mms_benchmark

▤ MMS Dataset Card

MMS Dataset Card

Dataset Card for https://huggingface.co/datasets/Brand24/mms

Easiness of using

One of the key ideas behind creating our library of datasets was to prioritize ease of use for researchers. Recognizing the importance of accessibility and convenience, we chose the HuggingFace platform as the storage and distribution platform for the datasets. HuggingFace provides a user-friendly interface and a wide range of tools and resources, making it easy for researchers to access and utilize the datasets.

To further enhance usability, we took the initiative to gather all the necessary citations for the datasets included in our library. By unifying the citations, we aimed to simplify and expedite the process of generating citations for researchers who utilize our datasets. This step reduces the time and effort required for researchers to acknowledge the datasets' sources properly.

However, it is essential to note that while we have taken steps to streamline the citation process, researchers should still independently verify the licenses of the datasets, especially if they intend to use them for purposes beyond strict academic research. Ensuring compliance with licensing requirements is crucial to maintaining ethical and legal data use standards.

Overall, our overarching goal in creating this unified corpus of datasets is accelerating academic sentiment analysis research. By providing a comprehensive collection of high-quality datasets and facilitating their accessibility, we aim to support researchers in exploring and advancing sentiment analysis techniques and methodologies.

Data ready to slice and dice and train a model

Our dataset is designed to be versatile and allows researchers to slice and dice the data for training and modeling according to their specific needs. Drawing from the field of linguistic typology, which examines the characteristics of languages, we have incorporated various linguistic features into our dataset selection process. These features include the text itself, sentiment labels, the original dataset source, domain, language, language family, genus, the presence or absence of definite and indefinite articles, the number of cases, word order, negative morphemes, polar questions, the position of negative morphemes, prefixing vs. suffixing, coding of nominal plurals, and grammatical genders. Researchers can easily access datasets that match their desired linguistic typology criteria by offering these features as filtering options in our library.

For instance, researchers can download datasets specific to Slavic languages with interrogative word order for polar questions or datasets from the Afro-Asiatic language family without morphological case-making. This flexibility empowers researchers to tailor their analyses and models to their linguistic interests and research questions.

```
import datasets

mms_dataset = datasets.load_dataset("Brand24/mms")
mms_dataset_df = mms_dataset["train"].to_pandas()
```

All features in dataset

```
mms_dataset_df.sample(5)
```

	_id	text	label	original_dataset	domain	language	Family	Genus	Defin article
1117023	1117023	hlucnost mi prijde uplne v pohode, pere dobre,...	2	cs_mall_product_reviews	reviews	cs	Indo-European	Slavic	no art
824580	824580	"فندق جميل ولكن" الخدمة جدا سيئه". .... الخدمة غير	0	ar_hard	reviews	ar	Afro-Asiatic	Semitic	defini
6014593	6014593	刚开始不习惯…之后还挺好用的…很轻便 很细…调节长度也很方便	2	zh_multilan_amazon	reviews	zh	Sino-Tibetan	Chinese	no art
5313872	5313872	Чемпионы. И этим все сказано.	2	ru_sentiment	social_media	ru	Indo-European	Slavic	no art
4290632	4290632	"@UnCharroDice: Y no ha de sobrar, quien con c...	1	es_twitter_sentiment	social_media	es	Indo-European	Romance	defini distin demo

Linguistic Typology

The field of language typology focuses on studying the similarities and differences among languages. These differences can be categorized into phonological (sounds), syntactic (structures), lexical (vocabulary), and theoretical aspects. Linguistic typology analyzes the current state of languages, contrasting with genealogical linguistics, which examines historical relationships between languages.

Genealogical linguistics studies language families and genera. A language family consists of languages that share a common ancestral language, while genera are branches within a language family. The Indo-European family, for example, includes genera such as Slavic, Romance, Germanic, and Indic. Over 7000 languages are categorized into approximately 150 language families, with Indo-European, Sino-Tibetan, Turkic, Afro-Asiatic, Nilo-Saharan, Niger-Congo, and Eskimo-Aleut being some of the largest families.

