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tasksource: A Dataset Harmonization Framework for Streamlined NLP Multi-Task Learning and Evaluation

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Abstract

The HuggingFace Datasets Hub hosts thousands of datasets, offering exciting opportunities for language model training and evaluation. However, datasets for a specific task type often have different schemas, making harmonization challenging¹. Multi-task training or evaluation necessitates manual work to fit data into task templates. Several initiatives independently tackle this issue by releasing harmonized datasets or providing harmonization codes to preprocess datasets into a consistent format. We identify patterns across previous preprocessing efforts, such as column name mapping and extracting specific sub-fields from structured data in a column. We then propose a structured annotation framework that ensures our annotations are fully exposed and not hidden within unstructured code. We release a dataset annotation framework and dataset annotations for more than 500 English tasks². These annotations include metadata, such as the names of columns to be used as input or labels for all datasets, which can save time for future dataset preprocessing, regardless of whether our framework is utilized. We fine-tune a multi-task text encoder on all tasksource tasks, outperforming every publicly available text encoder of comparable size in an external evaluation³.

1 Introduction

Datasets are a key ingredient in modern artificial natural language processing (NLP).

Language understanding models trained on unannotated corpora need to be evaluated, and individual datasets or benchmarks with multiple datasets provide an objective measure of targeted model capabilities. Supervised fine-tuning on annotated datasets also leads to better evaluations, and multi-task learning (MTL) (Caruana, 1993) or extreme

MTL (Aribandi et al., 2022), i.e. MTL with many tasks, improves robustness.

The HuggingFace Datasets (Wolf et al., 2020) Hub hosts thousands of datasets. However, running evaluations or MTL on many datasets requires manual work because of a lack of standardization. Fine-tuning a model on multiple datasets requires alignment of datasets formats, even with a single task type (e.g. natural language inference). Because of that, various initiatives assemble datasets or preprocessing code to ease multi-task learning or benchmarking. However, they either distribute preprocessed copies of the datasets or preprocessing code associated with each dataset. Section 2 enumerates previous works enacting these two approaches.

The previous preprocessing codes implicitly use some metadata, such as mappings between column names and fields of a task, but extracting it is quite difficult. Code is not disentangled from metadata. We propose a very concise dataset annotation format by relying on patterns reoccurring across several preprocessings. Most annotations fit in a single line, e.g:

```
scitail = Classification(
    'sentence1',
    'sentence2',
    'gold_label')
```

The SciTail (Khot et al., 2018) dataset on HF-Hub, noted `scitail_ds`⁴ (Khot et al., 2018) can be standardized by calling the `tasksource.scitail` function, and associated metadata can be retrieved with `tasksource.scitail.dict()`.

We annotate 480 tasks, focusing on discriminative tasks to complement previous work better. We train a `deberta-base` text encoder on all of them simultaneously (Section 6) leading to unprecedented model performance (Section 7).

¹<https://xkcd.com/927/>

²<https://github.com/sileod/tasksource>

³hf.co/sileod/deberta-v3-base-tasksource-nli⁴<https://hf.co/datasets/scitail>

2 Related work

Various works harmonize existing datasets by either sharing preprocessed copies or preprocessings. Tasksource is a collection of preprocessings, and it is the largest for tasks excluding text generation tasks. Text generations tasks have a relatively simple format (optional input text, and output text), and previous work such as PromptSource (Bach et al., 2022) and SuperNatural Instructions (Wang et al., 2022) did not provide structured annotations, as defined in section 3, but these can still be combined with acceptable efforts.

Preprocessed copies BIG-Bench (Srivastava et al., 2022a), BigBio (Fries et al., 2022), Natural and SuperNatural Instructions (Mishra et al., 2022; Wang et al., 2022), PragmEval (Sileo et al., 2022a), UnifiedQA (Khashabi et al., 2020b), TweetEval (Barbieri et al., 2020), DiscoEval (Chen et al., 2019b), Silicone (Chapuis et al., 2020), LexGLUE (Chalkidis et al., 2022), SetFit (Tunstall et al., 2022) distribute preprocessed copies of the original data with standardized format.

Collections of preprocessings SentEval (Conneau et al., 2017), Jiant (Pruksachatkun et al., 2020), BLUE (Peng et al., 2019), MetaEval (Sileo and Moens, 2022a), CrossFit (Ye et al., 2021), PromptSource (Bach et al., 2022) distribute the code required to jointly use some datasets with initially distinct structures. ExMix (Aribandi et al., 2022) is not released to our knowledge. The Muppet (Aghajanyan et al., 2021) authors did not release their preprocessing either.

Our work also pertains to extreme MTL (Aribandi et al., 2022; Aghajanyan et al., 2021) and dataset count scaling.

3 Structured dataset annotation

We define *dataset parsing* as the mapping of a dataset into a task template.

A task template is a type of task, like paraphrase detection, associated with a predetermined set of fields. For example, Paraphrase detection can be mapped to a task template PARAPHRASEDETECTION(SENTENCE1, SENTENCE2, LABEL)

A dataset is a set of examples with named and typed columns. quora is an example of a dataset hosted on the HuggingFace Datasets Hub (Wolf et al., 2020), illustrated in Table 1.

A dataset parser for a specific dataset is a function that maps the whole dataset, or examples, to

questions (sequence)	is_duplicate (bool)
{ "id": [1, 2], "text": ["What is the step by step guide to invest in share market in india?", "What is the step by step guide to invest in share market?"] }	false
...	

Table 1: One row of the Quora dataset, as hosted on the HuggingFace Datasets Hub.

a task format, which can be PARAPHRASEDETECTION here.

As seen above, some benchmarks distribute harmonized datasets. This approach can save computations but can waste storage space, and make it harder to track all the design decisions that were applied to the original dataset. Users can also implement parsers themselves, or rely on external libraries to process examples on a restricted set of tasks. The previous preprocessings codes do not disentangle data and logic, and cannot be seen as semantic dataset annotations. This complicates the combinations of different preprocessing. Previous preprocessings also contain repetitive boilerplate code⁵.

We decompose dataset parsing logic from annotations with based on two observations:

(1) The fields of task type (e.g. SENTENCE1, SENTENCE2 for PARAPHRASEDETECTION can often be independently mapped to functions of dataset examples. Therefore, we can annotate a dataset with a task type, then annotate each field of a task type with a function that extracts the desired information from a dataset example.

(2) The field mapping functions are often selecting a column from examples: in that case, they can be annotated with the name of the relevant columns. Sometimes, as in the Quora dataset in Table 1, they are selecting a path from a nested structure: in that case, they can be annotated with a path. Fields can also be mapped to a constant – some multiple-choice question-answering datasets always use the first choice as the correct choice and have an implicit constant label equal to 0. A field can also be mapped to a concatenation of the text of different columns, which can also be annotated

⁵i.e. https://github.com/INK-USC/CrossFit/blob/master/tasks/aqua_rat.py

with parameters.

4 Tasksource dataset annotation format

Once a dataset is annotated with a task type, each field of the task type has to be annotated with a function that takes an example from the dataset and returns the intended part of the example. For brevity, we can annotate a field with a string `s` to denote the function `lambda x:x[s]`

The tasksource backend handles the annotations and turns them into harmonizing preprocessing. We consider 3 general task types:

CLASSIFICATION(TEXT1, TEXT2, LABELS) where **LABELS** has to be a function that takes an example and returns a class index. It can also return a float for regression tasks, or a fixed-size list for multi-label classification. **TEXT1** takes a dataset example as input and returns the text extracted from the example. **TEXT2** is optional and is here to leverage the fact that most text encoders process text pairs with special care.

