t2s-fingeruebung

Fingerübung zum Praktikum Text2Scene im WiSe 21-22, Goethe Universität Frankfurt am Main. By Arne Gideon

Installation

Python Preparation

Requires a working version of either `anaconda` or `miniconda`.

Create a new environment with name `NAME` with the command `conda create -n NAME spacy` and confirm the `Proceed?` message by typing in `y`. This downloads the required libraries for the spacy tagger. Activate the new environment with `conda activate NAME`. You also need to install the english language package for the spacy tagger with the command `python -m spacy download en_core_web_sm`.

You need to install some additional python libraries into this evnironment. Use `conda install xmltodict matplotlib networkx` to install the needed tools.

File setup

Now download the newest release version (`.zip`) and unzip it into a new folder. `cd` into this folder.

Running

Analyze some basic stats

You can run the program from the project root folder with `python src/main.py FILES` where `FILES` is a list of file names in the `src/data/training-data/Traning` folder that you want to analyze. For example, `python src/main.py RFC/Amazon.json ANC/WhereToMadrid/Bourbon_Madrid` analyzes the 2 files and prints the results in the console.

Visualize an Entity Graph

By running `python src/main.py --graph RFC/Bicycles`, the program puts a `.png` with a graph into `src/data/json/RFC/Bicycles.png`. It contains the relations between the locations etc. in the original `.xml` file. The file also gets analyzed like described above.

Results

2.3

Results are all visible in console output. For example:

```
>>> python src/main.py RFC/Bicycles.xml RFC/Amazon.xml
main.py
Text2Scene Pratkikum WiSe 21-22 Fingerübung.
```

```
Reads IsoSpace XML-Data from Files, tokenizes and tags read data using
Spacy.
Collected Data can then be saved in JSON.
Includes some crude analysis tools and a visualizer to show a network graph
of the XML contents.

PoS counts:
PROPN:  82
CCONJ:  54
SPACE:  17
PUNCT:  218
NOUN:  329
NUM:  36
VERB:  206
DET:  178
ADP:  184
ADJ:  130
PRON:  104
ADV:  68
SCONJ:  27
AUX:  64
SYM:  1
PART:  35
X:  4



IsoSpace tag counts:
place:  86
path:  19
spatial_entity:  75
nonmotion_event:  19
motion:  44
spatial_signal:  29
motion_signal:  19
measure:  4
qslink:  41
olink:  10
movelink:  48
mlink:  4
metalink:  101



QsLink Type counts:
EC:  7
IN:  29
TPP:  3
DC:  1
EQ:  1



QsLink preposition counts:
```

