# Package 'htmlTable’ 

July 5, 2020
Version 2.0.1
Date 2020-07-05
Title Advanced Tables for Markdown/HTML
Maintainer Max Gordon [max@gforge.se](mailto:max@gforge.se)
Description Tables with state-of-the-art layout elements such as row spanners, column spanners, table spanners, zebra striping, and more. While allowing advanced layout, the underlying css-structure is simple in order to maximize compatibility with word processors such as 'MS Word' or 'LibreOffice'. The package also contains a few text formatting functions that help outputting text compatible with HTML/LaTeX.

License GPL (>=3)
URL http://gforge.se/packages/
BugReports https://github.com/gforge/htmlTable/issues
Biarch yes
Imports stringr, knitr ( $>=1.6$ ), magrittr ( $>=1.5$ ), methods, checkmate, htmlwidgets, htmltools, rstudioapi ( $>=0.6$ )

Suggests testthat, XML, xml2, Hmisc, reshape, rmarkdown, chron, lubridate, tibble, purrr, tidyselect, glue, rlang, tidyr (>= 0.7.2), dplyr (>= 0.7.4)

Encoding UTF-8
NeedsCompilation no
VignetteBuilder knitr
RoxygenNote 7.1.1
Author Max Gordon [aut, cre], Stephen Gragg [aut], Peter Konings [aut]

Repository CRAN
Date/Publication 2020-07-05 21:00:04 UTC

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addHtmlTableStyle Add/set css and other style options

## Description

This function is a preprocessing step before applying the htmlTable() function. You use this to style your tables with HTML cascading style sheet features.

## Usage

addHtmlTableStyle(
x ,
align = NULL,
align.header = NULL, align.cgroup $=$ NULL,
css.rgroup $=$ NULL,
css.rgroup.sep $=$ NULL,
css.tspanner = NULL,
css.tspanner. sep $=$ NULL,

```
    css.total = NULL,
    css.cell = NULL,
    css.cgroup = NULL,
    css.header = NULL,
    css.header.border_bottom = NULL,
    css.class = NULL,
    css.table = NULL,
    pos.rowlabel = NULL,
    pos.caption = NULL,
    col.rgroup = NULL,
    col.columns = NULL,
    padding.rgroup = NULL,
    padding.tspanner = NULL
)
appendHtmlTableStyle(
    x,
    align = NULL,
    align.header = NULL,
    align.cgroup = NULL,
    css.rgroup = NULL,
    css.rgroup.sep = NULL,
    css.tspanner = NULL,
    css.tspanner.sep = NULL,
    css.total = NULL,
    css.cell = NULL,
    css.cgroup = NULL,
    css.header = NULL,
    css.header.border_bottom = NULL,
    css.class = NULL,
    css.table = NULL,
    pos.rowlabel = NULL,
    pos.caption = NULL,
    col.rgroup = NULL,
    col.columns = NULL,
    padding.rgroup = NULL,
    padding.tspanner = NULL
)
```


## Arguments

x
align A character strings specifying column alignments, defaulting to ' c ' to center. Valid chars for alignments are $l=$ left, $\mathrm{c}=$ center and $\mathrm{r}=$ right. You can also specify align='c|c' and other LaTeX tabular formatting. If you want to set the alignment of the rownames this string needst to be $n \operatorname{col}(x)+1$, otherwise it automatically pads the string with a left alignment for the rownames.
align.header A character strings specifying alignment for column header, defaulting to cen-
tered, i.e. [paste][base::paste](rep('c',ncol(x)), collapse=").
align.cgroup The justification of the cgroups
css.rgroup CSS style for the rgroup, if different styles are wanted for each of the rgroups you can just specify a vector with the number of elements.
css.rgroup.sep The line between different rgroups. The line is set to the TR element of the lower rgroup, i.e. you have to set the border-top/padding-top etc to a line with the expected function. This is only used for rgroups that are printed. You can specify different separators if you give a vector of rgroup - 1 length (this is since the first rgroup doesn't have a separator).
css.tspanner The CSS style for the table spanner.
css.tspanner.sep
The line between different spanners.
css.total The css of the total row if such is activated.
css.cell The css.cell element allows you to add any possible CSS style to your table cells.
See section below for details.
css.cgroup The same as css.class but for cgroup formatting.
css.header The header style, not including the cgroup style
css.header.border_bottom
The header bottom-border style, e.g. border-bottom: 1px solid grey
css.class The html CSS class for the table. This allows directing html formatting through CSS directly at all instances of that class. Note: unfortunately the CSS is frequently ignored by word processors. This option is mostly inteded for webpresentations.
css.table You can specify the the style of the table-element using this parameter
pos.rowlabel Where the rowlabel should be positioned. This value can be "top", "bottom", "header", or a integer between 1 and nrow (cgroup) +1 . The options "bottom" and "header" are the same, where the row label is presented at the same level as the header.
pos.caption Set to "bottom" to position a caption below the table instead of the default of "top".
col.rgroup Alternating colors (zebra striping/banded rows) for each rgroup; one or two colors is recommended and will be recycled.
col.columns Alternating colors for each column.
padding.rgroup Generally two non-breakings spaces, i.e. \ \ , but some journals only have a bold face for the rgroup and leaves the subelements unindented.
padding.tspanner
The table spanner is usually without padding but you may specify padding similar to padding. rgroup and it will be added to all elements, including the rgroup elements. This allows for a 3-level hierarchy if needed.