MULTIPLECHOICE(PROMPT, CHOICES, LABELS): **CHOICES** has to be a function that returns a list of text choices (the number of choices can differ across examples) extracted from an example. For concision, it can also be a list of column names to denote a list of textual choices already available in the example. **LABELS** has to return the index of the correct choice (most tasks have only one correct answer).

TOKENCLASSIFICATION(TOKENS, LABELS) where **TOKENS** takes an example as input and returns to a list of already split tokens, **LABELS** return a list of labels aligned to the tokens (i^{th} label annotates the i^{th} token).

We also provide 3 structured function factories to cover additional use cases while exposing their behavior with parameters.

get enables to access nested objects. `get.questions.text[0]` is equivalent to `lambda x:x['questions']['text'][0]`

constant provides constant functions. `constant(x)` is equivalent to `lambda _:x`.

cat concatenates multiple columns that contain strings. `cat(col1 col2)` is equivalent to `lambda x:x[col1]+x[col2]`.

An annotation to parse the Quora dataset in Table 1 can then be written as follows:

```
quora = Classification(  
    text1=get.questions.text[0],  
    text2=get.questions.text[1],  
    labels='is_duplicate')
```

For completeness, we also allow optional `preprocess` and `postprocess` arguments to a task type. They should be functions that take the full dataset as input and return a dataset. We found this feature to be necessary in a few cases where datasets had unusable labels (e.g. negative label indexes) that caused errors, or to edit the metadata of a dataset, like the name of the labels when it needs to be changed.

5 Tasksource annotations

We select English datasets available on the HuggingFace Datasets Hub. We only consider discriminative tasks (Classification, Multiple-choice, Token Classification). We crawled all the tasks tagged with the English Language, and the Text-Classification task type⁶ or Multiple Choice tag⁷, as of January 2023.

As many tags are missing, to increase the coverage, we crawled the 1000 most popular datasets and used heuristics to identify discriminative tasks with labels with their fields names. We then ran a `fasttext` (Joulin et al., 2016) `langid` classifier to filter out untagged datasets with non-English text.

We only annotate datasets that do not require the user to manually download data or sign an agreement. We exclude datasets that require a particular library, with the exception of BIG-bench. We also exclude tasks where high accuracy is not desirable, such as bias probing tasks (Nangia et al., 2020) where accuracy measures bias, and tasks with input length that mostly exceeds 256 tokens.

We manually deduplicate the datasets which can be available individually or in benchmarks.

We also annotate the mapping between split names and train/validation/test splits. When the test splits are obfuscated (labels unavailable), we split the validation set and use half of it as a test set. Our goal is to reduce friction and individually submitting model test predictions to data owners

⁶https://hf.co/datasets?language=language:en&task_categories=task_categories:text-classification&sort=downloads

⁷https://hf.co/datasets?task_categories=task_categories:multiple-choice&sort=downloads

can take a lot of time. When no split is available, we do a 80/10/10% split. We use a fixed 0 random seed. to help reproducibility.

Label handling was one of the pain points of the testing of the preprocessing functions. The tasksource backend preprocesses text labels to map them to integers.

The Table in Appendix A enumerates all datasets annotated in the current version of tasksource⁸

6 Pretraining a model on tasksource

To demonstrate the potential of tasksource, we fine-tune a single `deberta-base-v3` (He et al., 2021)⁹ text encoder on all tasksource tasks.

Following BERT (Devlin et al., 2019) standard setup, for token-classification tasks, we use a softmax classifier on top of the last layer encoded tokens to predict the token classes. For classification tasks and multiple-choice tasks, we use a classifier on top of the [CLS] sentinel token last layer.

We assign each task a different classification layer, but we tie the label weights (not biases) to each other if they are all identical.

We oversample datasets by a factor of 2 if they have less than 64k examples then cap dataset size to 64k examples to foster dataset diversity. We randomly sample a task for each batch with a frequency proportional to the capped training dataset size and we add a learnable task-specific sentinel token to the shared sentinel token. We drop the task-specific token 10% of the time to teach the model to also work without these task embeddings, to reduce mismatch when using our model with the vanilla DeBERTa architecture. We also noticed that this tended to improve general accuracy, since this forces cooperation across tasks.

We limit the number of choices to 4 for multiple-choice tasks, to limit redundant computations, as some datasets have more than 100 choices.

We use a learning rate of 3.10^{-5} , a sequence length of 256, and a batch size of 24, with 16 accumulation steps to stabilize the multi-task optimization (Yu et al., 2020a). We did not perform hyperparameter optimization.

We used the `tasknet`¹⁰ library and a single

⁸Annotations: <https://github.com/sileo4/tasksource/blob/main/src/tasksource/tasks.py>

⁹This is the best-performing unsupervisedly pretrained text encoder of this size according to the GLUE Benchmark (Wang et al., 2019a).

¹⁰Tasknet (Sileo, 2023) is interface Huggingface Datasets

RTX-6000 24GB GPU for 7 days (20k steps). Using tasksource with tasknet enables concise multi-task training¹¹.

7 Results

As of January 2023, an early version of our model ranks first among 3574 base-sized¹² model on the *Model Recycling* (Choshen et al., 2022) external evaluation¹³ This evaluation comprises 36 representative English NLP tasks (Consisting of sentiment, NLI, Twitter, topic classification, and other general classification tasks), over 5 random seeds. These results are competitive with `deberta-large` models on GLUE. We did not observe any sign of overfitting yet which suggests that the network might still be undertrained.

8 Conclusion

We described a semantic, structured, concise, expressive dataset preprocessing annotation framework, which is associated with a parser and annotations, that can greatly facilitate new experiments for multi-task learning and improve reproducibility. We only scratched the surface of the potential of this generated task collection due to computational limitations. For future work, we plan to use tasksource to fully automate dataset parsing on new datasets with machine learning techniques to learn the parsing process. We also plan to work on a multilingual extension of tasksource annotations.

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with Huggingface Trainer.

¹¹https://colab.research.google.com/drive/1iB40xl9_B5W3ZDzXoWJN-olUbqLBxgQS?usp=sharing

¹²This corresponds to 86M encoder parameters excluding embeddings.

