Package 'pandocfilters'

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Title Pandoc Filters for R

Version 0.1-6

Description The document converter 'pandoc' <https://pandoc.org/> is widely used in the R community. One feature of 'pandoc' is that it can produce and consume JSON-formatted abstract syntax trees (AST). This allows to transform a given source document into JSON-formatted AST, alter it by so called filters and pass the altered JSON-formatted AST back to 'pandoc'. This package provides functions which allow to write such filters in native R code.
Although this package is inspired by the Python package 'pandocfilters' <https://github.com/jgm/pandocfilters/>, it provides additional convenience functions which make it simple to use the 'pandocfilters' package as a report generator. Since 'pandocfilters' inherits most of it's functionality from 'pandoc' it can create documents in many formats (for more information see <https://pandoc.org/>) but is also bound to the same limitations as 'pandoc'.

URL https://pandoc.org/, https://github.com/jgm/pandocfilters/

Depends R (>= 3.0.0)

Imports jsonlite, utils

Suggests knitr

VignetteBuilder knitr

SystemRequirements pandoc (> 1.12)

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R topics documented:

`as.block` *Block Objects*

Description

In pandoc `"block"` objects are used as container for `"inline"` objects and to give them specific roles. Objects of the classes `"NULL"` and `"character"` can be coerced to `"block"`.

Usage

```
as.block(x)
```

Arguments

`x`	an object of type `"NULL"` or `"character"` or `"block"`.

Value

an object of class `"block"`.

Examples

```
as.block("some text")
as.block(NULL)
```

`as.inline` *Inline Objects*

Description

Objects of the classes `"NULL"` and `"character"` can be coerced to `"inline"`.

Usage

```
as.inline(x)
```

Arguments

`x`	an object of type `"NULL"`, `"character"` or `"inline"`.

Value

an object of class "inline".

Examples

```
as.inline("some text")
as.inline(NULL)
```

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astrapply *Apply a Function on a AST*

Description

Apply the function FUN on the abstract syntax tree (AST) obtained from pandoc.

Usage

```
astrapply(x, FUN, ...)
```

Arguments

x	a list representing the AST obtained from pandoc.
FUN	the function to be applied to the AST.
...	optional arguments to FUN.

Value

A list containing the modified AST.

Attr *Attributes*

Description

A constructor for pandoc attributes.

Usage

```
Attr(identifier = "", classes = character(), key_val_pairs = list())
```

Arguments

identifier	a character string
classes	a character giving the classes
key_val_pairs	a list of tuple of type "character"

Examples

```
Attr("A", c("B", "C"), list(c("D", "E")))
```

BlockQuote *Block Quote*

Description

Constructs a block object of type "BlockQuote".

Usage

```
BlockQuote(blocks)
```

Arguments

blocks	a block object or list of block objects

Examples

```
BlockQuote(Plain("Hello R!"))
```

BulletList *Bullet List*

Description

Constructs a block object of type "BulletList".

Usage

```
BulletList(llblocks)
```

Arguments

llblocks	a list of lists of blocks

Examples

```
bullet_1 <- Plain("A")
bullet_2 <- Plain(Str("B"))
bullet_3 <- list(Plain(list(Str("C"))))
BulletList(list(bullet_1, bullet_2, bullet_3))
```

c.block *Combine Block Objects*

Description

Objects of class "block" can be combined by using the generic default method "c" (combine).

Usage

```
## S3 method for class 'block'
c(...)
```

Arguments

...	objects to be concatenated.

Value

an list of "block" objects.

Examples

```
c(Header( "R Basics" ), Header("What is R?", level=2),
Plain(c(Emph("R"), Space(), "is a system for ", Strong("statistical computation"))))
```

c.inline *Combine Inline Objects*

Description

Objects of class "inline" can be combined by using the generic default method "c" (combine).

Usage

```
## S3 method for class 'inline'
c(...)
```

Arguments

...	objects to be concatenated.

Value

an list of "inline" objects.

Examples

```
c(Str("some"), Strong("text"))
```

Citation *Citation*

Description

Constructs an object of type "Citation".

