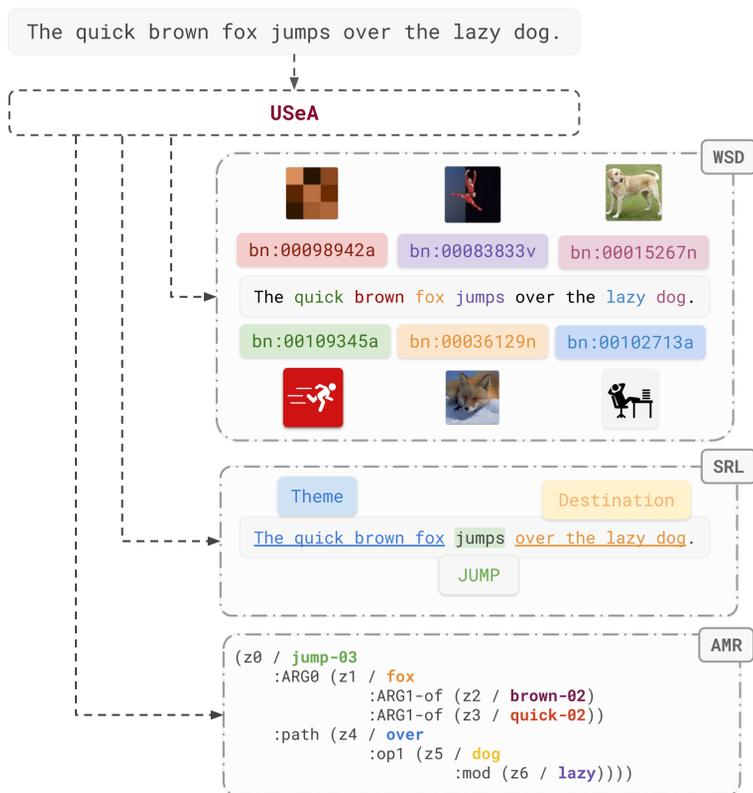
Semantic Role Labeling (SRL) answers “Who did What to Whom, Where, When?”



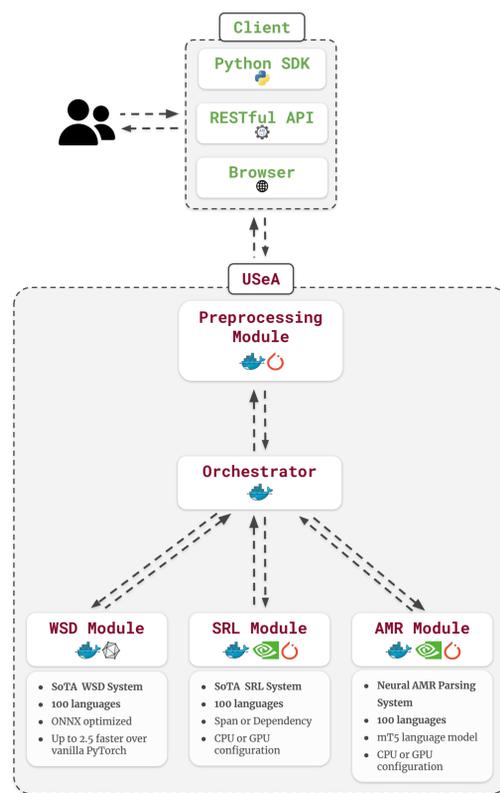
Abstract Meaning Representation (AMR) parsing provides a semantic graph structure of a sentence.