¹³<https://ibm.github.io/model-recycling>

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A Currently annotated preprocessings

	preprocessing	task type
0	glue/mnli (Williams et al., 2018)	Classification
1	glue/qnli (Williams et al., 2018)	Classification
2	glue/rte (Williams et al., 2018)	Classification
3	glue/wnli (Williams et al., 2018)	Classification
4	glue/mrpc (Williams et al., 2018)	Classification
5	glue/qqp (Williams et al., 2018)	Classification
6	glue/stsb (Williams et al., 2018)	Classification
7	super_glue/boolq (Clark et al., 2019)	Classification
8	super_glue/cb (De Marneffe et al., 2019)	Classification
9	super_glue/multirc (Khashabi et al., 2018)	Classification
10	super_glue/wic (Pilehvar and ose Camacho-Collados, 2018)	Classification
11	super_glue/axg (Rudinger et al., 2018)	Classification
12	anli/a1 (Nie et al., 2020)	Classification
13	anli/a2 (Nie et al., 2020)	Classification
14	anli/a3 (Nie et al., 2020)	Classification
15	babi_nli/lists-sets (Weston et al., 2015)	Classification
16	babi_nli/basic-deduction (Weston et al., 2015)	Classification
17	babi_nli/positional-reasoning (Weston et al., 2015)	Classification
18	babi_nli/basic-coreference (Weston et al., 2015)	Classification
19	babi_nli/three-supporting-facts (Weston et al., 2015)	Classification
20	babi_nli/path-finding (Weston et al., 2015)	Classification
21	babi_nli/three-arg-relations (Weston et al., 2015)	Classification
22	babi_nli/yes-no-questions (Weston et al., 2015)	Classification
23	babi_nli/time-reasoning (Weston et al., 2015)	Classification
24	babi_nli/indefinite-knowledge (Weston et al., 2015)	Classification
25	babi_nli/counting (Weston et al., 2015)	Classification
26	babi_nli/size-reasoning (Weston et al., 2015)	Classification
27	babi_nli/compound-coreference (Weston et al., 2015)	Classification
28	babi_nli/basic-induction (Weston et al., 2015)	Classification
29	babi_nli/single-supporting-fact (Weston et al., 2015)	Classification
30	babi_nli/simple-negation (Weston et al., 2015)	Classification
31	babi_nli/two-arg-relations (Weston et al., 2015)	Classification
32	babi_nli/two-supporting-facts (Weston et al., 2015)	Classification
33	babi_nli/conjunction (Weston et al., 2015)	Classification
34	sick/label (Marelli et al., 2014)	Classification
35	sick/relatedness (Marelli et al., 2014)	Classification
36	sick/entailment_AB (Marelli et al., 2014)	Classification
37	snli (Bowman et al., 2015)	Classification
38	scitail/snli_format (Khot et al., 2018)	Classification
39	hans (McCoy et al., 2019)	Classification
40	WANLI (Liu et al., 2022)	Classification
41	recast/recast_verbcorner (Poliak et al., 2018)	Classification
42	recast/recast_megaveridicality (Poliak et al., 2018)	Classification
43	recast/recast_sentiment (Poliak et al., 2018)	Classification
44	recast/recast_ner (Poliak et al., 2018)	Classification
45	recast/recast_kg_relations (Poliak et al., 2018)	Classification

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	preprocessing	task type
46	recast/recast_factuality (Poliak et al., 2018)	Classification
47	recast/recast_puns (Poliak et al., 2018)	Classification
48	recast/recast_verbnet (Poliak et al., 2018)	Classification
49	probability_words_nli/reasoning_1hop (Sileo and Moens, 2022b)	Classification
50	probability_words_nli/usnli (Sileo and Moens, 2022b)	Classification
51	probability_words_nli/reasoning_2hop (Sileo and Moens, 2022b)	Classification
52	nan-nli/joey234–nan-nli	Classification
53	nli_fever	Classification
54	breaking_nli	Classification
55	conj_nli	Classification
56	fracas	Classification
57	dialogue_nli	Classification
58	mpe	Classification
59	dnc	Classification
60	recast_white/fnplus	Classification
61	recast_white/spri	Classification
62	recast_white/dpr	Classification
63	joci	Classification
64	robust_nli/IS_CS	Classification
65	robust_nli/LI_LI	Classification
66	robust_nli/ST_WO	Classification
67	robust_nli/PI_SP	Classification
68	robust_nli/PI_CD	Classification
69	robust_nli/ST_SE	Classification
70	robust_nli/ST_NE	Classification
71	robust_nli/ST_LM	Classification
72	robust_nli_is_sd	Classification
73	robust_nli_li_ts	Classification
74	gen_debiased_nli/snli_seq_z	Classification
75	gen_debiased_nli/snli_z_aug	Classification
76	gen_debiased_nli/snli_par_z	Classification
77	gen_debiased_nli/mnli_par_z	Classification
78	gen_debiased_nli/mnli_z_aug	Classification
79	gen_debiased_nli/mnli_seq_z	Classification
80	add_one_rte	Classification
81	imppres/presupposition_all_n_presupposition (Jereti c et al., 2020)	Classification
82	imppres/presupposition_posessed_definites_existence (Jereti c et al., 2020)	Classification
83	imppres/presupposition_cleft_uniqueness(Jereti c et al., 2020)	Classification
84	imppres/presupposition_question_presupposition(Jereti c et al., 2020)	Classification
85	imppres/presupposition_posessed_definites_uniqueness(Jereti c et al., 2020)	Classification
86	imppres/presupposition_only_presupposition(Jereti c et al., 2020)	Classification
87	imppres/presupposition_both_presupposition(Jereti c et al., 2020)	Classification
88	imppres/presupposition_change_of_state(Jereti c et al., 2020)	Classification
89	imppres/presupposition_cleft_existence(Jereti c et al., 2020)	Classification
90	imppres/implicature_quantifiers/prag (Jereti c et al., 2020)	Classification
91	imppres/implicature_numerals_2_3/prag (Jereti c et al., 2020)	Classification
92	imppres/implicature_numerals_10_100/prag (Jereti c et al., 2020)	Classification
93	imppres/implicature_modals/prag (Jereti c et al., 2020)	Classification

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	preprocessing	task type
94	imppres/implicature_connectives/prag (Jereti c et al., 2020)	Classification
95	imppres/implicature_gradable_verb/prag (Jereti c et al., 2020)	Classification
96	imppres/implicature_gradable_adjective/prag (Jereti c et al., 2020)	Classification
97	imppres/implicature_quantifiers/log (Jereti c et al., 2020)	Classification
98	imppres/implicature_numerals_2_3/log (Jereti c et al., 2020)	Classification
99	imppres/implicature_numerals_10_100/log (Jereti c et al., 2020)	Classification
100	imppres/implicature_gradable_adjective/log (Jereti c et al., 2020)	Classification
101	imppres/implicature_connectives/log (Jereti c et al., 2020)	Classification
102	imppres/implicature_modals/log (Jereti c et al., 2020)	Classification
103	imppres/implicature_gradable_verb/log (Jereti c et al., 2020)	Classification
104	glue_diagnostics/diagnostics	Classification
105	hlgd (Laban and Bandarkar, 2021)	Classification
106	paws/labeled_final (Zhang et al., 2019)	Classification
107	paws/labeled_swap (Zhang et al., 2019)	Classification
108	quora	Classification
109	medical_questions_pairs (McCreery et al., 2020)	Classification
110	glue/cola (Williams et al., 2018)	Classification
111	glue/sst2 (Williams et al., 2018)	Classification
112	utilitarianism (Hendrycks et al., 2020)	Classification
113	amazon_counterfactual/en (ONeill et al., 2021)	Classification
114	insincere-questions	Classification
115	toxic_conversations	Classification
116	TuringBench (huggingface, 2020)	Classification
117	trec (Li and Roth, 2002)	Classification
118	vitaminc/tals-vitaminc (Schuster et al., 2021)	Classification
119	hope_edi/english (Chakravarthi, 2020)	Classification
120	rumoureval_2019/RumourEval2019 (Gorrell et al., 2019)	Classification
121	ethos/binary (Mollas et al., 2020)	Classification
122	ethos/multilabel (Mollas et al., 2020)	Classification
123	tweet_eval/emotion (Barbieri et al., 2020)	Classification
124	tweet_eval/irony (Barbieri et al., 2020)	Classification
125	tweet_eval/offensive (Barbieri et al., 2020)	Classification
126	tweet_eval/sentiment (Barbieri et al., 2020)	Classification
127	tweet_eval/stance_abortion (Barbieri et al., 2020)	Classification
128	tweet_eval/stance_atheism (Barbieri et al., 2020)	Classification
129	tweet_eval/stance_climate (Barbieri et al., 2020)	Classification
130	tweet_eval/stance_feminist (Barbieri et al., 2020)	Classification
131	tweet_eval/stance_hillary (Barbieri et al., 2020)	Classification
132	tweet_eval/emoji (Barbieri et al., 2020)	Classification
133	tweet_eval/hate (Barbieri et al., 2020)	Classification
134	discovery/discovery (Sileo et al., 2019)	Classification
135	pragmeval/squinky-informativeness (Lahiri, 2015)	Classification
136	pragmeval/squinky-implicature (Lahiri, 2015)	Classification
137	pragmeval/verifiability (Park and Cardie, 2014)	Classification
138	pragmeval/squinky-formality (Lahiri, 2015)	Classification
139	pragmeval/emobank-valence (Buechel and Hahn, 2017)	Classification
140	pragmeval/emobank-dominance (Buechel and Hahn, 2017)	Classification
141	pragmeval/emobank-arousal (Buechel and Hahn, 2017)	Classification

