

Package ‘tok’

September 4, 2024

Title Fast Text Tokenization

Version 0.1.4

Description Interfaces with the 'Hugging Face' tokenizers library to provide implementations of today's most used tokenizers such as the 'Byte-Pair Encoding' algorithm <<https://huggingface.co/docs/tokenizers/index>>. It's extremely fast for both training new vocabularies and tokenizing texts.

License MIT + file LICENSE

SystemRequirements Rust tool chain w/ cargo, libclang/llvm-config

Encoding UTF-8

RoxygenNote 7.3.1

Depends R (>= 4.2.0)

Imports R6, cli

Suggests rmarkdown, testthat (>= 3.0.0), hfhub (>= 0.1.1), withr

Config/testthat/edition 3

URL <https://github.com/mlverse/tok>

BugReports <https://github.com/mlverse/tok/issues>

Config/rextendr/version 0.3.1

NeedsCompilation yes

Author Daniel Falbel [aut, cre],
Posit [cph]

Maintainer Daniel Falbel <daniel@posit.co>

Repository CRAN

Date/Publication 2024-09-04 14:10:02 UTC

Contents

tok-package	2
decoder_byte_level	3
encoding	4

model_bpe	5
model_unigram	6
model_wordpiece	7
normalizer_nfc	8
normalizer_nfkc	8
pre_tokenizer	9
pre_tokenizer_byte_level	10
pre_tokenizer_whitespace	11
processor_byte_level	12
tokenizer	13
tok_decoder	17
tok_model	18
tok_normalizer	19
tok_processor	20
tok_trainer	21
trainer_bpe	22
trainer_unigram	23
trainer_wordpiece	24
Index	26

tok-package

tok: Fast Text Tokenization

Description

Interfaces with the 'Hugging Face' tokenizers library to provide implementations of today's most used tokenizers such as the 'Byte-Pair Encoding' algorithm <https://huggingface.co/docs/tokenizers/index>. It's extremely fast for both training new vocabularies and tokenizing texts.

Author(s)

Maintainer: Daniel Falbel <daniel@posit.co>

Other contributors:

- Posit [copyright holder]

See Also

Useful links:

- <https://github.com/mlverse/tok>
- Report bugs at <https://github.com/mlverse/tok/issues>

decoder_byte_level *Byte level decoder*

Description

Byte level decoder

Byte level decoder

Details

This decoder is to be used with the [pre_tokenizer_byte_level](#).

Super class

[tok::tok_decoder](#) -> tok_decoder_byte_level

Methods

Public methods:

- [decoder_byte_level\\$new\(\)](#)
- [decoder_byte_level\\$clone\(\)](#)

Method `new()`: Initializes a byte level decoder

Usage:

```
decoder_byte_level$new()
```

Method `clone()`: The objects of this class are cloneable with this method.

Usage:

```
decoder_byte_level$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

See Also

Other decoders: [tok_decoder](#)

encoding

Encoding

Description

Represents the output of a [tokenizer](#).

Value

An encoding object containing encoding information such as attention masks and token ids.

Public fields

`.encoding` The underlying implementation pointer.

Active bindings

`ids` The IDs are the main input to a Language Model. They are the token indices, the numerical representations that a LM understands.

`attention_mask` The attention mask used as input for transformers models.

Methods

Public methods:

- [encoding\\$new\(\)](#)
- [encoding\\$clone\(\)](#)

Method `new()`: Initializes an encoding object (Not to use directly)

Usage:

```
encoding$new(encoding)
```

Arguments:

`encoding` an encoding implementation object

Method `clone()`: The objects of this class are cloneable with this method.

Usage:

```
encoding$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Examples

```
withr::with_envvar(c(HUGGINGFACE_HUB_CACHE = tempdir()), {  
  try({  
    tok <- tokenizer$from_pretrained("gpt2")  
    encoding <- tok$encode("Hello world")  
    encoding  
  })  
})
```

model_bpe	<i>BPE model</i>
-----------	------------------

Description

BPE model

BPE model

Super class

`tok::tok_model` -> tok_model_bpe

Methods

Public methods:

- `model_bpe$new()`
- `model_bpe$clone()`

Method `new()`: Initializes a BPE model An implementation of the BPE (Byte-Pair Encoding) algorithm

Usage:

```
model_bpe$new(
  vocab = NULL,
  merges = NULL,
  cache_capacity = NULL,
  dropout = NULL,
  unk_token = NULL,
  continuing_subword_prefix = NULL,
  end_of_word_suffix = NULL,
  fuse_unk = NULL,
  byte_fallback = FALSE
)
```

Arguments:

`vocab` A named integer vector of string keys and their corresponding ids. Default: NULL

`merges` A list of pairs of tokens ([character, character]). Default: NULL.