Within linguistic typology, languages are described using various linguistic features. Our work focuses on sentiment classification and selects ten relevant features:

- `text`: The feature text represents the actual text of the sentiment dataset. It is of type string and contains the text samples or sentences for sentiment analysis.
- `label`: The feature label corresponds to the sentiment labels of the text samples. It is of type ClassLabel and has three possible values: negative, neutral, and positive. These labels indicate the sentiment or emotional polarity associated with the text.
- `original_dataset`: The feature original_dataset refers to the name or identifier of the original dataset from which the text samples were extracted. It is of type string and provides information about the source dataset.
- `domain`: The feature domain represents the domain or topic of the sentiment dataset. It is of type string and provides context regarding the subject matter of the text samples.
- `language`: The feature language indicates the language of the text samples in the sentiment dataset. It is of type string and specifies the language in which the text is written.
- `Family`: The feature Family represents the language family to which a specific language belongs. It is of type string and provides information about the broader categorization of languages into language families.
- `Genus`: The feature Genus corresponds to the genus or branch within a language family. It is of type string and indicates the specific subgrouping of languages within a language family.
- `Definite article`: Half of the languages do not use the definite article, which signals uniqueness or definiteness of a concept.
- `Indefinite article`: Half of the languages do not use the indefinite article, with some languages using a separate article or the numeral "one."
- `Number of cases`: Languages vary greatly in the number of morphological cases used.
- `Order of subject, verb, and object`: Different languages have different word orderings, with variations like SOV, SVO, VSO, VOS, OVS, and OSV.
- `Negative morphemes`: Negative morphemes indicate clausal negation in declarative sentences.
- `Polar questions`: Questions with yes/no answers, which can be formed using question particles, interrogative morphology, or intonation.
- `Position of the negative morpheme`: The position of the negative morpheme can vary in relation to subjects and objects.
- `Prefixing vs. suffixing`: Languages differ in their use of prefixes and suffixes in inflectional morphology.
- `Coding of nominal plurals`: Plurals can be expressed through morphological changes or the use of plurality indicator morphemes.
- `Grammatical genders`: Languages vary in the number of grammatical genders used, or may not use the concept at all.

These language features are available as filtering options in our library. Users can download specific facets of the collection, such as datasets in Slavic languages with interrogative word order for polar questions or datasets from the Afro-Asiatic language family without morphological case-making.

Datasheets for Datasets

The datasheets provide detailed information about the datasets, including data collection methods, annotation guidelines, and potential biases. They also specify the intended uses and potential limitations of

the datasets.

The initial pool of sentiment datasets was gathered through an extensive search using sources such as Google Scholar, GitHub repositories, and the HuggingFace datasets library. This search yielded a total of **345** datasets.

To ensure the quality of the datasets, a set of quality assurance criteria was applied to manually filter the initial pool of datasets. The following criteria were used:

1. **Strong Annotations**: Datasets containing weak annotations, such as labels based on emoji occurrence or automatically generated through classification by machine learning models, were rejected. This decision was made to minimize the presence of noise in the datasets, ensuring higher quality annotations.
2. **Well-Defined Annotation Protocol**: Datasets without sufficient information about the annotation protocol, including whether the annotation was done manually or automatically and the number of annotators involved, were rejected. This step aimed to avoid merging datasets with contradicting annotation instructions, ensuring consistency across the selected datasets.
3. **Numerical Ratings**: Datasets with numerical ratings were accepted. Specifically, Likert-type 5-point scales were mapped into three class sentiment labels. Ratings 1 and 2 were mapped to "negative," rating 3 was mapped to "neutral," and ratings 4 and 5 were mapped to "positive." This mapping allowed for consistent sentiment labeling across the datasets.
4. **Three Classes Only**: Datasets annotated with binary sentiment labels were rejected. The decision to focus on datasets with three sentiment classes (negative, neutral, and positive) was made based on the unsatisfactory performance of binary sentiment labeling in three-class settings.
5. **Monolingual Datasets**: In cases where a dataset contained samples in multiple languages, it was divided into independent datasets for each constituent language. This approach ensured that the corpus includes separate datasets for different languages, allowing for targeted analysis and evaluation.

By applying these quality assurance criteria, we were able to filter the initial pool of sentiment datasets and select a final set of **79** datasets that met the specified standards for inclusion in the multilingual corpus.

```
f"We cover {mms_dataset_df.original_dataset.nunique()} datasets in {mms_dataset_df.language.nu
```

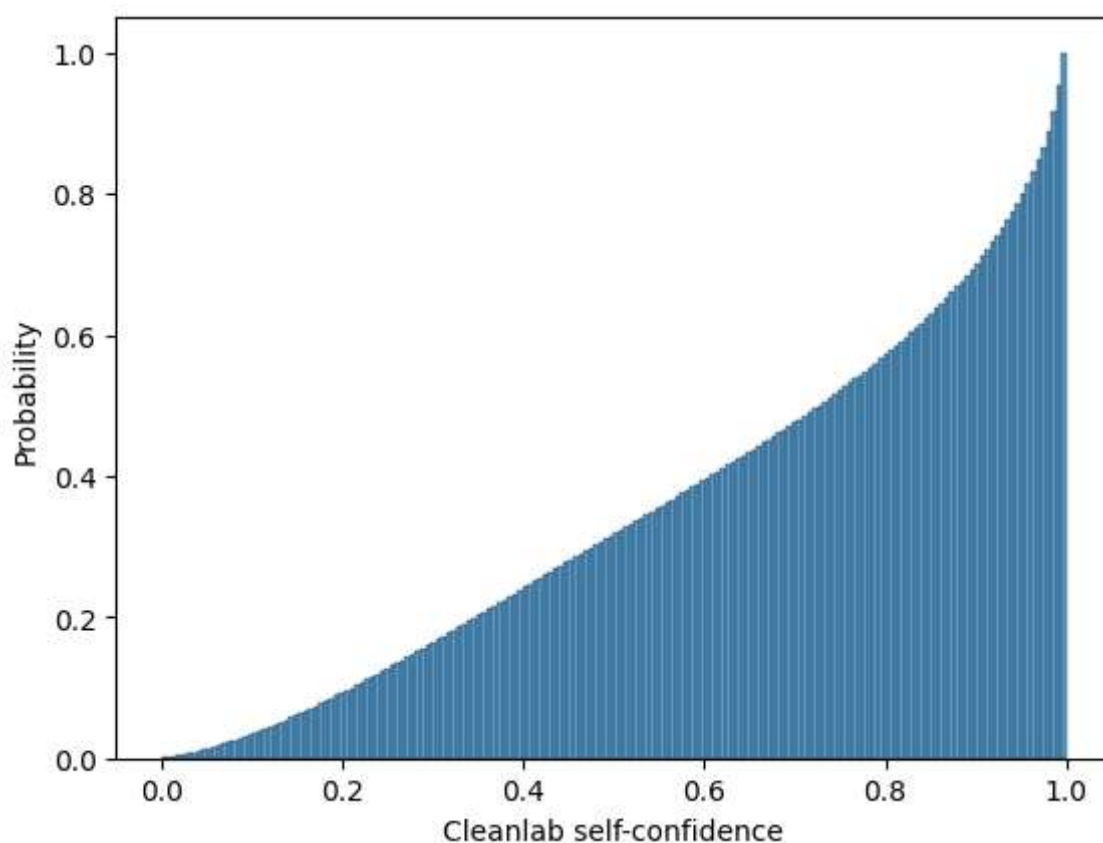
```
'We cover 79 datasets in 27 languages.'
```

```
f"The classes that we cover: {mms_dataset_df.label_name.unique()}"
```

```
"The classes that we cover: ['positive' 'neutral' 'negative']"
```

Limitations

Despite the fact that our collection is the largest public collection of multilingual sentiment datasets, it still covers only 27 languages. The collection of datasets is highly biased towards the Indo-European family of languages, English in particular. We attribute this bias to the general culture of scientific publishing and its enforcement of English as the primary carrier of scientific discovery. Our work's main potential negative social impact is that the models developed and trained using the provided datasets may still exhibit better performance for the major languages. This could further perpetuate the existing language disparities and inequality in sentiment analysis capabilities across different languages. Addressing this limitation and working towards more equitable representation and performance across languages is crucial to avoid reinforcing

language biases and the potential marginalization of underrepresented languages. The ethical implications of such disparities should be thoroughly discussed and considered.

