DOPA METER

A Tool Suite for Metrical Document Profiling and Aggregation

EMNLP 2023

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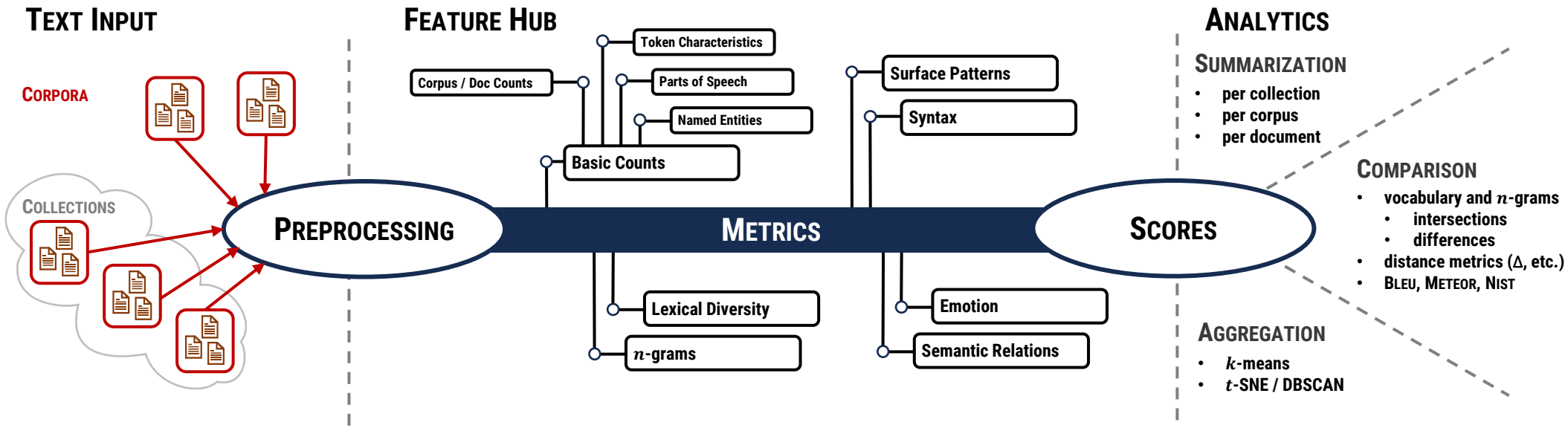
Demo – December 2023

DoPa Meter

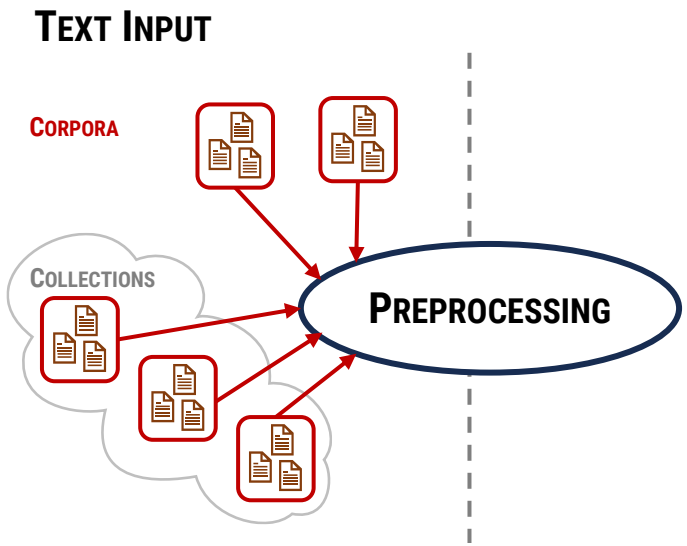
- Wide range of established metrics under one coverage
- Modular architecture
- Multilingual approach

- Based on Python and spaCy
- Command line based and configuration via json files