What USeA offers



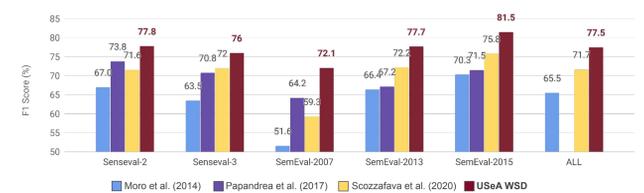
USeA architecture infrastructure



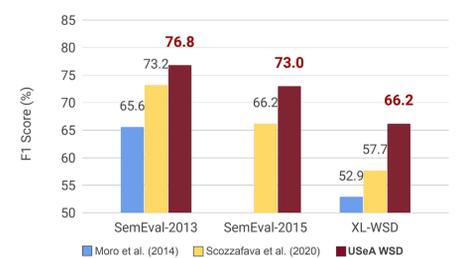
Results and Comparisons

WSD

F1 score on English benchmarks

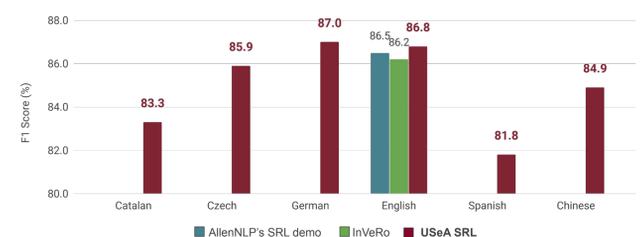


Zero-Shot performance on 3 multilingual benchmarks



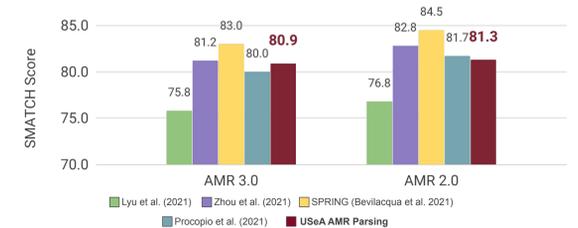
SRL

F1 score on multilingual benchmarks

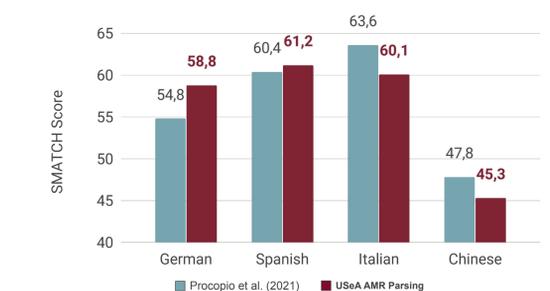


AMR Parsing

SMATCH score on English benchmarks



SMATCH score on multilingual benchmarks



How to use USeA

Web Interface

USeA

The First Unified API for WSD, SRL and Semantic Parsing

This is a front-end for the paper *Universal Semantic Annotator: the First Unified API for WSD, SRL and Semantic Parsing*, which will be presented at LREC 2022 by Riccardo Orlando, Simone Conia, Stefano Faralli, and Roberto Navigli.

Enter Text Below:
 The quick brown fox jumps over the lazy dog. 44/500

WSD Annotations:

The quick **bn:00109345a** brown **bn:00098942a** fox **bn:00036129n** jumps **bn:00083833v** over the lazy **bn:00102713a** dog **bn:00015267n**.

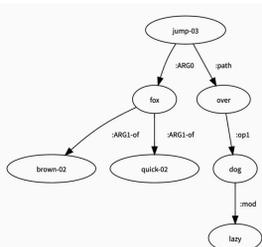
SRL Annotations:

Arguments for predicate jumps JUMP
 The quick brown fox Theme jumps JUMP over the lazy dog Destination

AMR Graph:

Linearized AMR Graph:
 (z0 / jump-03
 :ARG0 (z1 / fox
 :ARG1-of (z2 / brown-02)
 :ARG1-of (z3 / quick-02))
 :path (z4 / over
 :op1 (z5 / dog
 :mod (z6 / lazy)))

AMR Graph:



Remote Endpoint

```
import requests

text = "The quick brown fox jumps over the lazy dog."

response = requests.post(
    "https://nlp.uniroma1.it/usea/api",
    json={"type": "text", "content": text}
)
```

Python SDK

```
#!/bin/bash

# install the ELG python package
pip install elg

from elg import Service

service = Service.from_id(18323)
request_input = "The quick brown fox jumps over the lazy dog."
result = service(request_input= request_input, request_type="text")
```

Local Deployment

```
#!/bin/bash

# clone the official repository
git clone https://github.com/SapienzaNLP/usea.git
cd usea

# run the docker compose file
docker-compose up -d
```

USeA: Universal Semantic Annotator
<https://nlp.uniroma1.it/usea>



Sapienza NLP
<http://nlp.uniroma1.it>