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	preprocessing	task type
142	pragmeval/switchboard (Godfrey et al., 1992)	Classification
143	pragmeval/mrda (Shriberg et al., 2004)	Classification
144	pragmeval/sarcasm (Oraby et al., 2016)	Classification
145	pragmeval/persuasiveness-premisetype (Carlile et al., 2018)	Classification
146	pragmeval/persuasiveness-eloquence (Carlile et al., 2018)	Classification
147	pragmeval/persuasiveness-claimtype (Carlile et al., 2018)	Classification
148	pragmeval/persuasiveness-specificity (Carlile et al., 2018)	Classification
149	pragmeval/gum (Zeldes, 2017)	Classification
150	pragmeval/emergent (Ferreira and Vlachos, 2016)	Classification
151	pragmeval/persuasiveness-strength (Carlile et al., 2018)	Classification
152	pragmeval/stac (Asher et al., 2016)	Classification
153	pragmeval/pdtb (Prasad et al., 2008)	Classification
154	pragmeval/persuasiveness-relevance (Carlile et al., 2018)	Classification
155	silicone/meld_s (Chen et al., 2018)	Classification
156	silicone/sem (McKeown et al., 2011)	Classification
157	silicone/oasis (Leech and Weisser, 2003)	Classification
158	silicone/meld_e (Chen et al., 2018)	Classification
159	silicone/maptask (Thompson et al., 1993)	Classification
160	silicone/iemocap (Busso et al., 2008)	Classification
161	silicone/dyda_e (Li et al., 2017)	Classification
162	silicone/dyda_da (Li et al., 2017)	Classification
163	lex_glue/eurlex (Chalkidis et al., 2021)	Classification
164	lex_glue/scotus (Spaeth et al., 2020)	Classification
165	lex_glue/ledgar (Tugener et al., 2020)	Classification
166	lex_glue/unfair_tos (Lippi et al., 2019)	Classification
167	language-identification	Classification
168	imdb (Maas et al., 2011)	Classification
169	rotten_tomatoes (Pang and Lee, 2005)	Classification
170	ag_news (Zhang et al., 2015b)	Classification
171	yelp_review_full/yelp_review_full (Zhang et al., 2015a)	Classification
172	financial_phrasebank/sentences_allagree (Malo et al., 2014)	Classification
173	poem_sentiment (Sheng and Uthus, 2020)	Classification
174	dbpedia_14/dbpedia_14 (Lehmann et al., 2015)	Classification
175	amazon_polarity/amazon_polarity (McAuley and Leskovec, 2013)	Classification
176	app_reviews (Zur, 2017)	Classification
177	hate_speech18 (de Gibert et al., 2018)	Classification
178	sms_spam (Almeida et al., 2011)	Classification
179	humicroedit/subtask-1 (Hossain et al., 2019)	Classification
180	humicroedit/subtask-2 (Hossain et al., 2019)	Classification
181	snips_built_in_intents (Coucke et al., 2018)	Classification
182	banking77 (Casanueva et al., 2020)	Classification
183	hate_speech_offensive (Davidson et al., 2017)	Classification
184	yahoo_answers_topics	Classification
185	stackoverflow-questions	Classification
186	hyperpartisan_news	Classification
187	scie	Classification
188	citation_intent	Classification
189	go_emotions/simplified (Demszky et al., 2020)	Classification

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	preprocessing	task type
190	scicite (Cohan et al., 2019)	Classification
191	liar (Wang, 2017)	Classification
192	lexical_relation_classification/K&H+N (Wang et al., 2019b)	Classification
193	lexical_relation_classification/CogALexV (Wang et al., 2019b)	Classification
194	lexical_relation_classification/BLESS (Wang et al., 2019b)	Classification
195	lexical_relation_classification/EVALution (Wang et al., 2019b)	Classification
196	lexical_relation_classification/ROOT09 (Wang et al., 2019b)	Classification
197	linguisticprobing/subj_number (Conneau et al., 2018)	Classification
198	linguisticprobing/bigram_shift (Conneau et al., 2018)	Classification
199	linguisticprobing/top_constituents (Conneau et al., 2018)	Classification
200	linguisticprobing/odd_man_out (Conneau et al., 2018)	Classification
201	linguisticprobing/past_present (Conneau et al., 2018)	Classification
202	linguisticprobing/coordination_inversion (Conneau et al., 2018)	Classification
203	linguisticprobing/tree_depth (Conneau et al., 2018)	Classification
204	linguisticprobing/obj_number (Conneau et al., 2018)	Classification
205	linguisticprobing/sentence_length (Conneau et al., 2018)	Classification
206	crowdfunder/sentiment_nuclear_power (Van Pelt and Sorokin, 2012)	Classification
207	crowdfunder/tweet_global_warming (Van Pelt and Sorokin, 2012)	Classification
208	crowdfunder/corporate-messaging (Van Pelt and Sorokin, 2012)	Classification
209	crowdfunder/economic-news (Van Pelt and Sorokin, 2012)	Classification
210	crowdfunder/airline-sentiment (Van Pelt and Sorokin, 2012)	Classification
211	crowdfunder/political-media-bias (Van Pelt and Sorokin, 2012)	Classification
212	crowdfunder/text_emotion (Van Pelt and Sorokin, 2012)	Classification
213	crowdfunder/political-media-audience (Van Pelt and Sorokin, 2012)	Classification
214	crowdfunder/political-media-message (Van Pelt and Sorokin, 2012)	Classification
215	ethics/commonsense (Hendrycks et al., 2020)	Classification
216	ethics/deontology (Hendrycks et al., 2020)	Classification
217	ethics/justice (Hendrycks et al., 2020)	Classification
218	ethics/virtue (Hendrycks et al., 2020)	Classification
219	emo/emo2019 (Chatterjee et al., 2019)	Classification
220	google_wellformed_query (Faruqui and Das, 2018)	Classification
221	tweets_hate_speech_detection (ZRo, 2018)	Classification
222	has_part (Bhakthavatsalam et al., 2020)	Classification
223	blog_authorship_corpus/gender (Schler et al., 2006)	Classification
224	blog_authorship_corpus/age (Schler et al., 2006)	Classification
225	blog_authorship_corpus/horoscope (Schler et al., 2006)	Classification
226	blog_authorship_corpus/job (Schler et al., 2006)	Classification
227	open_question_type (Cao and Wang, 2021)	Classification
228	health_fact (Kotonya and Toni, 2020)	Classification
229	mc_taco (Ben Zhou and Roth, 2019)	Classification
230	ade_corpus_v2/Ade_corpus_v2_classification (Gurulingappa et al., 2012)	Classification
231	circa (Louis et al., 2020)	Classification
232	EffectiveFeedbackStudentWriting	Classification
233	promptSentiment (McAuley and Leskovec, 2013)	Classification
234	promptNLI (Nie et al., 2020)	Classification
235	promptSpoke	Classification
236	promptProficiency	Classification
237	promptGrammar (Warstadt et al., 2018)	Classification