FUNCTIONALITY

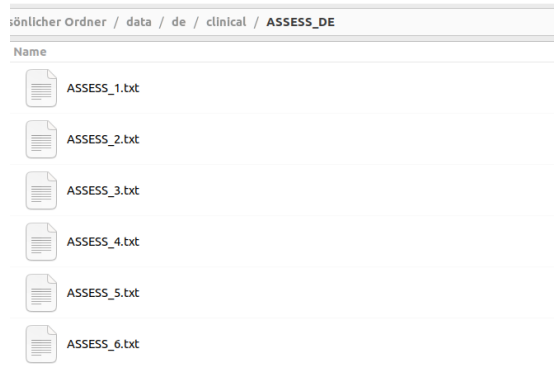


Input: Corpora and Collections

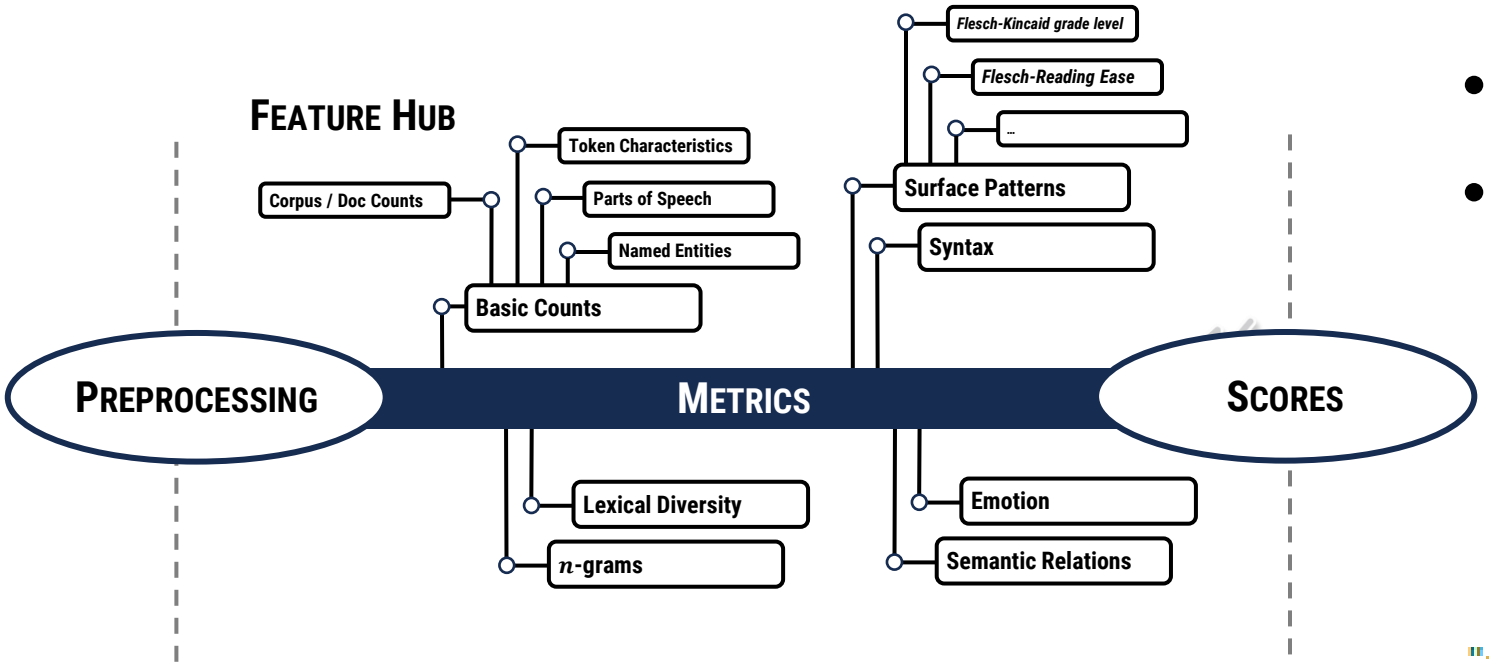


- Input: set of corpora
- 1 corpus: 1 directory of single files of plain text
- Corpora can be subsumed into collections
- Summarize corpora into collections
- Preprocessing by spaCy

```
{
  "corpora": {
    "ASSESS_DE": {
      "path_text_data": "/home/chlor/data/de/clinical/ASSESS_DE/",
      "language": "de",
      "file_formats": ["txt"],
      "collection": "de.Clin"
    },
```



Feature Hub



- Sets of single features
- Computation of features allows for an individual mode or a default mode, that computes all features.

```
"features": {
  "token_characteristics": "default",
  "pos": "default",
  "ner": "default",
  "surface": "default",
```

More details under

- https://github.com/dopameter/dopameter/tree/main/doc/features
- https://github.com/dopameter/dopameter/tree/main/doc/res/example_configurations