## Details

The function stores the current theme (see setHtmlTableTheme()) + custom styles to the provided object as an base: :attributes(). It is stored under the element htmlTable.style in the form of a list object.

## Value

$x$ with the style added as an attribute that the htmlTable then can use for formatting.

## The css.cell argument

The css.cell parameter allows you to add any possible CSS style to your table cells. css.cell can be either a vector or a matrix.
If css.cell is a vector, it's assumed that the styles should be repeated throughout the rows (that is, each element in css.cell specifies the style for a whole column of 'x').
In the case of css.cell being a matrix of the same size of the $x$ argument, each element of $x$ gets the style from the corresponding element in css.cell. Additionally, the number of rows of css.cell can be $\operatorname{nrow}(x)+1$ so the first row of of css.cell specifies the style for the header of $x$; also the number of columns of css.cell can be $n \operatorname{col}(x)+1$ to include the specification of style for row names of $x$.
Note that the text-align CSS field in the css.cell argument will be overriden by the align argument.
Excel has a specific css-style, mso-number-format that can be used for improving the copy-paste functionality. E.g. the style could be written as: css_matrix <- matrix ( data $=$ "mso-numberformat:\"<br>@\"", nrow = nrow(df), ncol = ncol(df))

## Examples

```
library(magrittr)
matrix(1:4, ncol = 2) %>%
    addHtmlTableStyle(align = "c", css.cell = "background-color: orange;") %>%
    htmlTable(caption = "A simple style example")
```

    concatHtmlTables Function for concatenating htmlTable()s
    
## Description

Function for concatenating htmlTable()s

## Usage

concatHtmlTables(tables, headers = NULL)

## Arguments

$$
\begin{array}{ll}
\text { tables } & \text { A list of htmlTable()s to be concatenated } \\
\text { headers } & \text { Either a string or a vector of strings that function as a header for each table. If } \\
\text { none is provided it will use the names of the table list or a numeric number. }
\end{array}
$$