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	preprocessing	task type
238	promptCoherence	Classification
239	phrase_similarity (Pham et al., 2022)	Classification
240	scientific-exaggeration-detection (Wright and Augenstein, 2021)	Classification
241	quarel	Classification
242	fever-evidence-related/mwong-fever-related	Classification
243	numer_sense (Lin et al., 2020)	Classification
244	dynasent/dynabench.dynasent.r1.all/r1 (Potts et al., 2020)	Classification
245	dynasent/dynabench.dynasent.r2.all/r2 (Potts et al., 2020)	Classification
246	Sarcasm_News_Headline	Classification
247	sem_eval_2010_task_8 (Hendrickx et al., 2010)	Classification
248	auditor_review/demo-org-auditor_review	Classification
249	Dynasent_Disagreement	Classification
250	Politeness_Disagreement	Classification
251	SBIC_Disagreement	Classification
252	SChem_Disagreement	Classification
253	Dilemmas_Disagreement	Classification
254	wiki_qa (Y et al., 2015)	Classification
255	cyclic_classification (Kejriwal and Shen, 2020)	Classification
256	sts-companion (Cer et al., 2017)	Classification
257	commonsense_qa_2.0	Classification
258	lingnli (Parrish et al., 2021)	Classification
259	monotonicity-entailment (Yanaka et al., 2019a)	Classification
260	scinli (Sadat and Caragea, 2022)	Classification
261	naturallogic (Feng et al., 2020)	Classification
262	dynahate (Vidgen et al., 2021)	Classification
263	syntactic-augmentation-nli (Min et al., 2020)	Classification
264	autotnli	Classification
265	CONDAQA (Ravichander et al., 2022)	Classification
266	scruples	Classification
267	attempto-nli	Classification
268	defeasible-nli/atomic	Classification
269	defeasible-nli/snli	Classification
270	help-nli (Yanaka et al., 2019b)	Classification
271	nli-veridicality-transitivity (Yanaka et al., 2021)	Classification
272	natural-language-satisfiability (Schlegel et al., 2022)	Classification
273	lonli (Tarunesh et al., 2021)	Classification
274	dadc-limit-nli (Wallace et al., 2022)	Classification
275	FLUTE	Classification
276	strategy-qa	Classification
277	folio (Han et al., 2022)	Classification
278	tomi-nli	Classification
279	avicenna (Aghahadi and Talebpour, 2022)	Classification
280	CREAK	Classification
281	puzzte (Szomiu and Groza, 2021)	Classification
282	spartqa-yn (Mirzaee et al., 2021)	Classification
283	temporal-nli (Thukral et al., 2021)	Classification
284	clcd-english	Classification
285	twentyquestions	Classification

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	preprocessing	task type
286	counterfactually-augmented-imdb (Kaushik et al., 2020)	Classification
287	counterfactually-augmented-snli (Kaushik et al., 2020)	Classification
288	cnli (Huang et al., 2020)	Classification
289	boolq-natural-perturbations (Khashabi et al., 2020a)	Classification
290	acceptability-prediction (Lau et al., 2015)	Classification
291	equate (Ravichander et al., 2019)	Classification
292	implicit-hate-stg1 (ElSherief et al., 2021)	Classification
293	chaos-mnli-ambiguity (Zhou et al., 2022)	Classification
294	headline_cause/en_simple (Gusev and Tikhonov, 2021)	Classification
295	logiqa-2.0-nli	Classification
296	oasst1_dense_flat/quality	Classification
297	oasst1_dense_flat/toxicity	Classification
298	oasst1_dense_flat/helpfulness	Classification
299	PARARULE-Plus (Bao et al., 2022)	Classification
300	mindgames (Sileo and Lernould, 2023)	Classification
301	ambient (Liu et al., 2023)	Classification
302	civil_comments/toxicity (Borkan et al., 2019)	Classification
303	civil_comments/severe_toxicity (Borkan et al., 2019)	Classification
304	civil_comments/obscene (Borkan et al., 2019)	Classification
305	civil_comments/threat (Borkan et al., 2019)	Classification
306	civil_comments/insult (Borkan et al., 2019)	Classification
307	civil_comments/identity_attack (Borkan et al., 2019)	Classification
308	civil_comments/sexual_explicit (Borkan et al., 2019)	Classification
309	I2D2	Classification
310	hh-rlhf	MultipleChoice
311	model-written-evals (Perez et al., 2022)	MultipleChoice
312	truthful_qa/multiple_choice (Lin et al., 2021b)	MultipleChoice
313	fig-qa	MultipleChoice
314	bigbench/strange_stories (Srivastava et al., 2022b)	MultipleChoice
315	bigbench/arithmetic (Srivastava et al., 2022b)	MultipleChoice
316	bigbench/formal_fallacies_syllogisms_negation (Srivastava et al., 2022b)	MultipleChoice
317	bigbench/implicatures (Srivastava et al., 2022b)	MultipleChoice
318	bigbench/salient_translation_error_detection (Srivastava et al., 2022b)	MultipleChoice
319	bigbench/causal_judgment (Srivastava et al., 2022b)	MultipleChoice
320	bigbench/discourse_marker_prediction (Srivastava et al., 2022b)	MultipleChoice
321	bigbench/timedial (Srivastava et al., 2022b)	MultipleChoice
322	bigbench/general_knowledge (Srivastava et al., 2022b)	MultipleChoice
323	bigbench/evaluating_information_essentiality (Srivastava et al., 2022b)	MultipleChoice
324	bigbench/cause_and_effect (Srivastava et al., 2022b)	MultipleChoice
325	bigbench/hyperbaton (Srivastava et al., 2022b)	MultipleChoice
326	bigbench/hindu_knowledge (Srivastava et al., 2022b)	MultipleChoice
327	bigbench/crass_ai (Srivastava et al., 2022b)	MultipleChoice
328	bigbench/movie_recommendation (Srivastava et al., 2022b)	MultipleChoice
329	bigbench/cifar10_classification (Srivastava et al., 2022b)	MultipleChoice
330	bigbench/logic_grid_puzzle (Srivastava et al., 2022b)	MultipleChoice
331	bigbench/sentence_ambiguity (Srivastava et al., 2022b)	MultipleChoice
332	bigbench/fact_checker (Srivastava et al., 2022b)	MultipleChoice
333	bigbench/strategyqa (Srivastava et al., 2022b)	MultipleChoice