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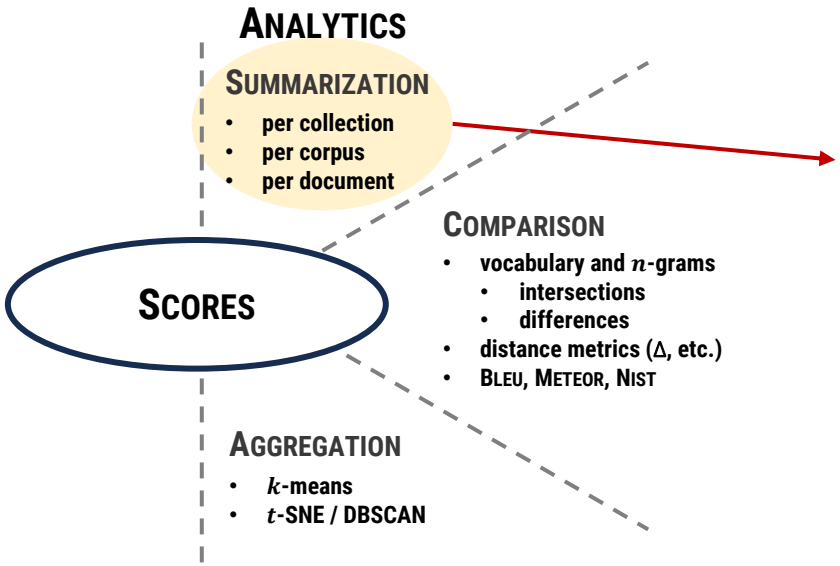
Analytics - Summarization

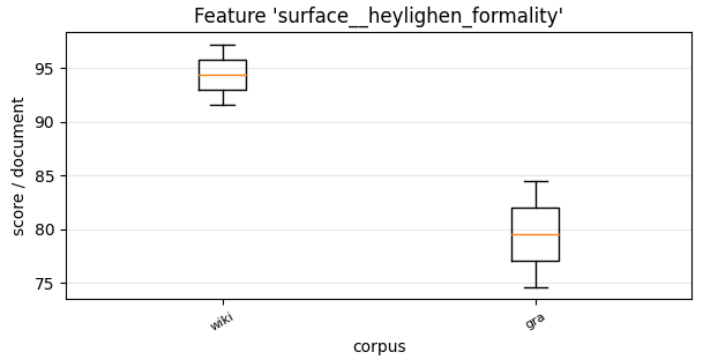


corpus	anger	arousal	disgust	dominance	fear	joy	sadness	valence
gra	1.553692699490662	3.9429117147708	1.5577758913412565	5.1221052631578905	1.5712563667232602	1.844252971137521	1.5031154499151107	4.901706281833615
wiki	1.610923076923077	3.9378461538461536	1.6150769230769229	4.8552307692307695	1.6258461538461535	1.7826153846153847	1.5649230769230773	4.582307692307693

document	PER	MISC	ORG	LOC
Albers.txt	0.02275862	0.013793103	0.0062068966	0.01724138
Amanda_Alzheimer.txt	0.025573192	0.040564373	0.01675485	0.012345679

corpus	documents	sentences	different_sentences	tokens	types	characters	lemmata
gra	2	222	221	2584	1224	16353	1118
wiki	2	25	23	191	87	1024	78

	count	mean	std	min	25%	50%	75%	max	corpus wise
AvgFan	2.0	2.31	0.07	2.26	2.29	2.31	2.34	2.37	2.32
MaxFan	2.0	8.0	0.0	8.0	8.0	8.0	8.0	8.0	8.0
AvgMaxDepth	2.0	3.25	0.16	3.14	3.2	3.25	3.31	3.36	3.24
AvgDepDist	2.0	1.63	0.48	1.29	1.46	1.63	1.8	1.97	1.59
MaxDepDist	2.0	4.21	0.45	3.9	4.06	4.21	4.37	4.53	4.53
AvgOutdegreeCentralization	2.0	0.54	0.18	0.41	0.47	0.54	0.6	0.66	0.52
AvgClosenessCentralization	2.0	0.43	0.02	0.41	0.42	0.43	0.43	0.44	0.42



Examples under

- https://github.com/dopameter/dopameter/tree/main/doc/res/results/features_detail
- https://github.com/dopameter/dopameter/tree/main/doc/res/results/summary