`cache_capacity` The number of words that the BPE cache can contain. The cache speeds up the process by storing merge operation results. Default: NULL .

`dropout` A float between 0 and 1 representing the BPE dropout to use. Default: NULL

`unk_token` The unknown token to be used by the model. Default: 'NULL'.

`continuing_subword_prefix` The prefix to attach to subword units that don't represent the beginning of a word. Default: NULL

`end_of_word_suffix` The suffix to attach to subword units that represent the end of a word. Default: NULL

`fuse_unk` Whether to fuse any subsequent unknown tokens into a single one. Default: NULL.

byte_fallback Whether to use the spm byte-fallback trick. Default: FALSE.

Method clone(): The objects of this class are cloneable with this method.

Usage:

```
model_bpe$clone(deep = FALSE)
```

Arguments:

deep Whether to make a deep clone.

See Also

Other model: [model_unigram](#), [model_wordpiece](#), [tok_model](#)

model_unigram

An implementation of the Unigram algorithm

Description

An implementation of the Unigram algorithm

An implementation of the Unigram algorithm

Super class

[tok::tok_model](#) -> tok_model_unigram

Methods

Public methods:

- [model_unigram\\$new\(\)](#)
- [model_unigram\\$clone\(\)](#)

Method new(): Constructor for Unigram Model

Usage:

```
model_unigram$new(vocab = NULL, unk_id = NULL, byte_fallback = FALSE)
```

Arguments:

vocab A dictionary of string keys and their corresponding relative score. Default: NULL.

unk_id The unknown token id to be used by the model. Default: NULL.

byte_fallback Whether to use byte-fallback trick. Default: FALSE.

Method clone(): The objects of this class are cloneable with this method.

Usage:

```
model_unigram$clone(deep = FALSE)
```

Arguments:

deep Whether to make a deep clone.

See Also

Other model: [model_bpe](#), [model_wordpiece](#), [tok_model](#)

model_wordpiece	<i>An implementation of the WordPiece algorithm</i>
-----------------	---

Description

An implementation of the WordPiece algorithm

An implementation of the WordPiece algorithm

Super class

`tok::tok_model -> tok_model_wordpiece`

Methods

Public methods:

- `model_wordpiece$new()`
- `model_wordpiece$clone()`

Method `new()`: Constructor for the wordpiece tokenizer

Usage:

```
model_wordpiece$new(  
  vocab = NULL,  
  unk_token = NULL,  
  max_input_chars_per_word = NULL  
)
```

Arguments:

`vocab` A dictionary of string keys and their corresponding ids. Default: NULL.

`unk_token` The unknown token to be used by the model. Default: NULL.

`max_input_chars_per_word` The maximum number of characters to allow in a single word.
Default: NULL.

Method `clone()`: The objects of this class are cloneable with this method.

Usage:

```
model_wordpiece$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

See Also

Other model: [model_bpe](#), [model_unigram](#), [tok_model](#)

normalizer_nfc	<i>NFC normalizer</i>
----------------	-----------------------

Description

NFC normalizer

NFC normalizer

Super class

`tok::tok_normalizer` -> tok_normalizer_nfc

Methods**Public methods:**

- `normalizer_nfc$new()`
- `normalizer_nfc$clone()`

Method `new()`: Initializes the NFC normalizer

Usage:

`normalizer_nfc$new()`

Method `clone()`: The objects of this class are cloneable with this method.

Usage:

`normalizer_nfc$clone(deep = FALSE)`

Arguments:

`deep` Whether to make a deep clone.

See Also

Other normalizers: `normalizer_nfkc`, `tok_normalizer`

normalizer_nfkc	<i>NFKC normalizer</i>
-----------------	------------------------

Description

NFKC normalizer

NFKC normalizer

Super class

`tok::tok_normalizer` -> tok_normalizer_nfc

Methods**Public methods:**

- [normalizer_nfkc\\$new\(\)](#)
- [normalizer_nfkc\\$clone\(\)](#)

Method `new()`: Initializes the NFKC normalizer

Usage:

```
normalizer_nfkc$new()
```

Method `clone()`: The objects of this class are cloneable with this method.

Usage:

```
normalizer_nfkc$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

See Also

Other normalizers: [normalizer_nfc](#), [tok_normalizer](#)

pre_tokenizer

Generic class for tokenizers

Description

Generic class for tokenizers

Generic class for tokenizers

Public fields

`.pre_tokenizer` Internal pointer to tokenizer object

Methods**Public methods:**

- [pre_tokenizer\\$new\(\)](#)
- [pre_tokenizer\\$clone\(\)](#)

Method `new()`: Initializes a tokenizer

Usage:

```
pre_tokenizer$new(pre_tokenizer)
```

Arguments:

`pre_tokenizer` a raw pointer to a tokenizer

Method `clone()`: The objects of this class are cloneable with this method.

Usage:

```
pre_tokenizer$clone(deep = FALSE)
```

Arguments:

deep Whether to make a deep clone.

See Also

Other pre_tokenizer: [pre_tokenizer_byte_level](#), [pre_tokenizer_whitespace](#)

pre_tokenizer_byte_level

Byte level pre tokenizer

Description

Byte level pre tokenizer

Byte level pre tokenizer

Details

This pre-tokenizer takes care of replacing all bytes of the given string with a corresponding representation, as well as splitting into words.

Super class

```
tok::tok_pre_tokenizer -> tok_pre_tokenizer_whitespace
```

Methods**Public methods:**

- [pre_tokenizer_byte_level\\$new\(\)](#)
- [pre_tokenizer_byte_level\\$clone\(\)](#)

Method new(): Initializes the bytelevel tokenizer

Usage:

```
pre_tokenizer_byte_level$new(add_prefix_space = TRUE, use_regex = TRUE)
```

Arguments:

add_prefix_space Whether to add a space to the first word

use_regex Set this to False to prevent this pre_tokenizer from using the GPT2 specific regexp for splitting on whitespace.

Method clone(): The objects of this class are cloneable with this method.

Usage:

```
pre_tokenizer_byte_level$clone(deep = FALSE)
```

Arguments:

deep Whether to make a deep clone.

See Also

Other pre_tokenizer: [pre_tokenizer](#), [pre_tokenizer_whitespace](#)

pre_tokenizer_whitespace

This pre-tokenizer simply splits using the following regex:
`\w+|[\^\w\s]+`

Description

This pre-tokenizer simply splits using the following regex: `\w+|[\^\w\s]+`

This pre-tokenizer simply splits using the following regex: `\w+|[\^\w\s]+`

Super class

`tok::tok_pre_tokenizer -> tok_pre_tokenizer_whitespace`

Methods

Public methods:

- [pre_tokenizer_whitespace\\$new\(\)](#)
- [pre_tokenizer_whitespace\\$clone\(\)](#)

Method `new()`: Initializes the whitespace tokenizer

Usage:

`pre_tokenizer_whitespace$new()`

Method `clone()`: The objects of this class are cloneable with this method.

Usage:

`pre_tokenizer_whitespace$clone(deep = FALSE)`

Arguments:

`deep` Whether to make a deep clone.

See Also

Other pre_tokenizer: [pre_tokenizer](#), [pre_tokenizer_byte_level](#)

processor_byte_level *Byte Level post processor*

Description

Byte Level post processor

Byte Level post processor

Details

This post-processor takes care of trimming the offsets. By default, the ByteLevel BPE might include whitespaces in the produced tokens. If you don't want the offsets to include these whitespaces, then this PostProcessor must be used.

Super class

[tok::tok_processor](#) -> tok_processor_byte_level

Methods

Public methods:

- [processor_byte_level\\$new\(\)](#)
- [processor_byte_level\\$clone\(\)](#)

Method new(): Initializes the byte level post processor

Usage:

```
processor_byte_level$new(trim_offsets = TRUE)
```

Arguments:

trim_offsets Whether to trim the whitespaces from the produced offsets.

Method clone(): The objects of this class are cloneable with this method.

Usage:

```
processor_byte_level$clone(deep = FALSE)
```

Arguments:

deep Whether to make a deep clone.