Data Quality

An important limitation of our dataset collection is a significant variance in sample quality across all datasets and all languages. Above figure presents the distribution of self-confidence label-quality score for each data point computed by the **cleanlab** (Northcutt, Jiang, and Chuang 2021). The distribution of quality is skewed in favor of popular languages, with low-resource languages suffering from data quality issues. A related limitation is caused by an unequal distribution of data modalities across languages. For instance, our benchmark clearly shows that all models universally underperform when tested on Portuguese datasets. This is the direct result of the fact that data points for Portuguese almost exclusively represent the domain of social media. As a consequence, some combinations of filtering facets in our dataset collection produce very little data (i.e., asking for social media data in the Germanic genus of Indo-European languages will produce a significantly larger dataset than asking for news data representing Afro-Asiatic languages).

Finally, we acknowledge the lack of internal coherence of annotation protocols between datasets and languages. We have enforced strict quality criteria and rejected all datasets published without the annotation protocol, but we were unable, for obvious reasons, to unify annotation guidelines. The annotation of sentiment expressions and the assignment of sentiment labels are heavily subjective and, at the same time, influenced by cultural and linguistic features. Unfortunately, it is possible that semantically similar utterances will be assigned conflicting labels if they come from different datasets or modalities.

Filter examples by annotation qualitym

We know how imporant data quality is for the model training processes. Hence, we added cleanlab scores to each of 6M+ examples in all datasets. Now, it is enalbe to filter examples based on how good quality of data do you need for traning.

We can sort examples by top data quality. Cleanlab's `self confidence` is a function to compute label-quality scores for classification datasets, where lower scores indicate labels less likely to be correct. Hence, for the best quality we want to have the highest scores.

```
clean_labels_data = mms_dataset_df.sort_values(by="cleanlab_self_confidence", ascending=False)
```

```
clean_labels_data.head()
```

	_id	text	label	original_dataset	domain	language	Family	Genus	Definite articles	Indefinite articles
3075302	3075302	Great addition to any fan's yard! Show your te...	2	en_amazon	reviews	en	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
629922	629922	مخيب للأمل.. بخ	0	ar_hard	reviews	ar	Afro-Asiatic	Semitic	definite affix	no article
2858237	2858237	This is a great flag to display your love of A...	2	en_amazon	reviews	en	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
3110031	3110031	One of the best knives I now proudly own! Am a...	2	en_amazon	reviews	en	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
2052971	2052971	Amen! My Savior Loves! Wonderful testimony!	2	en_amazon	reviews	en	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one

Datasets

We added all necessary citations to the HuggingFace datasets card. You can find them inside citation key. We added a helper fuinctions to parse them.

We can load citations as strings - easy adding to bibtex.

```python
from mms_benchmark.citations import get_citations
```

```python
print(get_citations(mms_dataset["train"], citation_as_dict=False)["pl_polemo"])
```

```
@inproceedings{dataset_pl_polemo,
    title = "Multi-Level Sentiment Analysis of {P}ol{E}mo 2.0: Extended Corpus of Multi-
Domain Consumer Reviews",
    author = "Koco{\'n}, Jan  and
        Mi{\l}kowski, Piotr  and
        Za{\'s}ko-Zieli{\'n}ska, Monika",
    booktitle = "Proceedings of the 23rd Conference on Computational Natural Language
Learning (CoNLL)",
    month = nov,
    year = "2019",
    address = "Hong Kong, China",
    publisher = "Association for Computational Linguistics",
    url = "https://aclanthology.org/K19-1092",
    doi = "10.18653/v1/K19-1092",
    pages = "980--991"
}
% ------------------------------------------------------------------------------
```

Or as dictionary for working with them.

```python
citations = get_citations(mms_dataset["train"], citation_as_dict=True)
```

```python
citations["pl_polemo"]
```

```
{'pages': '980--991',
 'doi': '10.18653/v1/K19-1092',
 'url': 'https://aclanthology.org/K19-1092',
 'publisher': 'Association for Computational Linguistics',
 'address': 'Hong Kong, China',
 'year': '2019',
 'month': 'November',
 'booktitle': 'Proceedings of the 23rd Conference on Computational Natural Language Learning
(CoNLL)',
 'author': "Koco{\\'n}, Jan  and\nMi{\\l}kowski, Piotr  and\nZa{\\'s}ko-Zieli{\\'n}ska,
Monika",
 'title': 'Multi-Level Sentiment Analysis of {P}ol{E}mo 2.0: Extended Corpus of Multi-Domain
Consumer Reviews',
 'ENTRYTYPE': 'inproceedings',
 'ID': 'dataset_pl_polemo'}
```