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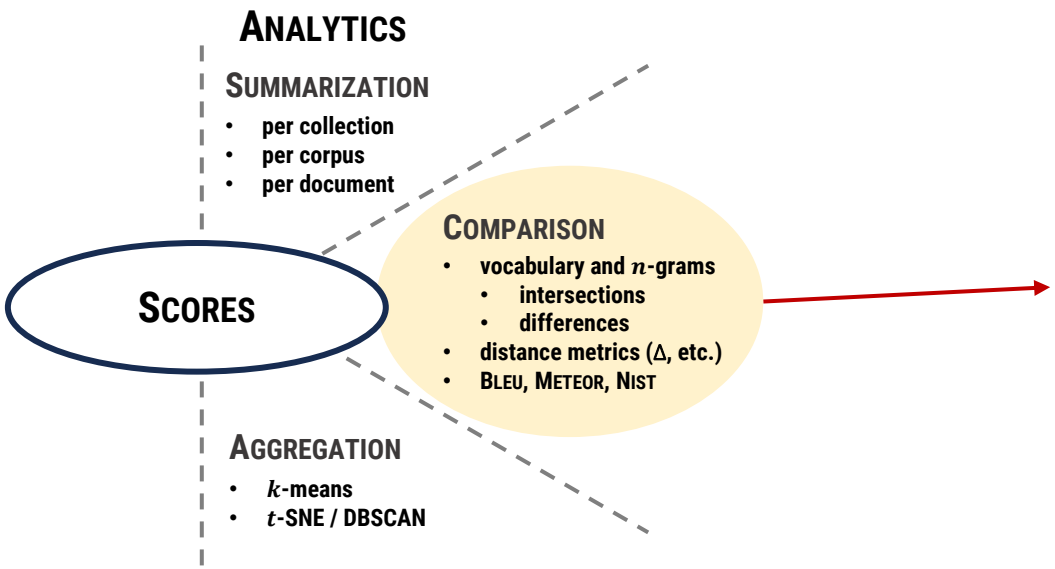
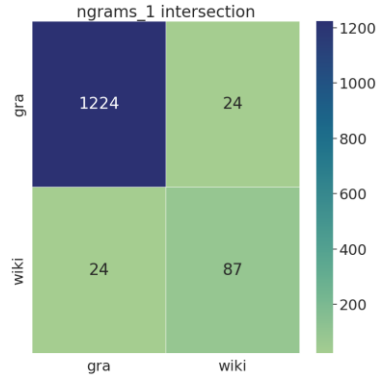
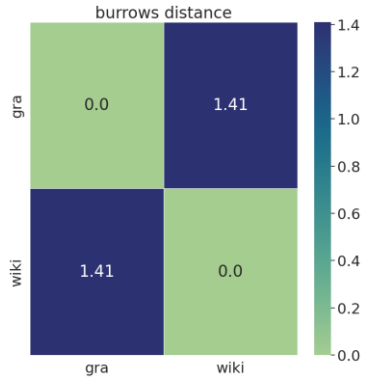
Analytics - Comparison