Usage

```
Citation(
  suffix,
  id,
  note_num = 0L,
  mode = "AuthorInText",
  prefix = list(),
  hash = 0L
)
```

Arguments

suffix	a inline object or list of inline objects
id	a character string (not visible in the text)
note_num	an integer
mode	a character string giving the citation mode, possible values are "AuthorInText", "SuppressAuthor" and "NormalCitation".
prefix	a inline object or list of inline objects
hash	an integer

Cite *Citation*

Description

Constructs an inline object of type "Cite".

Usage

```
Cite(citation, x)
```

Arguments

citation	an object of type "Citation"
x	a inline object or a list of inline objects

Examples

```
ci <- Citation(suffix=list(Str("Suffix_1")),
               id="Citation_ID_1", prefix=list(Str("Prefix_1")))
Cite(ci, Str("some text"))
```

Code *Inline Code*

Description

Constructs an inline object of type "Code".

Usage

```
Code(code, name = "", language = NULL, line_numbers = FALSE, start_from = 1)
```

Arguments

code	a character string giving the inline code
name	an optional character string giving the name of the inline code chunk
language	an optional character string giving the programming language
line_numbers	a logical which controls if line numbers should be used
start_from	an integer giving the first line number

Examples

```
Code("lm(hello ~ world)", "my_r_inline_code", "R", TRUE, 0)
Code("lm(hello ~ world)")
```

CodeBlock *Code Block*

Description

Constructs a block object of type "CodeBlock".

Usage

```
CodeBlock(attr, code)
```

Arguments

attr	an object of type "Attr"
code	a character string containing the source code.

Examples

```
attr <- Attr("id", "Programming Language", list(c("key", "value")))
code <- "x <- 3\nprint('Hello R!')"
CodeBlock(attr, code)
```

`Definition` *Definition*

Description

Constructs a `Definition` which can be used as an element of a `"DefinitionList"`.

Usage

```
Definition(key, value)
```

Arguments

`key`	a inline object or list of inline objects
`value`	a block object or list of block objects

Examples

```
Definition("some key", Plain("some value"))
```

`DefinitionList` *Definition List*

Description

Constructs a block object of type `"DefinitionList"`.

Usage

```
DefinitionList(x)
```

Arguments

`x`	a list of key value pairs, the key is a list of `"inline"` objects and the values are a list of lists of objects of type `"block"`.

Details

In the pandoc API https://johnmacfarlane.net/BayHac2014/doc/pandoc-types/Text-Pandoc-Definition.html the `DefinitionList` is described as follows, each list item is a pair consisting of a term (a list of `"inline"` objects) and one or more definitions (each a list of blocks).

Examples

```
key <- list(Str("key"))
value <- list(list(Plain(list(Str("value")))))
DefinitionList(list(list(key, value), Definition("some key", Plain("some value"))))
```

Div *Generic Block Container with Attributes*

Description

Constructs a block object of type "Div".

Usage

```
Div(blocks, attr = Attr())
```

Arguments

blocks	a block object or list of block objects
attr	an object of type "Attr"

Examples

```
blocks <- Plain("Hello R!")
Div(blocks)
```

---

document *Create a new Document*

Description

Constructs an object of type "document".

Usage

```
document()
```

Details

Each document has the following methods:

`to_json()`

Description
Returns the JSON representation of the document.

`write(con, format = "markdown", writer = write.pandoc)`

Description
Write the JSON-formatted AST to a connection.
Arguments

`con`	a connection object or a character string to which the document is written.
`format`	a character string giving the format (e.g. `"latex"`, `"html"`).
`writer`	an optional writer function, see write.pandoc.

Note
Any function with the three arguments `x`, `con` and `format` can be used as writer function.

`append(x)`

Description
Append a new block to the document.
Arguments

`x`	block object or list of block objects.

`append_plain(x)`

Description
For more information about the arguments see Plain.

`append_para(x)`

Description
For more information about the arguments see Para.