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	preprocessing	task type
334	bigbench/elementary_math_qa (Srivastava et al., 2022b)	MultipleChoice
335	bigbench/temporal_sequences (Srivastava et al., 2022b)	MultipleChoice
336	bigbench/penguins_in_a_table (Srivastava et al., 2022b)	MultipleChoice
337	bigbench/goal_step_wikihow (Srivastava et al., 2022b)	MultipleChoice
338	bigbench/dark_humor_detection (Srivastava et al., 2022b)	MultipleChoice
339	bigbench/logical_fallacy_detection (Srivastava et al., 2022b)	MultipleChoice
340	bigbench/irony_identification (Srivastava et al., 2022b)	MultipleChoice
341	bigbench/emojis_emotion_prediction (Srivastava et al., 2022b)	MultipleChoice
342	bigbench/sports_understanding (Srivastava et al., 2022b)	MultipleChoice
343	bigbench/contextual_parametric_knowledge_conflicts (Srivastava et al., 2022b)	MultipleChoice
344	bigbench/intent_recognition (Srivastava et al., 2022b)	MultipleChoice
345	bigbench/crash_blossom (Srivastava et al., 2022b)	MultipleChoice
346	bigbench/real_or_fake_text (Srivastava et al., 2022b)	MultipleChoice
347	bigbench/ruin_names (Srivastava et al., 2022b)	MultipleChoice
348	bigbench/logical_deduction (Srivastava et al., 2022b)	MultipleChoice
349	bigbench/identify_math_theorems (Srivastava et al., 2022b)	MultipleChoice
350	bigbench/vitamins_fact_verification (Srivastava et al., 2022b)	MultipleChoice
351	bigbench/hhh_alignment (Srivastava et al., 2022b)	MultipleChoice
352	bigbench/simple_ethical_questions (Srivastava et al., 2022b)	MultipleChoice
353	bigbench/checkmate_in_one (Srivastava et al., 2022b)	MultipleChoice
354	bigbench/similarities_abstraction (Srivastava et al., 2022b)	MultipleChoice
355	bigbench/novel_concepts (Srivastava et al., 2022b)	MultipleChoice
356	bigbench/snarks (Srivastava et al., 2022b)	MultipleChoice
357	bigbench/abstract_narrative_understanding (Srivastava et al., 2022b)	MultipleChoice
358	bigbench/social_iqa (Srivastava et al., 2022b)	MultipleChoice
359	bigbench/phrase_relatedness (Srivastava et al., 2022b)	MultipleChoice
360	bigbench/physics (Srivastava et al., 2022b)	MultipleChoice
361	bigbench/gre_reading_comprehension (Srivastava et al., 2022b)	MultipleChoice
362	bigbench/logical_sequence (Srivastava et al., 2022b)	MultipleChoice
363	bigbench/winowhy (Srivastava et al., 2022b)	MultipleChoice
364	bigbench/movie_dialog_same_or_different (Srivastava et al., 2022b)	MultipleChoice
365	bigbench/riddle_sense (Srivastava et al., 2022b)	MultipleChoice
366	bigbench/metaphor_understanding (Srivastava et al., 2022b)	MultipleChoice
367	bigbench/moral_permissibility (Srivastava et al., 2022b)	MultipleChoice
368	bigbench/nonsense_words_grammar (Srivastava et al., 2022b)	MultipleChoice
369	bigbench/bbq_lite_json (Srivastava et al., 2022b)	MultipleChoice
370	bigbench/physical_intuition (Srivastava et al., 2022b)	MultipleChoice
371	bigbench/navigate (Srivastava et al., 2022b)	MultipleChoice
372	bigbench/reasoning_about_colored_objects (Srivastava et al., 2022b)	MultipleChoice
373	bigbench/metaphor_boolean (Srivastava et al., 2022b)	MultipleChoice
374	bigbench/analytic_entailment (Srivastava et al., 2022b)	MultipleChoice
375	bigbench/mnist_ascii (Srivastava et al., 2022b)	MultipleChoice
376	bigbench/misconceptions (Srivastava et al., 2022b)	MultipleChoice
377	bigbench/authorship_verification (Srivastava et al., 2022b)	MultipleChoice
378	bigbench/social_support (Srivastava et al., 2022b)	MultipleChoice
379	bigbench/tracking_shuffled_objects (Srivastava et al., 2022b)	MultipleChoice
380	bigbench/analogical_similarity (Srivastava et al., 2022b)	MultipleChoice
381	bigbench/figure_of_speech_detection (Srivastava et al., 2022b)	MultipleChoice

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	preprocessing	task type
382	bigbench/understanding_fables (Srivastava et al., 2022b)	MultipleChoice
383	bigbench/question_selection (Srivastava et al., 2022b)	MultipleChoice
384	bigbench/undo_permutation (Srivastava et al., 2022b)	MultipleChoice
385	bigbench/conceptual_combinations (Srivastava et al., 2022b)	MultipleChoice
386	bigbench/unit_interpretation (Srivastava et al., 2022b)	MultipleChoice
387	bigbench/logical_args (Srivastava et al., 2022b)	MultipleChoice
388	bigbench/geometric_shapes (Srivastava et al., 2022b)	MultipleChoice
389	bigbench/code_line_description (Srivastava et al., 2022b)	MultipleChoice
390	bigbench/fantasy_reasoning (Srivastava et al., 2022b)	MultipleChoice
391	bigbench/identify_odd_metaphor (Srivastava et al., 2022b)	MultipleChoice
392	bigbench/empirical_judgments (Srivastava et al., 2022b)	MultipleChoice
393	bigbench/color (Srivastava et al., 2022b)	MultipleChoice
394	bigbench/symbol_interpretation (Srivastava et al., 2022b)	MultipleChoice
395	bigbench/suicide_risk (Srivastava et al., 2022b)	MultipleChoice
396	bigbench/date_understanding (Srivastava et al., 2022b)	MultipleChoice
397	bigbench/cs_algorithms (Srivastava et al., 2022b)	MultipleChoice
398	bigbench/play_dialog_same_or_different (Srivastava et al., 2022b)	MultipleChoice
399	bigbench/international_phonetic_alphabet_nli (Srivastava et al., 2022b)	MultipleChoice
400	bigbench/emoji_movie (Srivastava et al., 2022b)	MultipleChoice
401	bigbench/mathematical_induction (Srivastava et al., 2022b)	MultipleChoice
402	bigbench/implicit_relations (Srivastava et al., 2022b)	MultipleChoice
403	bigbench/anachronisms (Srivastava et al., 2022b)	MultipleChoice
404	bigbench/odd_one_out (Srivastava et al., 2022b)	MultipleChoice
405	bigbench/human_organs_senses (Srivastava et al., 2022b)	MultipleChoice
406	bigbench/english_proverbs (Srivastava et al., 2022b)	MultipleChoice
407	bigbench/key_value_maps (Srivastava et al., 2022b)	MultipleChoice
408	bigbench/dyck_languages (Srivastava et al., 2022b)	MultipleChoice
409	bigbench/known_unknowns (Srivastava et al., 2022b)	MultipleChoice
410	bigbench/disambiguation_qa (Srivastava et al., 2022b)	MultipleChoice
411	bigbench/entailed_polarity (Srivastava et al., 2022b)	MultipleChoice
412	bigbench/epistemic_reasoning (Srivastava et al., 2022b)	MultipleChoice
413	bigbench/presuppositions_as_nli (Srivastava et al., 2022b)	MultipleChoice
414	blimp/sentential_negation_npi_scope (Warstadt et al., 2019)	MultipleChoice
415	blimp/left_branch_island_echo_question (Warstadt et al., 2019)	MultipleChoice
416	blimp/inchoative (Warstadt et al., 2019)	MultipleChoice
417	blimp/principle_A_reconstruction (Warstadt et al., 2019)	MultipleChoice
418	blimp/complex_NP_island (Warstadt et al., 2019)	MultipleChoice
419	blimp/npi_present_2 (Warstadt et al., 2019)	MultipleChoice
420	blimp/existential_there_quantifiers_2 (Warstadt et al., 2019)	MultipleChoice
421	blimp/wh_vs_that_with_gap (Warstadt et al., 2019)	MultipleChoice
422	blimp/superlative_quantifiers_1 (Warstadt et al., 2019)	MultipleChoice
423	blimp/coordinate_structure_constraint_complex_left_branch (Warstadt et al., 2019)	MultipleChoice
424	blimp/matrix_question_npi_licensor_present (Warstadt et al., 2019)	MultipleChoice
425	blimp/principle_A_c_command (Warstadt et al., 2019)	MultipleChoice
426	blimp/drop_argument (Warstadt et al., 2019)	MultipleChoice
427	blimp/tough_vs_raising_1 (Warstadt et al., 2019)	MultipleChoice
428	blimp/npi_present_1 (Warstadt et al., 2019)	MultipleChoice
429	blimp/coordinate_structure_constraint_object_extraction (Warstadt et al., 2019)	MultipleChoice