See Also

Other processors: [tok_processor](#)

tokenizer

Tokenizer

Description

A Tokenizer works as a pipeline. It processes some raw text as input and outputs an [encoding](#).

Value

A tokenizer that can be used for encoding character strings or decoding integers.

Public fields

.tokenizer (unsafe usage) Lower level pointer to tokenizer

Active bindings

pre_tokenizer instance of the pre-tokenizer

normalizer Gets the normalizer instance

post_processor Gets the post processor used by tokenizer

decoder Gets and sets the decoder

padding Gets padding configuration

truncation Gets truncation configuration

Methods

Public methods:

- `tokenizer$new()`
- `tokenizer$encode()`
- `tokenizer$decode()`
- `tokenizer$encode_batch()`
- `tokenizer$decode_batch()`
- `tokenizer$from_file()`
- `tokenizer$from_pretrained()`
- `tokenizer$train()`
- `tokenizer$train_from_memory()`
- `tokenizer$save()`
- `tokenizer$enable_padding()`
- `tokenizer$no_padding()`
- `tokenizer$enable_truncation()`
- `tokenizer$no_truncation()`
- `tokenizer$get_vocab_size()`
- `tokenizer$clone()`

Method `new()`: Initializes a tokenizer

Usage:

```
tokenizer$new(tokenizer)
```

Arguments:

`tokenizer` Will be cloned to initialize a new tokenizer

Method `encode()`: Encode the given sequence and pair. This method can process raw text sequences as well as already pre-tokenized sequences.

Usage:

```
tokenizer$encode(
  sequence,
  pair = NULL,
  is_pretokenized = FALSE,
  add_special_tokens = TRUE
)
```

Arguments:

`sequence` The main input sequence we want to encode. This sequence can be either raw text or pre-tokenized, according to the `is_pretokenized` argument

`pair` An optional input sequence. The expected format is the same that for `sequence`.

`is_pretokenized` Whether the input is already pre-tokenized

`add_special_tokens` Whether to add the special tokens

Method `decode()`: Decode the given list of ids back to a string

Usage:

```
tokenizer$decode(ids, skip_special_tokens = TRUE)
```

Arguments:

`ids` The list of ids that we want to decode

`skip_special_tokens` Whether the special tokens should be removed from the decoded string

Method `encode_batch()`: Encodes a batch of sequences. Returns a list of [encodings](#).

Usage:

```
tokenizer$encode_batch(
  input,
  is_pretokenized = FALSE,
  add_special_tokens = TRUE
)
```

Arguments:

`input` A list of single sequences or pair sequences to encode. Each sequence can be either raw text or pre-tokenized, according to the `is_pretokenized` argument.

`is_pretokenized` Whether the input is already pre-tokenized

`add_special_tokens` Whether to add the special tokens

Method `decode_batch()`: Decode a batch of ids back to their corresponding string

Usage:

```
tokenizer$decode_batch(sequences, skip_special_tokens = TRUE)
```

Arguments:

sequences The batch of sequences we want to decode

skip_special_tokens Whether the special tokens should be removed from the decoded strings

Method `from_file()`: Creates a tokenizer from the path of a serialized tokenizer. This is a static method and should be called instead of `$new` when initializing the tokenizer.

Usage:

```
tokenizer$from_file(path)
```

Arguments:

path Path to tokenizer.json file

Method `from_pretrained()`: Instantiate a new Tokenizer from an existing file on the Hugging Face Hub.

Usage:

```
tokenizer$from_pretrained(identifier, revision = "main", auth_token = NULL)
```

Arguments:

identifier The identifier of a Model on the Hugging Face Hub, that contains a tokenizer.json file

revision A branch or commit id

auth_token An optional auth token used to access private repositories on the Hugging Face Hub

Method `train()`: Train the Tokenizer using the given files. Reads the files line by line, while keeping all the whitespace, even new lines.

Usage:

```
tokenizer$train(files, trainer)
```

Arguments:

files character vector of file paths.

trainer an instance of a trainer object, specific to that tokenizer type.

Method `train_from_memory()`: Train the tokenizer on a character vector of texts

Usage:

```
tokenizer$train_from_memory(texts, trainer)
```

Arguments:

texts a character vector of texts.

trainer an instance of a trainer object, specific to that tokenizer type.

Method `save()`: Saves the tokenizer to a json file

Usage:

```
tokenizer$save(path, pretty = TRUE)
```

Arguments:

path A path to a file in which to save the serialized tokenizer.

pretty Whether the JSON file should be pretty formatted.