`append_code_block(attr, code)`

Description
For more information about the arguments see CodeBlock.

`append_block_quote(blocks)`

Description
For more information about the arguments see BlockQuote.

`append_ordered_list(lattr, lblocks)`

Description
For more information about the arguments see OrderedList.

`append_bullet_list(lblocks)`

Description
For more information about the arguments see BulletList.

`append_definition_list(x)`

Description
For more information about the arguments see DefinitionList.

`append_header(x, level=1L, attr=Attr())`

Description
For more information about the arguments see Header.

`append_horizontal_rule()`

Description
For more information about the arguments see HorizontalRule.

`append_table(rows, col_names=NULL, aligns=NULL, col_width=NULL, caption=list())`

Description
For more information about the arguments see Table.

`append_div(blocks, attr)`

Description
For more information about the arguments see Div.

`append_null()`

Description
For more information about the arguments see Null.

`Emph` *Emphasized Text*

Description

Constructs an inline object of type `"Emph"`.

Usage

```
Emph(x)
```

Arguments

`x`	a inline object or a list of inline objects

Examples

```
Emph("emphasize")
```

filter *Filter JSON-formatted AST.*

Description

Apply a filter on the JSON-formatted abstract syntax tree (AST).

Usage

```
filter(FUN, ..., input = stdin(), output = stdout())
```

Arguments

FUN	the function to be applied on the AST.
...	optional arguments to FUN.
input	a connection object or a character string from which the JSON-formatted AST is read.
output	a connection object or a character string to which the JSON-formatted AST is written.

get_pandoc_path *Get Pandoc Path*

Description

Get the path of pandoc.

Usage

```
get_pandoc_path()
```

get_pandoc_types_version *Get Pandoc-Types Version*

Description

Get the version of pandoc-types.

Usage

```
get_pandoc_types_version(type = c("numeric", "character"))
```

Arguments

type	a character giving the type of the return value.

Examples

```
get_pandoc_types_version()
```

get_pandoc_version *Get Pandoc Version*

Description

Get the version of pandoc.

Usage

```
get_pandoc_version(type = c("numeric", "character"))
```

Arguments

type	a character giving the type of the return value.

Examples

```
get_pandoc_version()
```

Header *Header*

Description

Constructs a block object of type "Header".

Usage

```
Header(x, level = 1L, attr = Attr())
```

Arguments

x	a inline object or a list of inline objects
level	an integer giving the level
attr	an object of type "Attr"

Examples

```
Header("My Header")
```

HorizontalRule *Horizontal Rule*

Description

Constructs a block object of type "HorizontalRule".

Usage

```
HorizontalRule()
```

Examples

```
HorizontalRule()
```

Image *Image*

Description

Constructs an inline object of type "Image".

Usage

```
Image(target, text, caption = "", attr = Attr())
```

Arguments

target	a character string giving the target (hyper reference)
text	a inline object or a list of inline objects giving the visible part
caption	a character string describing the picture
attr	an optional object of type "Attr"

Details

Further Usage examples can be found in the README.

Examples

```
Image("https://Rlogo.jpg", "some_text", "fig:some_caption")
```

is.block *Block Objects*

Description

Tests if an object has the class attribute "block".

Usage

```
is.block(x)
```

Arguments

x	an object to be tested.

Value

a logical indicating if the provided object is of type "block".

Examples

```
is.block(as.block(NULL))
```

is.inline *Inline Objects*

Description

Tests if an object has the class attribute "inline".

Usage

```
is.inline(x)
```

Arguments

x	an object to be tested.

Value

a logical indicating if the provided object is of type "inline".

Examples

```
is.inline(as.inline(NULL))
```

LineBreak *Hard Line Break*

Description

Constructs an inline object of type "LineBreak".

Usage

```
LineBreak()
```

Examples

```
LineBreak()
```

Link *Hyperlink*

Description

Constructs an inline object of type "Link".

Usage

```
Link(target, text, title = "", attr = Attr())
```

Arguments

target	a character string giving the target (hyper reference)
text	a inline object or a list of inline objects giving the visible part
title	an optional character string giving the title
attr	an optional object of type "Attr"

Details

Further Usage examples can be found in the README.