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	preprocessing	task type
430	blimp/animate_subject_passive (Warstadt et al., 2019)	MultipleChoice
431	blimp/wh_vs_that_with_gap_long_distance (Warstadt et al., 2019)	MultipleChoice
432	blimp/wh_questions_subject_gap_long_distance (Warstadt et al., 2019)	MultipleChoice
433	blimp/sentential_subject_island (Warstadt et al., 2019)	MultipleChoice
434	blimp/wh_questions_object_gap (Warstadt et al., 2019)	MultipleChoice
435	blimp/principle_A_domain_2 (Warstadt et al., 2019)	MultipleChoice
436	cos_e/v1.0 (Rajani et al., 2019)	MultipleChoice
437	cosmos_qa (Huang et al., 2019)	MultipleChoice
438	dream (Sun et al., 2019)	MultipleChoice
439	openbookqa (Mihaylov et al., 2018)	MultipleChoice
440	qasc (Khot et al., 2020)	MultipleChoice
441	quartz (Tafjord et al., "2019")	MultipleChoice
442	quail (Rogers et al., 2020)	MultipleChoice
443	head_qa/en (Vilares and Gomez-Rodriguez, 2019)	MultipleChoice
444	sciq (Johannes Welbl, 2017)	MultipleChoice
445	social_i_qa	MultipleChoice
446	wiki_hop/original (Welbl et al., 2018)	MultipleChoice
447	wiqa (Tandon et al., 2019)	MultipleChoice
448	piqa (Bisk et al., 2020)	MultipleChoice
449	hellaswag (Zellers et al., 2019)	MultipleChoice
450	super_glue/copa (Roemmele et al., 2011)	MultipleChoice
451	balanced-copa (Kavumba et al., 2019)	MultipleChoice
452	e-CARE	MultipleChoice
453	art (Chandra et al., 2020)	MultipleChoice
454	mmlu/nutrition (Hendrycks et al., 2021)	MultipleChoice
455	mmlu/college_medicine (Hendrycks et al., 2021)	MultipleChoice
456	mmlu/philosophy (Hendrycks et al., 2021)	MultipleChoice
457	mmlu/global_facts (Hendrycks et al., 2021)	MultipleChoice
458	mmlu/college_mathematics (Hendrycks et al., 2021)	MultipleChoice
459	mmlu/college_computer_science (Hendrycks et al., 2021)	MultipleChoice
460	mmlu/college_chemistry (Hendrycks et al., 2021)	MultipleChoice
461	mmlu/college_biology (Hendrycks et al., 2021)	MultipleChoice
462	mmlu/clinical_knowledge (Hendrycks et al., 2021)	MultipleChoice
463	mmlu/business_ethics (Hendrycks et al., 2021)	MultipleChoice
464	mmlu/astronomy (Hendrycks et al., 2021)	MultipleChoice
465	mmlu/machine_learning (Hendrycks et al., 2021)	MultipleChoice
466	mmlu/moral_scenarios (Hendrycks et al., 2021)	MultipleChoice
467	mmlu/sociology (Hendrycks et al., 2021)	MultipleChoice
468	mmlu/us_foreign_policy (Hendrycks et al., 2021)	MultipleChoice
469	mmlu/virology (Hendrycks et al., 2021)	MultipleChoice
470	mmlu/world_religions (Hendrycks et al., 2021)	MultipleChoice
471	mmlu/prehistory (Hendrycks et al., 2021)	MultipleChoice
472	mmlu/professional_accounting (Hendrycks et al., 2021)	MultipleChoice
473	mmlu/professional_law (Hendrycks et al., 2021)	MultipleChoice
474	mmlu/professional_medicine (Hendrycks et al., 2021)	MultipleChoice
475	mmlu/professional_psychology (Hendrycks et al., 2021)	MultipleChoice
476	mmlu/electrical_engineering (Hendrycks et al., 2021)	MultipleChoice
477	mmlu/elementary_mathematics (Hendrycks et al., 2021)	MultipleChoice