## Value

htmlTable() class object

## Examples

```
library(magrittr)
# Basic example
output <- matrix(1:4,
    ncol=2,
    dimnames = list(list("Row 1", "Row 2"),
                            list("Column 1", "Column 2")))
htmlTable(output)
############################################
# Below saves all outputs to a list that #
# it outputted all at once at the end #
# this is mostly for allowing you to view #
# and evaluate each example section as #
# they would otherwise be overwritten by #
# eachother #
###############################################
all_tables <- list()
htmlTable(output) ->
    all_tables[["Basic table"]]
# An advanced output
output <-
    matrix(ncol=6, nrow=8)
for (nr in 1:nrow(output)){
    for (nc in 1:ncol(output)){
        output[nr, nc] <-
            paste0(nr, ":", nc)
    }
}
output %>%
    addHtmlTableStyle(align="r",
                        col.columns = c(rep("none", 2),
                            rep("#F5FBFF", 4)),
            col.rgroup = c("none", "#F7F7F7"),
            css.cell = "padding-left: .5em; padding-right: .2em;") %>%
    htmlTable(header = paste(c("1st", "2nd",
                                    "3rd", "4th",
                                    "5th", "6th"),
                            "hdr"),
            rnames = paste(c("1st", "2nd",
                    "3rd",
                    paste0(4:8, "th")),
                            "row"),
            rgroup = paste("Group", LETTERS[1:3]),
            n.rgroup = c(2,4,nrow(output) - 6),
            cgroup = rbind(c("", "Column spanners", NA),
                            c("", "Cgroup 1", "Cgroup 2&dagger;")),
            n.cgroup = rbind(c(1,2,NA),
```

```
                                    c(2,2,2)),
            caption="Basic table with both column spanners (groups) and row groups",
            tfoot="&dagger; A table footer commment",
            cspan.rgroup = 2) ->
    all_tables[["Advanced table"]]
# An advanced empty table
suppressWarnings({
    matrix(ncol = 6,
            nrow = 0) %>%
        addHtmlTableStyle(col.columns = c(rep("none", 2),
                            rep("#F5FBFF", 4)),
                col.rgroup = c("none", "#F7F7F7"),
                css.cell = "padding-left: .5em; padding-right: .2em;") %>%
        htmlTable(align="r",
            header = paste(c("1st", "2nd",
                                    "3rd", "4th",
                                    "5th", "6th"),
                                    "hdr"),
            cgroup = rbind(c("", "Column spanners", NA),
                    c("", "Cgroup 1", "Cgroup 2&dagger;")),
            n.cgroup = rbind(c(1,2,NA),
                                    c(2,2,2)),
            caption="Basic empty table with column spanners (groups) and ignored row colors",
                        tfoot="&dagger; A table footer commment",
                cspan.rgroup = 2) ->
        all_tables[["Empty table"]]
})
# An example of how to use the css.cell for header styling
simple_output <- matrix(1:4, ncol=2)
simple_output %>%
    addHtmlTableStyle(css.cell = rbind(rep("background: lightgrey; font-size: 2em;",
                    times=ncol(simple_output)),
                    matrix("",
                            ncol=ncol(simple_output),
                            nrow=nrow(simple_output)))) %>%
    htmlTable(header = LETTERS[1:2]) ->
    all_tables[["Header formatting"]]
concatHtmlTables(all_tables)
# See vignette("tables", package = "htmlTable")
# for more examples
```


## Description

A wrapper for a getOption("htmlTable.theme")() call that returns the standard theme unless one is set.

## Usage

getHtmlTableTheme()

## Value

list with the styles to be applied to the table

## Examples

getHtmlTableTheme()

## hasHtmlTableStyle $\quad$ Check if object has a style set to it

## Description

If the attribute htmlTable.style is set it will check if the style_name exists and return a logical.

## Usage

hasHtmlTableStyle(x, style_name)

## Arguments

x
The object intended for htmlTable().
style_name
A string that contains the style name.

## Value

logical TRUE if the attribute and style is not NULL
htmlTable Output an HTML table

## Description

This is a function for outputting a more advanced tables using HTML. The core philosophy is to bring column and row groups into the table and allow for a dense representation of complex tables. The HTML-output is designed for maximum compatibility with copy-paste functionality into wordprocessors. For adding styles, see addHtmlTableStyle() and themes setHtmlTableTheme(). Note: If you are using tidyverse and dplyr you may want to check out tidyHtmlTable() that automates many of the arguments that htmlTable requires.

## Usage

```
htmlTable(
    x,
    header = NULL,
    rnames = NULL,
    rowlabel = NULL,
    caption = NULL,
    tfoot = NULL,
    label = NULL,
    rgroup = NULL,
    n.rgroup = NULL,
    cgroup = NULL,
    n.cgroup = NULL,
    tspanner = NULL,
    n.tspanner = NULL,
    total = NULL,
    ctable = TRUE,
    compatibility = getOption("htmlTableCompat", "LibreOffice"),
    cspan.rgroup = "all",
    escape.html = FALSE,
)
## Default S3 method:
htmlTable(
    x,
    header = NULL,
    rnames = NULL,
    rowlabel = NULL,
    caption = NULL,
    tfoot = NULL,
    label = NULL,
    rgroup = NULL,
    n.rgroup = NULL,
```

```
    cgroup = NULL,
    n.cgroup = NULL,
    tspanner = NULL,
    n.tspanner = NULL,
    total = NULL,
    ctable = TRUE,
    compatibility = getOption("htmlTableCompat", "LibreOffice"),
    cspan.rgroup = "all",
    escape.html = FALSE,
)
## S3 method for class 'htmlTable'
knit_print(x, ...)
## S3 method for class 'htmlTable'
print(x, useViewer, ...)
```