Examples

```
Link("https://cran.r-project.org/", "Text_Shown", "some title")
```

ListAttributes *ListAttributes*

Description

A constructor for pandoc list attributes.

Usage

```
ListAttributes(
  first_number = 1L,
  style = "DefaultStyle",
  delim = "DefaultDelim"
)
```

Arguments

first_number	an integer giving the first number of the list
style	a character string giving the style, possible values are "DefaultStyle", "Example", "Decimal", "LowerRoman", "UpperRoman", "LowerAlpha" and "UpperAlpha".
delim	a character string giving the delimiter, possible values are "DefaultDelim", "Period", "OneParen" and "TwoParens".

Math *TeX Math*

Description

Constructs an inline object of type "Math".

Usage

```
Math(x)
```

Arguments

x	a character string

Examples

```
Math("3*x^2")
```

Note *Note*

Description

Constructs an inline object of type "Note".

Usage

```
Note(x)
```

Arguments

x	a pandoc block object or a list of pandoc block objects

Examples

```
block <- Plain("x")
Note(block)
```

Null *Nothing*

Description

Constructs a block object of type `"Null"`.

Usage

```
Null()
```

Examples

```
Null()
```

OrderedList *Ordered List*

Description

Constructs a block object of type `"OrderedList"`.

Usage

```
OrderedList(lattr, llblocks)
```

Arguments

`lattr`	a list of attributes
`llblocks`	a list of lists of blocks

Examples

```
ordered_1 <- Plain("A")
ordered_2 <- list(Plain(Str("B")))
ordered_3 <- list(Plain(list(Str("C"))))
OrderedList(ListAttributes(), ordered_1)
OrderedList(ListAttributes(), list(ordered_1, ordered_2, ordered_3))
```

pandoc_to_json *Utility functions for testing filters*

Description

Utility functions for testing filters

Usage

```
pandoc_to_json(file, from = "markdown")

pandoc_from_json(json, to = "markdown", exchange = c("file", "arg"))
```

Arguments

file	file name
from	markdown, html, latex or native
json	a JSON representation of the AST to be passed to pandoc
to	markdown, html, latex or native
exchange	a character string

Para *Paragraph*

Description

Constructs a block object of type "Para".

Usage

```
Para(x)
```

Arguments

x	a inline object or list of inline objects

Examples

```
Para("x")
```

Plain *Plain Text*

Description

Constructs a block object of type "Plain", a plain paragraph.

Usage

```
Plain(x)
```

Arguments

x	a inline object or list of inline objects

Examples

```
Plain("x")
```

Quoted *Quoted Text*

Description

Constructs an inline object of type "Quoted".

Usage

```
Quoted(x, quote_type = "DoubleQuote")
```

Arguments

x	a inline object or a list of inline objects
quote_type	a character giving the quote type, valid types are "SingleQuote" and "DoubleQuote"

Examples

```
Quoted("some text", quote_type="SingleQuote")
Quoted("some text", quote_type="DoubleQuote")
```

RawInline *Raw Inline*

Description

Constructs an inline object of type "RawInline".

Usage

```
RawInline(format, x)
```

Arguments

format	a character string giving the format (e.g. "latex", "html")
x	a character string giving the inline

Examples

```
RawInline("latex", "some RawInline")
```

set_pandoc_path *Set Pandoc Path*

Description

Set the path to pandoc.

Usage

```
set_pandoc_path(path = "pandoc")
```

Arguments

path	a character giving the location of pandoc (default is "pandoc" which uses the pandoc set in the system path).

SmallCaps *Small Caps Text*

Description

Constructs an inline object of type "SmallCaps".

Usage

```
SmallCaps(x)
```

Arguments

x	a inline object or a list of inline objects

Examples

```
SmallCaps("The latex command for 'small caps' is 'textsc'!")
```

SoftBreak *Soft Line Break*

Description

Constructs an inline object of type "SoftBreak".

Usage

```
SoftBreak()
```

Examples

```
SoftBreak()
```

Space *Inter-word space*

Description

Constructs an inline object of type "Space".

Usage

```
Space()
```

Examples

```
Space()
```

Span *Generic Inline Container with Attributes*

Description

Constructs an inline object of type `"Span"`.

Usage

```
Span(attr, inline)
```

Arguments

`attr`	an object of type `"Attr"`
`inline`	a inline object or a list of inline objects which will be shown

Examples

```
attr <- Attr("A", "B", list(c("C", "D")))
Span(attr, "some inline string")
```

Str *Text (String)*

Description

Constructs an inline object of type `"Str"`.

Usage

```
Str(x)
```

Arguments

`x`	a character string

Details

To minimize the amount of unnecessary typing, pandoc filters automatically converts character strings to pandoc objects of type `"Str"` if needed. Furthermore, if a single inline object is provided where a list of inline objects is needed **pandocfilters** automatically converts this inline object into a list of inline objects. For example, the canonical way to emphasize the character string `"some text"` would be `Emph(list(Str("some text")))` since single inline objects are automatically transformed to lists of inline objects, this is equivalent to `Emph(Str("some text"))`. Since a character string is automatically transformed to an inline object, this is is equivalent to `Emph("some string")`. In short, whenever a list of inline objects is needed one can also use a single inline object or a character string.

Examples

```
Str("SomeString")
```

`Strikeout` *Strikeout Text*

Description

Constructs an inline object of type `"Strikeout"`.

Usage

```
Strikeout(x)
```

Arguments

`x`	a inline object or a list of inline objects

Examples

```
Strikeout("strikeout")
```

`Strong` *Strongly Emphasized Text*

Description

Constructs an inline object of type `"Strong"`.

Usage

```
Strong(x)
```

Arguments

`x`	a inline object or a list of inline objects

Examples

```
Strong("strong")
```

Subscript *Subscripted Text*

Description

Constructs an inline object of type "Subscript".

Usage

```
Subscript(x)
```

Arguments

x	a inline object or a list of inline objects

Examples

```
Subscript("some text written in superscript")
```

Superscript *Superscripted Text*

Description

Constructs an inline object of type "Superscript".

Usage

```
Superscript(x)
```

Arguments

x	a inline object or a list of inline objects

Examples

```
Superscript("some text written in superscript")
```

Table *Table*

Description

Constructs a block object of type `"Table"`.

Usage

```
Table(
  rows,
  col_names = NULL,
  aligns = NULL,
  col_width = NULL,
  caption = list()
)
```

Arguments

`rows`	an object of class `"matrix"`, `"data.frame"`, `"table"` or a list of lists of pandoc objects of type `"TableCell"`
`col_names`	a list of objects of type `"TableCell"`
`aligns`	a character vector of alignments, possible values are “l” for left, “r” for right, “c” for center and “d” for default.
`col_width`	a numeric vector
`caption`	a inline object or a list of inline objects giving the caption

Details

Table, with caption, column alignments (required), relative column widths (0 = default), column headers (each a list of blocks), and rows (each a list of lists of blocks)

TableCell *Table Cell*

Description

Table cells is a constructor for plain table cells.

Usage

```
TableCell(x)
```

Arguments

`x`	a character string giving the content of the table cell

Details

In general table cells are a list of block elements, the constructor `TableCell` creates a plain table cell.

Examples

```
TableCell("Cell 1")
```

---

write.pandoc *Write the JSON-formatted AST to a connection*

Description

Write the JSON-formatted AST to a connection.

Usage

```
write.pandoc(json, file, format, exchange = c("arg", "file"))
```

Arguments

`json`	a JSON representation of the AST to be written out
`file`	a connection object or a character string to which the JSON-formatted AST is written
`format`	a character string giving the format (e.g. `"latex"`, `"html"`)
`exchange`	a character string

Details

If you want to apply a filter to the document before it get's written out, or your pandoc installation is not registered in the `PATH` it can be favorable to provide your own writer function to the document class.

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