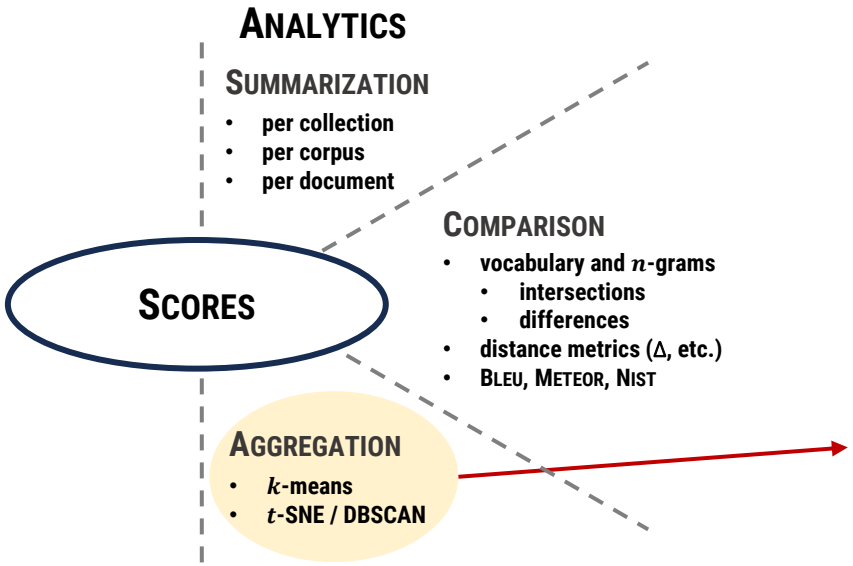
ngrams_1_intersection.json

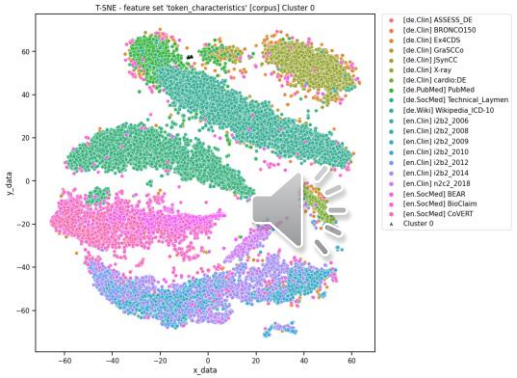

```
{
  "gra": {
    "gra": {},
    "wiki": {
      "*": 2,
      "die": 9,
      "in": 15,
      ".": 62,
      "–": 2,
      "dem": 1,
      ":": 39,
      "mit": 12,
      "ist": 1,
      "eine": 17,
      "der": 6,
      "einem": 2,
      "auf": 8,
      "des": 3,
      "ein": 1,
      "Der": 1,
      "Teil": 1,
      "Eine": 1,
      "sie": 7,
      "keine": 7,
      "{": 1,
      "oder": 1,
```

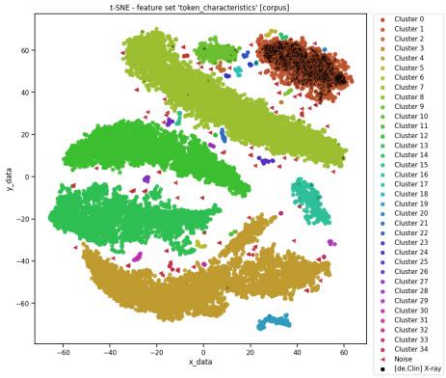

Examples under

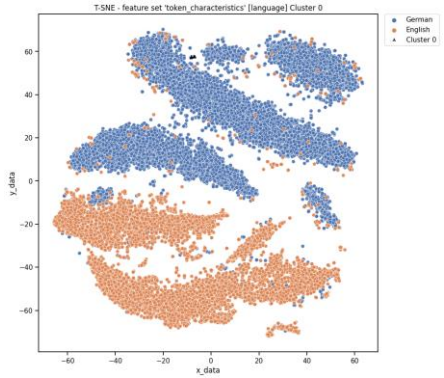
- https://github.com/dopameter/dopameter/tree/main/doc/res/results/compare