Show all datasets with citations in a table

```python
mms_dataset_df["citation"] = mms_dataset_df["original_dataset"].apply(lambda x: f'[@{citations
```

```python
mms_dataset_df[DATASET_COLS].drop_duplicates().sort_values("language").reset_index(drop=True)
```

	language	original_dataset	domain	Family	Genus	Definite articles	Indefinite articles
0	ar	ar_arsentdl	social_media	Afro-Asiatic	Semitic	definite affix	no article
1	ar	ar_semeval_2017	mixed	Afro-Asiatic	Semitic	definite affix	no article
2	ar	ar_oclar	reviews	Afro-Asiatic	Semitic	definite affix	no article
3	ar	ar_labr	reviews	Afro-Asiatic	Semitic	definite affix	no article
4	ar	ar_syria_corpus	social_media	Afro-Asiatic	Semitic	definite affix	no article
5	ar	ar_brad	reviews	Afro-Asiatic	Semitic	definite affix	no article
6	ar	ar_bbn	social_media	Afro-Asiatic	Semitic	definite affix	no article
7	ar	ar_astd	social_media	Afro-Asiatic	Semitic	definite affix	no article
8	ar	ar_hard	reviews	Afro-Asiatic	Semitic	definite affix	no article
9	bg	bg_twitter_sentiment	social_media	Indo-European	Slavic	definite word distinct from demonstrative	no article
10	bs	bs_twitter_sentiment	social_media	Indo-European	Slavic	no article	no article
11	cs	cs_facebook	social_media	Indo-European	Slavic	no article	no article
12	cs	cs_mall_product_reviews	reviews	Indo-European	Slavic	no article	no article
13	cs	cs_movie_reviews	reviews	Indo-European	Slavic	no article	no article

	language	original_dataset	domain	Family	Genus	Definite articles	Indefinite articles
14	cs	cs_news_stance	social_media	Indo-European	Slavic	no article	no article
15	de	de_twitter_sentiment	social_media	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word same as one
16	de	de_omp	social_media	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word same as one
17	de	de_sb10k	social_media	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word same as one
18	de	de_ifeel	social_media	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word same as one
19	de	de_dai_labor	social_media	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word same as one
20	de	de_multilan_amazon	reviews	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word same as one
21	en	en_vader_twitter	social_media	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
22	en	en_vader_nyt	news	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
23	en	en_vader_movie_reviews	reviews	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
24	en	en_vader_amazon	reviews	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
25	en	en_twitter_sentiment	social_media	Indo-European	Germanic	definite word distinct from	indefinite word

#	language	original_dataset	domain	Family	Genus	Definite articles	Indefinite articles
						demonstrative	distinct from one
26	en	en_tweets_sanders	social_media	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
27	en	en_tweet_airlines	social_media	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
28	en	en_silicone_sem	chats	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
29	en	en_sentistrength	social_media	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
30	en	en_semeval_2017	mixed	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
31	en	en_poem_sentiment	poems	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
32	en	en_per_sent	news	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
33	en	en_multilan_amazon	reviews	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
34	en	en_financial_phrasebank_sentences_75agree	news	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
35	en	en_dai_labor	social_media	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
36	en	en_amazon	reviews	Indo-European	Germanic	definite word distinct from demonstrative	indefinite word distinct from one
37	en	en_silicone_meld_s	chats	Indo-European	Germanic	definite word distinct from	indefinite word