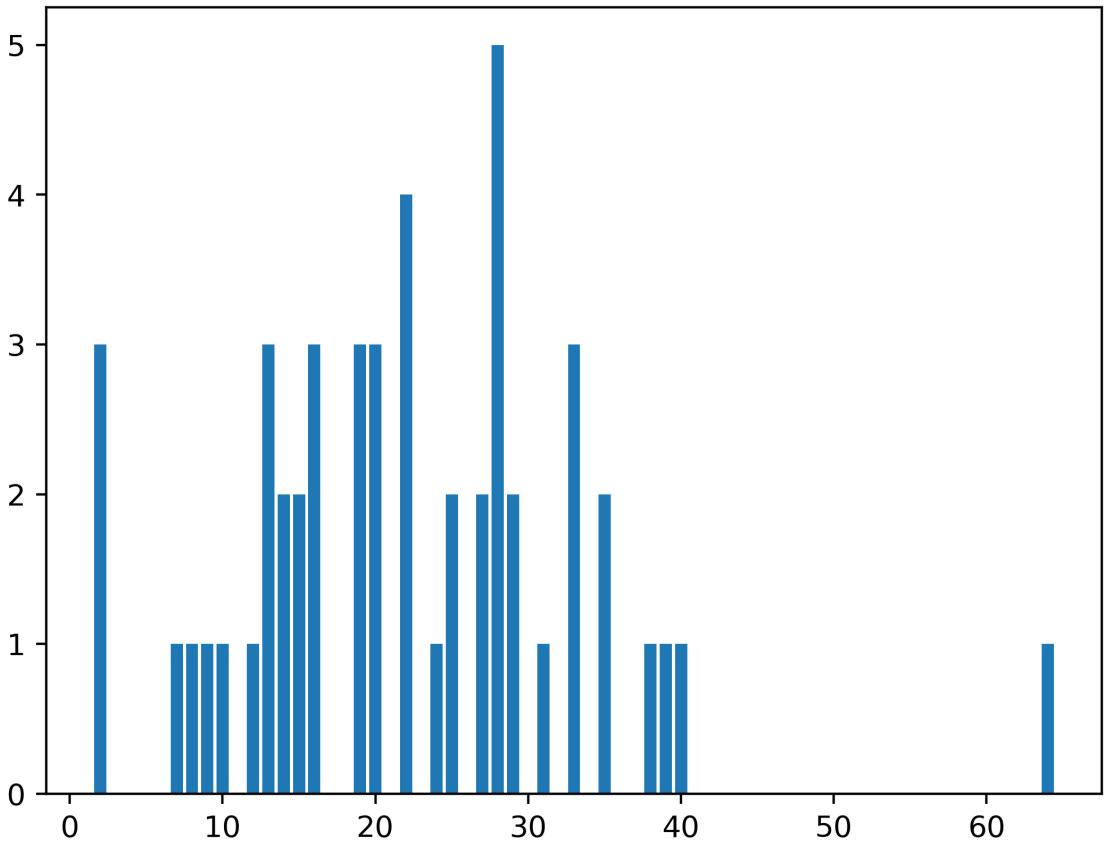
```
Qslink Triggers:
on:  2
in:  13
where:  3
At:  1
on top:  1
at:  3
of:  3
In:  1
Everywhere:  1

OLink Triggers:
on:  2
between:  1
on top:  1
of:  2
neighboring:  1



5 most common motion verbs:
following:  1
weaving:  1
took over:  1
use:  1
pass:  1
```

The sentence lengths are visualized as a bar chart in `src/sentence-lengths.png`:



2.4

The compiled graphs are placed in `src/data/json/...`.

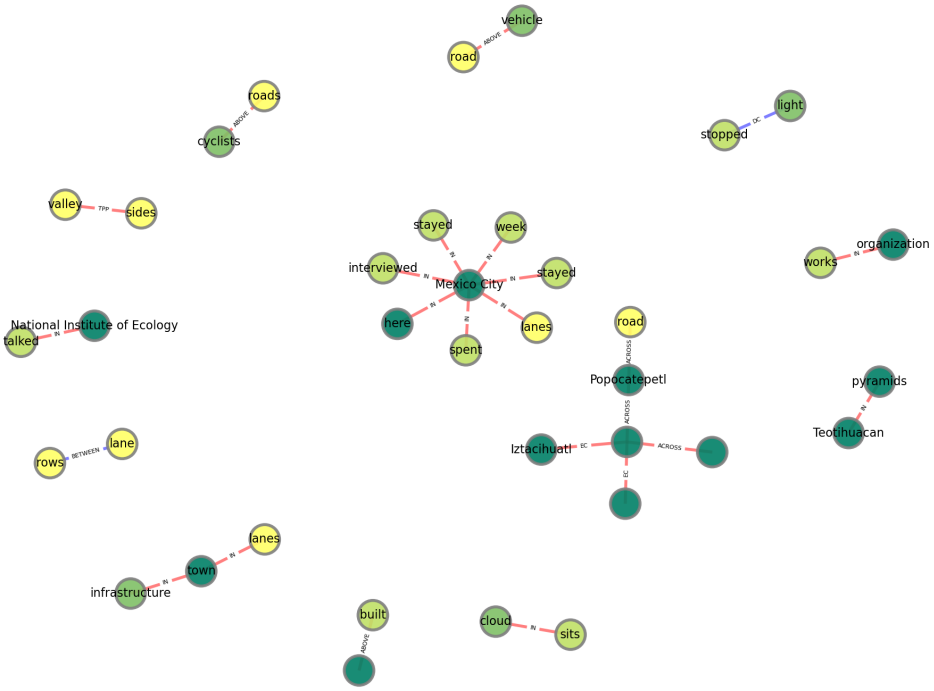
Colors are as follows:

- Places
- Locations
- Spatial Entities
- Non-Motion Events
- Paths

Edge Colors are:

- QSLink
- OLink

`RFC/Bicycles.xml`:



ANC/WhereToMadrid/Highlights_of_the_Prado_Museum.xml: