

Package ‘triebeard’

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Type Package

Title 'Radix' Trees in 'Rcpp'

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Description 'Radix trees', or 'tries', are key-value data structures optimised for efficient lookups, similar in purpose to hash tables. 'triebeard' provides an implementation of 'radix trees' for use in R programming and in developing packages with 'Rcpp'.

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LazyData TRUE

LinkingTo Rcpp

Imports Rcpp

RoxygenNote 5.0.1

Suggests knitr, rmarkdown, testthat

VignetteBuilder knitr

URL <https://github.com/Ironholds/triebeard/>

BugReports <https://github.com/Ironholds/triebeard/issues>

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alter	<i>Add or remove trie entries</i>
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Description

trie_add and trie_remove allow you to add or remove entries from tries, respectively.

Usage

```
trie_add(trie, keys, values)
```

```
trie_remove(trie, keys)
```

Arguments

trie	a trie object created with trie
keys	a character vector containing the keys of the entries to add (or remove). Entries with NA keys will not be added.
values	an atomic vector, matching the type of the trie, containing the values of the entries to add. Entries with NA values will not be added.

Value

nothing; the trie is modified in-place

See Also

[trie](#) for creating tries in the first place.

Examples

```
trie <- trie("foo", "bar")
length(trie)
```

```
trie_add(trie, "baz", "qux")
length(trie)
```

```
trie_remove(trie, "baz")
length(trie)
```

getters	<i>Trie Getters</i>
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Description

"Getters" for the data stored in a trie object. `get_keys` gets the keys, `get_values` gets the values.

Usage

```
get_keys(trie)
```

```
get_values(trie)
```

Arguments

`trie` A trie object, created with [trie](#).

Value

An atomic vector of keys or values stored in the trie.

<code>greedy_match</code>	<i>Greedily match against a tree</i>
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Description

`greedy_match` accepts a trie and a character vector and returns the values associated with any key that is "greedily" (read: fuzzily) matched against one of the character vector entries.

Usage

```
greedy_match(trie, to_match)
```

Arguments

`trie` a trie object, created with [trie](#)

`to_match` a character vector containing the strings to check against the trie's keys.

Value

a list, the length of `to_match`, with each entry containing any trie values where the `to_match` element greedily matches the associated key. In the case that nothing was found, the entry will contain NA.

See Also

[longest_match](#) and [prefix_match](#) for longest and prefix matching, respectively.

Examples

```
trie <- trie(keys = c("afford", "affair", "available", "binary", "bind", "blind"),
            values = c("afford", "affair", "available", "binary", "bind", "blind"))
greedy_match(trie, c("avoid", "bring", "attack"))
```

longest_match *Find the longest match in a trie*

Description

longest_match accepts a trie and a character vector and returns the value associated with whichever key had the *longest match* to each entry in the character vector. A trie of "binary" and "bind", for example, with an entry-to-compare of "binder", will match to "bind".

Usage

```
longest_match(trie, to_match)
```

Arguments

trie a trie object, created with [trie](#)
to_match a character vector containing the strings to match against the trie's keys.

See Also

[prefix_match](#) and [greedy_match](#) for prefix and greedy matching, respectively.

Examples

```
trie <- trie(keys = c("afford", "affair", "available", "binary", "bind", "blind"),
            values = c("afford", "affair", "available", "binary", "bind", "blind"))
longest_match(trie, "binder")
```

prefix_match *Find the prefix matches in a trie*

Description

prefix_match accepts a trie and a character vector and returns the values associated with any key that has a particular character vector entry as a prefix (see the examples).

Usage

```
prefix_match(trie, to_match)
```

Arguments

`trie` a trie object, created with [trie](#)
`to_match` a character vector containing the strings to check against the trie's keys.

Value

a list, the length of `to_match`, with each entry containing any trie values where the `to_match` element was a prefix of the associated key. In the case that nothing was found, the entry will contain NA.

See Also

[longest_match](#) and [greedy_match](#) for longest and greedy matching, respectively.

Examples

```
trie <- trie(keys = c("afford", "affair", "available", "binary", "bind", "blind"),
            values = c("afford", "affair", "available", "binary", "bind", "blind"))
prefix_match(trie, "aff")
```

 trie

Create a Trie

Description

`create_trie` creates a trie (a key-value store optimised for matching) out of a provided character vector of keys, and a numeric, character, logical or integer vector of values (both the same length).

Usage

```
trie(keys, values)
```

Arguments

`keys` a character vector containing the keys for the trie.
`values` an atomic vector of any type, containing the values to pair with keys. Must be the same length as keys.

Value

a 'trie' object.

See Also

[trie_add](#) and [trie_remove](#) for adding to and removing from tries after their creation, and [longest_match](#) and other match functions for matching values against the keys of a created trie.

Examples

```
# An integer trie
int_trie <- trie(keys = "foo", values = 1)

# A string trie
str_trie <- trie(keys = "foo", values = "bar")
```

triebeard

Radix trees in Rcpp

Description

This package provides access to Radix tree (or "trie") structures in Rcpp. At a later date it will hopefully provide them in R, too.

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