	language	original_dataset	domain	Family	Genus	Definite articles	Indefinite articles
						demonstrative	distinct from one
38	es	es_twitter_sentiment	social_media	Indo-European	Romance	definite word distinct from demonstrative	indefinite word same as one
39	es	es_semeval2020	social_media	Indo-European	Romance	definite word distinct from demonstrative	indefinite word same as one
40	es	es_multilan_amazon	reviews	Indo-European	Romance	definite word distinct from demonstrative	indefinite word same as one
41	es	es_muchocine	reviews	Indo-European	Romance	definite word distinct from demonstrative	indefinite word same as one
42	es	es_paper_reviews	reviews	Indo-European	Romance	definite word distinct from demonstrative	indefinite word same as one
43	fa	fa_sentipers	reviews	Indo-European	Iranian	no article	indefinite word same as one
44	fr	fr_dai_labor	social_media	Indo-European	Romance	definite word distinct from demonstrative	indefinite word same as one
45	fr	fr_ifeel	social_media	Indo-European	Romance	definite word distinct from demonstrative	indefinite word same as one
46	fr	fr_multilan_amazon	reviews	Indo-European	Romance	definite word distinct from demonstrative	indefinite word same as one
47	he	he_hebrew_sentiment	social_media	Afro-Asiatic	Semitic	definite affix	indefinite word same as one
48	hi	hi_semeval2020	social_media	Indo-European	Indic	no article	no article

	language	original_dataset	domain	Family	Genus	Definite articles	Indefinite articles
49	hr	hr_sentiment_news_document	news	Indo-European	Slavic	no article	no article
50	hr	hr_twitter_sentiment	social_media	Indo-European	Slavic	no article	no article
51	hu	hu_twitter_sentiment	social_media	Uralic	Ugric	definite word distinct from demonstrative	indefinite word distinct from one
52	it	it_evalita2016	social_media	Indo-European	Romance	definite word distinct from demonstrative	indefinite word same as one
53	it	it_multiemotions	social_media	Indo-European	Romance	definite word distinct from demonstrative	indefinite word same as one
54	ja	ja_multilan_amazon	reviews	Japanese	Japanese	no article	indefinite word distinct from one
55	lv	lv_ltec_sentiment	social_media	Indo-European	Baltic	demonstrative word used as definite article	indefinite word same as one
56	pl	pl_twitter_sentiment	social_media	Indo-European	Slavic	no article	no article
57	pl	pl_polemo	reviews	Indo-European	Slavic	no article	no article
58	pl	pl_klej_allegro_reviews	reviews	Indo-European	Slavic	no article	no article
59	pl	pl_opi_lil_2012	social_media	Indo-European	Slavic	no article	no article
60	pt	pt_dai_labor	social_media	Indo-European	Romance	definite word distinct from demonstrative	indefinite word same as one
61	pt	pt_ifeel	social_media	Indo-European	Romance	definite word distinct from	indefinite word

	language	original_dataset	domain	Family	Genus	Definite articles	Indefinite articles
						demonstrative	same as one
62	pt	pt_tweet_sent_br	social_media	Indo-European	Romance	definite word distinct from demonstrative	indefinite word same as one
63	pt	pt_twitter_sentiment	social_media	Indo-European	Romance	definite word distinct from demonstrative	indefinite word same as one
64	ru	ru_sentiment	social_media	Indo-European	Slavic	no article	no article
65	ru	ru_twitter_sentiment	social_media	Indo-European	Slavic	no article	no article
66	sk	sk_twitter_sentiment	social_media	Indo-European	Slavic	no article	no article
67	sl	sl_sentinews	news	Indo-European	Slavic	no article	no article
68	sl	sl_twitter_sentiment	social_media	Indo-European	Slavic	no article	no article
69	sq	sq_twitter_sentiment	social_media	Indo-European	Albanian	definite affix	indefinite word distinct from one
70	sr	sr_movie_reviews	reviews	Indo-European	Slavic	no article	no article
71	sr	sr_senticomments	reviews	Indo-European	Slavic	no article	no article
72	sr	sr_twitter_sentiment	social_media	Indo-European	Slavic	no article	no article
73	sv	sv_twitter_sentiment	social_media	Indo-European	Germanic	definite affix	indefinite word same as one
74	th	th_wongnai_reviews	reviews	Tai-Kadai	Kam-Tai	no article	indefinite word

	language	original_dataset	domain	Family	Genus	Definite articles	Indefinite articles
							distinct from one
75	th	th_wisesight_sentiment	social_media	Tai-Kadai	Kam-Tai	no article	indefinite word distinct from one
76	ur	ur_roman_urdu	mixed	Indo-European	Indic	no article	no article
77	zh	zh_hotel_reviews	reviews	Sino-Tibetan	Chinese	no article	indefinite word same as one
78	zh	zh_multilan_amazon	reviews	Sino-Tibetan	Chinese	no article	indefinite word same as one