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	preprocessing	task type
478	mmlu/anatomy (Hendrycks et al., 2021)	MultipleChoice
479	mmlu/abstract_algebra (Hendrycks et al., 2021)	MultipleChoice
480	mmlu/medical_genetics (Hendrycks et al., 2021)	MultipleChoice
481	mmlu/miscellaneous (Hendrycks et al., 2021)	MultipleChoice
482	mmlu/logical_fallacies (Hendrycks et al., 2021)	MultipleChoice
483	mmlu/jurisprudence (Hendrycks et al., 2021)	MultipleChoice
484	mmlu/computer_security (Hendrycks et al., 2021)	MultipleChoice
485	mmlu/international_law (Hendrycks et al., 2021)	MultipleChoice
486	mmlu/human_sexuality (Hendrycks et al., 2021)	MultipleChoice
487	mmlu/human_aging (Hendrycks et al., 2021)	MultipleChoice
488	mmlu/high_school_world_history (Hendrycks et al., 2021)	MultipleChoice
489	mmlu/college_physics (Hendrycks et al., 2021)	MultipleChoice
490	mmlu/high_school_us_history (Hendrycks et al., 2021)	MultipleChoice
491	mmlu/high_school_statistics (Hendrycks et al., 2021)	MultipleChoice
492	mmlu/conceptual_physics (Hendrycks et al., 2021)	MultipleChoice
493	mmlu/high_school_psychology (Hendrycks et al., 2021)	MultipleChoice
494	mmlu/high_school_physics (Hendrycks et al., 2021)	MultipleChoice
495	mmlu/high_school_microeconomics (Hendrycks et al., 2021)	MultipleChoice
496	mmlu/high_school_mathematics (Hendrycks et al., 2021)	MultipleChoice
497	mmlu/econometrics (Hendrycks et al., 2021)	MultipleChoice
498	mmlu/high_school_macroconomics (Hendrycks et al., 2021)	MultipleChoice
499	mmlu/high_school_government_and_politics (Hendrycks et al., 2021)	MultipleChoice
500	mmlu/high_school_geography (Hendrycks et al., 2021)	MultipleChoice
501	mmlu/high_school_european_history (Hendrycks et al., 2021)	MultipleChoice
502	mmlu/high_school_computer_science (Hendrycks et al., 2021)	MultipleChoice
503	mmlu/high_school_chemistry (Hendrycks et al., 2021)	MultipleChoice
504	mmlu/high_school_biology (Hendrycks et al., 2021)	MultipleChoice
505	mmlu/marketing (Hendrycks et al., 2021)	MultipleChoice
506	mmlu/management (Hendrycks et al., 2021)	MultipleChoice
507	mmlu/moral_disputes (Hendrycks et al., 2021)	MultipleChoice
508	mmlu/formal_logic (Hendrycks et al., 2021)	MultipleChoice
509	mmlu/security_studies (Hendrycks et al., 2021)	MultipleChoice
510	mmlu/public_relations (Hendrycks et al., 2021)	MultipleChoice
511	winogrande/winogrande_xl (ai2, 2019)	MultipleChoice
512	codah/codah (Chen et al., 2019a)	MultipleChoice
513	ai2_arc/ARC-Challenge/challenge (Clark et al., 2018)	MultipleChoice
514	ai2_arc/ARC-Easy/challenge (Clark et al., 2018)	MultipleChoice
515	definite_pronoun_resolution (Rahman and Ng, 2012)	MultipleChoice
516	swag/regular (Zellers et al., 2018)	MultipleChoice
517	math_qa	MultipleChoice
518	lex_glue/case_hold (Zheng et al., 2021)	MultipleChoice
519	commonsense_qa (Talmor et al., 2019)	MultipleChoice
520	discosense	MultipleChoice
521	medmcqa (Pal et al., 2022)	MultipleChoice
522	aqua_rat/tokenized (ACL, 2017)	MultipleChoice
523	logiqa (Liu et al., 2020)	MultipleChoice
524	cyclic_multiplechoice (Kejriwal and Shen, 2020)	MultipleChoice
525	arct (Habernal et al., 2018)	MultipleChoice

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	preprocessing	task type
526	onestop_qa (Berzak et al., 2020)	MultipleChoice
527	moral_stories/full (Emelin et al., 2021)	MultipleChoice
528	prost (Aroca-Ouellette et al., 2021)	MultipleChoice
529	webgpt_comparisons (Nakano et al., 2021)	MultipleChoice
530	synthetic-instruct-gptj-pairwise	MultipleChoice
531	wouldyourather	MultipleChoice
532	summarize_from_feedback/comparisons (Stiennon et al., 2020)	MultipleChoice
533	SHP (Ethayarajh et al., 2023)	MultipleChoice
534	MedQA-USMLE-4-options-hf	MultipleChoice
535	wikimedqa/medwiki (Sileo et al., 2023)	MultipleChoice
536	cicero (Ghosal et al., 2022)	MultipleChoice
537	mutual (Cui et al., 2020)	MultipleChoice
538	NeQA	MultipleChoice
539	quote-repetition	MultipleChoice
540	redefine-math	MultipleChoice
541	implicatures (George and Mamidi, 2020)	MultipleChoice
542	race/high (Lai et al., 2017)	MultipleChoice
543	race/middle (Lai et al., 2017)	MultipleChoice
544	race-c (Liang et al., 2019)	MultipleChoice
545	spartqa-mchoice (Mirzaee et al., 2021)	MultipleChoice
546	riddle_sense (Lin et al., 2021a)	MultipleChoice
547	reclor (Yu et al., 2020b)	MultipleChoice
548	ScienceQA_text_only (Saikh et al., 2022)	MultipleChoice
549	ekar_english	MultipleChoice
550	path-naturalness-prediction	MultipleChoice
551	cloth	MultipleChoice
552	dgen	MultipleChoice
553	oasst1_pairwise_rlhf_reward	MultipleChoice
554	conll2003/pos_tags (Tjong Kim Sang and De Meulder, 2003)	TokenClassification
555	conll2003/chunk_tags (Tjong Kim Sang and De Meulder, 2003)	TokenClassification
556	conll2003/ner_tags (Tjong Kim Sang and De Meulder, 2003)	TokenClassification
557	wnut_17/wnut_17 (Derczynski et al., 2017)	TokenClassification
558	ncbi_disease/ncbi_disease (Dogan et al., 2014)	TokenClassification
559	acronym_identification (Veyseh et al., 2020)	TokenClassification
560	jnlpba/jnlpba (Kim et al., 2004)	TokenClassification
561	species_800/species_800 (Pafilis et al., 2013)	TokenClassification
562	ontonotes_english (Tjong Kim Sang and De Meulder, 2003)	TokenClassification
563	universal_dependencies/en_partut/deprel (Zeman et al., 2020)	TokenClassification
564	universal_dependencies/en_lines/deprel (Zeman et al., 2020)	TokenClassification
565	universal_dependencies/en_gumreddit/deprel (Zeman et al., 2020)	TokenClassification
566	universal_dependencies/en_esl/deprel (Zeman et al., 2020)	TokenClassification
567	universal_dependencies/en_ewt/deprel (Zeman et al., 2020)	TokenClassification
568	universal_dependencies/en_gum/deprel (Zeman et al., 2020)	TokenClassification

B Model Recycling results

model_name	deberta-v3-base	+tasksource
avg	79.04	80.73
mnli (linear probe)	-	93.73
20_newsgroup	86.41	86.46
ag_news	90.44	90.67
amazon_reviews_multi	66.86	66.90
anli	58.78	60.38
boolq	82.99	85.66
cb	75.00	82.14
cola	86.57	87.15
copa	58.40	81.00
dbpedia	79.43	79.20
esnli	91.93	91.54
financial_phrasebank	84.48	85.20
imdb	94.49	94.67
isear	71.86	71.90
mnli_mismatched	89.78	91.14
mrpc	89.20	88.73
multirc	62.26	63.82
poem_sentiment	86.73	92.31
qnli	93.51	93.72
qqp	91.79	91.92
rotten_tomatoes	90.42	90.99
rte	82.35	90.61
sst2	95.06	95.41
sst_5bins	56.98	58.60
stsb	90.28	91.81
trec_coarse	97.76	96.80
trec_fine	91.02	90.80
tweet_ev_emoji	46.19	47.82
tweet_ev_emotion	83.95	85.71
tweet_ev_hate	56.21	57.47
tweet_ev_irony	79.82	83.04
tweet_ev_offensive	85.06	85.23
tweet_ev_sentiment	71.80	72.01
wic	71.21	69.44
wnli	70.21	67.61
wsc	64.09	66.35
yahoo_answers	72.03	72.07