Analytics - Aggregation







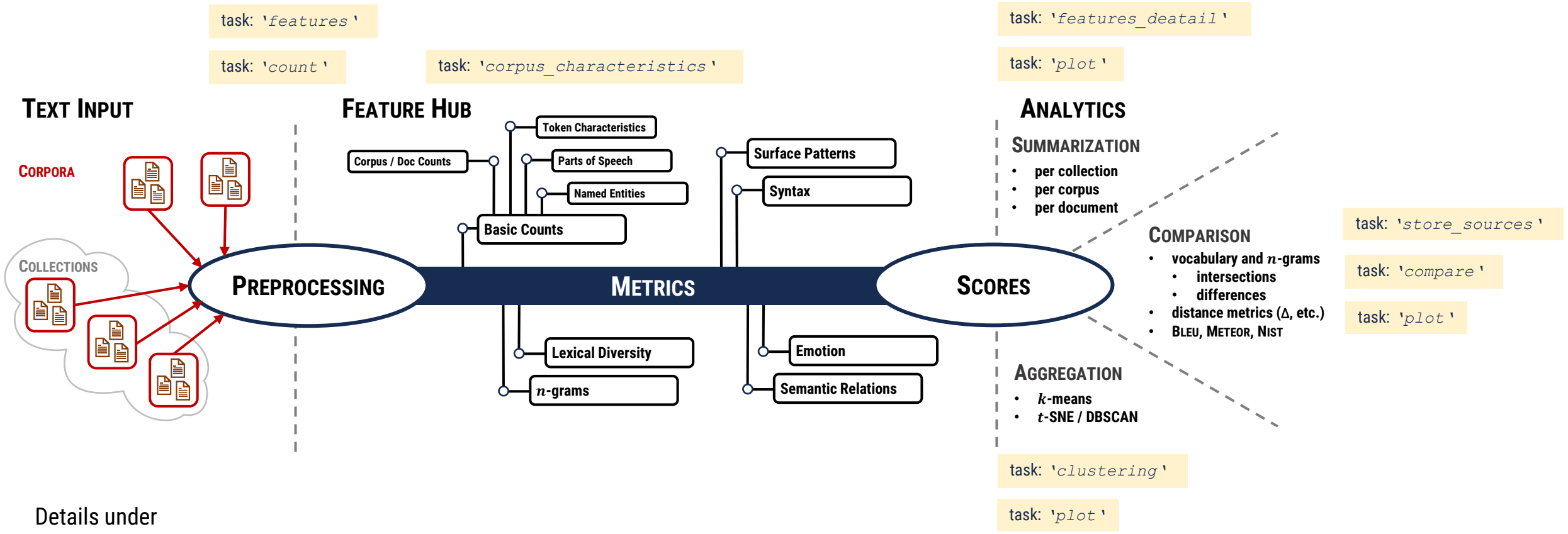


like_num	like_email	is_oov	is_stop	corpus	x_data	y_data	cluster
0.0	0.0	1.0	0.41414142	de.PubMed	0.665358131454494	0.2683823418288245	2
0.0	0.0	1.0	0.3243243	de.PubMed	0.5934232378971406	0.16845538422218026	1
0.01438849	0.0	1.0	0.352518	de.PubMed	0.5453709592066311	0.18392501294962219	1
0.019607844	0.0	1.0	0.3627451	de.PubMed	0.619727454397367	0.26507885777401813	1
0.012738854	0.0	1.0	0.40764332	de.PubMed	0.6245279272560782	0.21103126280538947	1
0.030042918	0.0	1.0	0.37124464	de.PubMed	0.5178806689340297	0.15627075733219745	1
0.12820514	0.0	1.0256411	0.20512821	de.PubMed	0.3903884245151434 4	0.588916384488067 4	0
0.02238806	0.0	1.0074627	0.29104477	de.PubMed	0.5079011948135567	0.15920468676694782	1
0.0	0.0	1.0	0.42857143	de.PubMed	0.6553087933306567	0.2223715727510015	1
0.0	0.0	1.0	0.394958	de.PubMed	0.6060844777452429	0.17534683065861648	1
0.0	0.0	1.0	0.41379312	de.PubMed	0.6655077235781542	0.22446187376732937	1

Examples under

- https://github.com/dopameter/dopameter/tree/main/doc/res/example_aggregation

Technical Note



Details under

- https://github.com/dopameter/dopameter/blob/main/doc/tasks.md

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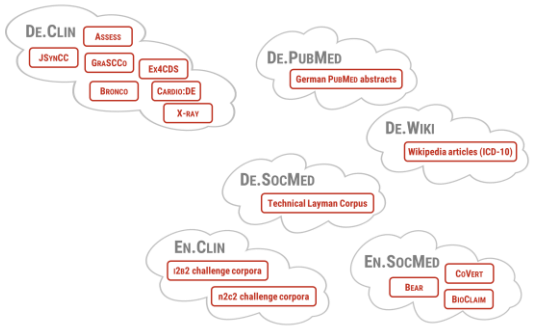
Try

- Download: **https://www.github.com/dopameter/dopameter**
- Install Python 3
- Installation external sources:
  - `python install_languages.py lang_install.json`
- Define `config.json`
- Run
  - `python main.py config.json`



- Example use case
  - 2 languages
  - 6 collections
  - 20 corpora
  - Notes and sources: https://doi.org/10.5281/zenodo.10000771
- Example configuration files:
  https://github.com/dopameter/dopameter/tree/main/doc/res/example_configurations

```
{
  "corpora": {
    "gra": {
      "path_text_data": "doc/res/example_corpora/gra",
      "language": "de"
    },
    "wiki": {
      "path_text_data": "doc/res/example_corpora/wiki",
      "language": "de"
    }
  },
  "settings": {
    "tasks": ["features", "counts", "corpus_characteristics"],
    "store_sources": true,
    "file_format_features": ["csv"],
    "file_format_clustering": "csv",
    "file_format_plots": ["png", "svg"],
    "file_format_dicts": "txt",
    "boxplot_height": 5,
    "most_frequent_words": 2000
  },
  "output": {
      "path_features":        "/doc/res/results/features",
      "path_features_detail": "/doc/res/results/features_detail",
      "path_summary":         "/doc/res/results/summary",
      "path_compare":         "/doc/res/results/compare",
      "path_counts":          "/doc/res/results/counts",
      "path_sources":         "/doc/res/results/sources",
      "path_clusters":        "/doc/res/results/clusters"
    },
  "features": {
    "token_characteristics": "default",
    "pos": "default",
    "surface": "default",
    "emotion": "default"
  }
}
```

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DOPAMETER

https://www.github.com/dopameter/dopameter

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Demo – December 2023

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