Dataset Stats

Datasets per language

```
pd.DataFrame(mms_dataset_df.groupby("language").original_dataset.nunique().sort_values(ascendi
```

	original_dataset
language	
en	17
ar	9
de	6
es	5
pl	4
cs	4
pt	4
sr	3
fr	3
th	2
sl	2
ru	2
it	2

	original_dataset	
language		
hr	2	
zh	2	
bg	1	
ja	1	
lv	1	
hu	1	
hi	1	
sk	1	
he	1	
sq	1	
fa	1	
sv	1	
bs	1	
ur	1	

Labels per language

```
pd.DataFrame(mms_dataset_df.groupby(by=["language", "label_name"]).count()["text"])
```

		text
language	**label_name**	
ar	negative	138899
	neutral	192774
	positive	600402
bg	negative	13930
	neutral	28657
	positive	19563
bs	negative	11974
	neutral	11145
	positive	13064
cs	negative	39674
	neutral	59200
	positive	97413
de	negative	104667
	neutral	100071
	positive	111149
en	negative	304939

language	label_name	text
	neutral	290823
	positive	1734724
es	negative	108733
	neutral	122493
	positive	187486
fa	negative	1602
	neutral	5091
	positive	6832
fr	negative	84187
	neutral	43245
	positive	83199
he	negative	2279
	neutral	243
	positive	6097
hi	negative	4992
	neutral	6392
	positive	5615
hr	negative	19757
	neutral	19470
	positive	38367
hu	negative	8974
	neutral	17621
	positive	30087
it	negative	4043
	neutral	4193
	positive	3829
ja	negative	83982
	neutral	41979
	positive	83819
lv	negative	1378
	neutral	2618
	positive	1794
pl	negative	77422
	neutral	62074
	positive	97192
pt	negative	56827

language	label_name	text
	neutral	55465
ru	negative	45842
	neutral	31770
	positive	48106
		31054
sk	negative	14431
	neutral	12842
	positive	29350
sl	negative	33694
	neutral	50553
	positive	29296
sq	negative	6889
	neutral	14757
	positive	22638
sr	negative	25089
	neutral	32283
	positive	18996
sv	negative	16266
	neutral	13342
	positive	11738
th	negative	9326
	neutral	28616
	positive	34377
ur	negative	5239
	neutral	8585
	positive	5836
zh	negative	117967
	neutral	69016
	positive	144719

Texts in Language Family and Genus

```
pd.DataFrame(mms_dataset_df.groupby(by=['Family', 'Genus',]).count()["text"])
```

Family	Genus	text
Afro-Asiatic	Semitic	940694
Indo-European	Albanian	44284
	Baltic	5790

Family	Genus	text
	Germanic	2687719
	Indic	36659
	Iranian	13525
	Romance	799242
	Slavic	966366
Japanese	Japanese	209780
Sino-Tibetan	Chinese	331702
Tai-Kadai	Kam-Tai	72319
Uralic	Ugric	56682

Examples per domain

```
pd.DataFrame(mms_dataset_df.groupby(by=["domain"]).count()["text"])
```

domain	text
chats	16781
mixed	94122
news	26413
poems	1052
reviews	4510893
social_media	1515501

Hosting, Licensing, and Maintenance Plan

- **Hosting**: The datasets and benchmark will be hosted on a reliable and scalable cloud infrastructure to ensure accessibility and availability (HuggingFace Hub). The choice of hosting platform will be based on factors such as reliability, performance, and cost-effectiveness.
- **Licensing**: We will clearly state the data license under which the datasets are released, ensuring that the terms of use are explicitly defined. We will consider licenses that facilitate research and allow for derivative works, while also addressing potential ethical considerations. See the license in repository.
- **Maintenance**: We (see Dataset Curators section) are committed to providing ongoing maintenance and support for the datasets and benchmark. This includes regular updates, bug fixes, and addressing any user feedback or inquiries. We will also establish a communication channel for users to report issues or request assistance.

References

Northcutt, Curtis, Lu Jiang, and Isaac Chuang. 2021. "Confident Learning: Estimating Uncertainty in Dataset Labels." *Journal of Artificial Intelligence Research* 70: 1373–1411.

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