Method `enable_padding()`: Enables padding for the tokenizer

Usage:

```
tokenizer$enable_padding(  
  direction = "right",  
  pad_id = 0L,  
  pad_type_id = 0L,  
  pad_token = "[PAD]",  
  length = NULL,  
  pad_to_multiple_of = NULL  
)
```

Arguments:

`direction` (str, optional, defaults to right) — The direction in which to pad. Can be either 'right' or 'left'

`pad_id` (int, defaults to 0) — The id to be used when padding

`pad_type_id` (int, defaults to 0) — The type id to be used when padding

`pad_token` (str, defaults to '[PAD]') — The pad token to be used when padding

`length` (int, optional) — If specified, the length at which to pad. If not specified we pad using the size of the longest sequence in a batch.

`pad_to_multiple_of` (int, optional) — If specified, the padding length should always snap to the next multiple of the given value. For example if we were going to pad with a length of 250 but `pad_to_multiple_of=8` then we will pad to 256.

Method `no_padding()`: Disables padding

Usage:

```
tokenizer$no_padding()
```

Method `enable_truncation()`: Enables truncation on the tokenizer

Usage:

```
tokenizer$enable_truncation(  
  max_length,  
  stride = 0,  
  strategy = "longest_first",  
  direction = "right"  
)
```

Arguments:

`max_length` The maximum length at which to truncate.

`stride` The length of the previous first sequence to be included in the overflowing sequence.
Default: 0.

`strategy` The strategy used for truncation. Can be one of: "longest_first", "only_first", or "only_second". Default: "longest_first".

`direction` The truncation direction. Default: "right".

Method `no_truncation()`: Disables truncation

Usage:

```
tokenizer$no_truncation()
```

Method `get_vocab_size()`: Gets the vocabulary size

Usage:

```
tokenizer$get_vocab_size(with_added_tokens = TRUE)
```

Arguments:

`with_added_tokens` Whether to count added tokens

Method `clone()`: The objects of this class are cloneable with this method.

Usage:

```
tokenizer$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Examples

```
withr::with_envvar(c(HUGGINGFACE_HUB_CACHE = tempdir()), {
  try({
    tok <- tokenizer$from_pretrained("gpt2")
    tok$encode("Hello world")$ids
  })
})
```

tok_decoder

Generic class for decoders

Description

Generic class for decoders

Generic class for decoders

Public fields

`.decoder` The raw pointer to the decoder

Methods

Public methods:

- `tok_decoder$new()`
- `tok_decoder$clone()`

Method `new()`: Initializes a decoder

Usage:

```
tok_decoder$new(decoder)
```

Arguments:

decoder a raw decoder pointer

Method clone(): The objects of this class are cloneable with this method.

Usage:

```
tok_decoder$clone(deep = FALSE)
```

Arguments:

deep Whether to make a deep clone.

See Also

Other decoders: [decoder_byte_level](#)

tok_model

Generic class for tokenization models

Description

Generic class for tokenization models

Generic class for tokenization models

Public fields

.model stores the pointer to the model. internal

Methods

Public methods:

- [tok_model\\$new\(\)](#)
- [tok_model\\$clone\(\)](#)

Method new(): Initializes a generic abstract tokenizer model

Usage:

```
tok_model$new(model)
```

Arguments:

model Pointer to a tokenization model

Method clone(): The objects of this class are cloneable with this method.

Usage:

```
tok_model$clone(deep = FALSE)
```

Arguments:

deep Whether to make a deep clone.

See Also

Other model: [model_bpe](#), [model_unigram](#), [model_wordpiece](#)

tok_normalizer	<i>Generic class for normalizers</i>
----------------	--------------------------------------

Description

Generic class for normalizers

Generic class for normalizers

Public fields

.normalizer Internal pointer to normalizer object

Methods

Public methods:

- [tok_normalizer\\$new\(\)](#)
- [tok_normalizer\\$clone\(\)](#)

Method new(): Initializes a tokenizer

Usage:

```
tok_normalizer$new(normalizer)
```

Arguments:

normalizer a raw pointer to a tokenizer

Method clone(): The objects of this class are cloneable with this method.

Usage:

```
tok_normalizer$clone(deep = FALSE)
```

Arguments:

deep Whether to make a deep clone.

See Also

Other normalizers: [normalizer_nfc](#), [normalizer_nfkc](#)

tok_processor	<i>Generic class for processors</i>
---------------	-------------------------------------

Description

Generic class for processors

Generic class for processors

Public fields

.processor Internal pointer to processor object

Methods

Public methods:

- [tok_processor\\$new\(\)](#)
- [tok_processor\\$clone\(\)](#)

Method new(): Initializes a tokenizer

Usage:

```
tok_processor$new(processor)
```

Arguments:

processor a raw pointer to a processor

Method clone(): The objects of this class are cloneable with this method.

Usage:

```
tok_processor$clone(deep = FALSE)
```

Arguments:

deep Whether to make a deep clone.

See Also

Other processors: [processor_byte_level](#)

tok_trainer	<i>Generic training class</i>
-------------	-------------------------------

Description

Generic training class

Generic training class

Public fields

.trainer a pointer to a raw trainer

Methods

Public methods:

- [tok_trainer\\$new\(\)](#)
- [tok_trainer\\$clone\(\)](#)

Method new(): Initializes a generic trainer from a raw trainer

Usage:

```
tok_trainer$new(trainer)
```

Arguments:

trainer raw trainer (internal)

Method clone(): The objects of this class are cloneable with this method.

Usage:

```
tok_trainer$clone(deep = FALSE)
```

Arguments:

deep Whether to make a deep clone.

See Also

Other trainer: [trainer_bpe](#), [trainer_unigram](#), [trainer_wordpiece](#)

trainer_bpe	<i>BPE trainer</i>
-------------	--------------------

Description

BPE trainer

BPE trainer

Super class

`tok::tok_trainer` -> `tok_trainer_bpe`

Methods

Public methods:

- `trainer_bpe$new()`
- `trainer_bpe$clone()`

Method `new()`: Constructor for the BPE trainer

Usage:

```
trainer_bpe$new(
  vocab_size = NULL,
  min_frequency = NULL,
  show_progress = NULL,
  special_tokens = NULL,
  limit_alphabet = NULL,
  initial_alphabet = NULL,
  continuing_subword_prefix = NULL,
  end_of_word_suffix = NULL,
  max_token_length = NULL
)
```

Arguments:

`vocab_size` The size of the final vocabulary, including all tokens and alphabet. Default: NULL.

`min_frequency` The minimum frequency a pair should have in order to be merged. Default: NULL.

`show_progress` Whether to show progress bars while training. Default: TRUE.

`special_tokens` A list of special tokens the model should be aware of. Default: NULL.

`limit_alphabet` The maximum number of different characters to keep in the alphabet. Default: NULL.

`initial_alphabet` A list of characters to include in the initial alphabet, even if not seen in the training dataset. Default: NULL.

`continuing_subword_prefix` A prefix to be used for every subword that is not a beginning-of-word. Default: NULL.

`end_of_word_suffix` A suffix to be used for every subword that is an end-of-word. Default: NULL.

max_token_length Prevents creating tokens longer than the specified size. Default: NULL.

Method clone(): The objects of this class are cloneable with this method.

Usage:

```
trainer_bpe$clone(deep = FALSE)
```

Arguments:

deep Whether to make a deep clone.

See Also

Other trainer: [tok_trainer](#), [trainer_unigram](#), [trainer_wordpiece](#)

trainer_unigram	<i>Unigram tokenizer trainer</i>
-----------------	----------------------------------

Description

Unigram tokenizer trainer

Unigram tokenizer trainer

Super class

[tok::tok_trainer](#) -> tok_trainer_unigram

Methods

Public methods:

- [trainer_unigram\\$new\(\)](#)
- [trainer_unigram\\$clone\(\)](#)

Method new(): Constructor for the Unigram tokenizer

Usage:

```
trainer_unigram$new(
  vocab_size = 8000,
  show_progress = TRUE,
  special_tokens = NULL,
  shrinking_factor = 0.75,
  unk_token = NULL,
  max_piece_length = 16,
  n_sub_iterations = 2
)
```

Arguments:

vocab_size The size of the final vocabulary, including all tokens and alphabet.

show_progress Whether to show progress bars while training.

special_tokens A list of special tokens the model should be aware of.

shrinking_factor The shrinking factor used at each step of training to prune the vocabulary.
 unk_token The token used for out-of-vocabulary tokens.
 max_piece_length The maximum length of a given token.
 n_sub_iterations The number of iterations of the EM algorithm to perform before pruning the vocabulary.
 initial_alphabet A list of characters to include in the initial alphabet, even if not seen in the training dataset. If the strings contain more than one character, only the first one is kept.

Method clone(): The objects of this class are cloneable with this method.

Usage:

```
trainer_unigram$clone(deep = FALSE)
```

Arguments:

deep Whether to make a deep clone.

See Also

Other trainer: [tok_trainer](#), [trainer_bpe](#), [trainer_wordpiece](#)

trainer_wordpiece	<i>WordPiece tokenizer trainer</i>
-------------------	------------------------------------

Description

WordPiece tokenizer trainer

WordPiece tokenizer trainer

Super class

[tok::tok_trainer](#) -> tok_trainer_wordpiece

Methods

Public methods:

- [trainer_wordpiece\\$new\(\)](#)
- [trainer_wordpiece\\$clone\(\)](#)

Method new(): Constructor for the WordPiece tokenizer trainer

Usage:

```
trainer_wordpiece$new(
  vocab_size = 30000,
  min_frequency = 0,
  show_progress = FALSE,
  special_tokens = NULL,
  limit_alphabet = NULL,
  initial_alphabet = NULL,
```



```
    continuing_subword_prefix = "##",  
    end_of_word_suffix = NULL  
)
```

Arguments:

`vocab_size` The size of the final vocabulary, including all tokens and alphabet. Default: NULL.

`min_frequency` The minimum frequency a pair should have in order to be merged. Default: NULL.

`show_progress` Whether to show progress bars while training. Default: TRUE.

`special_tokens` A list of special tokens the model should be aware of. Default: NULL.

`limit_alphabet` The maximum number of different characters to keep in the alphabet. Default: NULL.

`initial_alphabet` A list of characters to include in the initial alphabet, even if not seen in the training dataset. If the strings contain more than one character, only the first one is kept. Default: NULL.

`continuing_subword_prefix` A prefix to be used for every subword that is not a beginning-of-word. Default: NULL.

`end_of_word_suffix` A suffix to be used for every subword that is an end-of-word. Default: NULL.

Method `clone()`: The objects of this class are cloneable with this method.

Usage:

```
trainer_wordpiece$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

See Also

Other trainer: [tok_trainer](#), [trainer_bpe](#), [trainer_unigram](#)

Index

- * **decoders**
 - decoder_byte_level, 3
 - tok_decoder, 17
 - * **model**
 - model_bpe, 5
 - model_unigram, 6
 - model_wordpiece, 7
 - tok_model, 18
 - * **normalizers**
 - normalizer_nfc, 8
 - normalizer_nfkc, 8
 - tok_normalizer, 19
 - * **pre_tokenizer**
 - pre_tokenizer, 9
 - pre_tokenizer_byte_level, 10
 - pre_tokenizer_whitespace, 11
 - * **processors**
 - processor_byte_level, 12
 - tok_processor, 20
 - * **trainer**
 - tok_trainer, 21
 - trainer_bpe, 22
 - trainer_unigram, 23
 - trainer_wordpiece, 24
- decoder_byte_level, 3, 18
- encoding, 4, 13, 14
- model_bpe, 5, 6, 7, 18
- model_unigram, 6, 6, 7, 18
- model_wordpiece, 6, 7, 18
- normalizer_nfc, 8, 9, 19
- normalizer_nfkc, 8, 8, 19
- pre_tokenizer, 9, 11
- pre_tokenizer_byte_level, 3, 10, 10, 11
- pre_tokenizer_whitespace, 10, 11, 11
- processor_byte_level, 12, 20
- tok (tok-package), 2
- tok-package, 2
- tok::tok_decoder, 3
- tok::tok_model, 5–7
- tok::tok_normalizer, 8
- tok::tok_processor, 12
- tok::tok_trainer, 22–24
- tok_decoder, 3, 17
- tok_model, 6, 7, 18
- tok_normalizer, 8, 9, 19
- tok_processor, 12, 20
- tok_trainer, 21, 23–25
- tokenizer, 4, 13
- trainer_bpe, 21, 22, 24, 25
- trainer_unigram, 21, 23, 23, 25
- trainer_wordpiece, 21, 23, 24, 24