## Arguments

x
header A vector of character strings specifying column header, defaulting to colnames ( $x$ )

The matrix/data.frame with the data. For the print and knit_print it takes a string of the class htmlTable as x argument.
rowlabel
caption
tfoot
label
rgroup
n. rgroup

Default row names are generated from rownames ( $x$ ). If you provide FALSE then it will skip the row names. Note: For data. frames if you do rownames(my_dataframe) <-NULL it still has row names. Thus you need to use FALSE if you want to supress row names for data. frames.

If the table has row names or rnames, rowlabel is a character string containing the column heading for the rnames.

Adds a table caption.
Adds a table footer (uses the <tfoot> HTML element). The output is run through txtMergeLines() simplifying the generation of multiple lines.

A text string representing a symbolic label for the table for referencing as an anchor. All you need to do is to reference the table, for instance <a href="\#anchor_name">see table $2</ \mathrm{a}>$. This is known as the element's id attribute, i.e. table id, in HTML linguo, and should be unique id for an HTML element in contrast to the css. class element attribute.

A vector of character strings containing headings for row groups. n. rgroup must be present when rgroup is given. See detailed description in section below.

An integer vector giving the number of rows in each grouping. If rgroup is not specified, n . rgroup is just used to divide off blocks of rows by horizontal lines. If rgroup is given but n . rgroup is omitted, n . rgroup will default so that each row group contains the same number of rows. If you want additional rgroup column elements to the cells you can sett the "add" attribute to rgroup through attr (rgroup, "add"), see below explaining section.

| cgroup | A vector, matrix or list of character strings defining major column header. The default is to have none. These elements are also known as column spanners. If you want a column not to have a spanner then put that column as "". If you pass cgroup and n. crgroup as matrices you can have column spanners for several rows. See cgroup section below for details. |
| :---: | :---: |
| n.cgroup | An integer vector, matrix or list containing the number of columns for which each element in cgroup is a heading. For example, specify cgroup=c ("Major_1", "Major_2"), n. cgroup $=c(3,3)$ if "Major_1" is to span columns 1-3 and "Major_2" is to span columns 4-6. rowlabel does not count in the column numbers. You can omit $n$. cgroup if all groups have the same number of columns. If the $n$. cgroup is one less than the number of columns in the matrix/data.frame then it automatically adds those. |
| tspanner | The table spanner is somewhat of a table header that you can use when you want to join different tables with the same columns. |
| n.tspanner | An integer vector with the number of rows or rgroups in the original matrix that the table spanner should span. If you have provided one fewer n.tspanner elements the last will be imputed from the number of rgroups (if you have provided rgroup and sum(n.tspanner) < length(rgroup)) or the number of rows in the table. |
| total | The last row is sometimes a row total with a border on top and bold fonts. Set this to TRUE if you are interested in such a row. If you want a total row at the end of each table spanner you can set this to "tspanner". |
| ctable | If the table should have a double top border or a single a' la LaTeX ctable style |
| compatibility | Is default set to LibreOffice as some settings need to be in old HTML format as Libre Office can't handle some commands such as the css caption-alignment. Note: this option is not yet fully implemented for all details, in the future I aim to generate a HTML-correct table and one that is aimed at Libre Office compatibility. Word-compatibility is difficult as Word ignores most settings and destroys all layout attempts (at least that is how my 2010 version behaves). You can additinally use the options(htmlTableCompat = "html") if you want a change to apply to the entire document. MS Excel sometimes misinterprets certain cell data when opening HTML-tables (eg. $1 / 2$ becomes 1 . February). To avoid this please specify the correct Microsoft Office format for each cell in the table using the css.cell-argument. To make MS Excel interpret everything as text use "mso-number-format:\"\@\"". |
| cspan.rgroup | The number of columns that an rgroup should span. It spans by default all columns but you may want to limit this if you have column colors that you want to retain. |
| escape.html | logical: should HTML characters be escaped? Defaults to FALSE. |
|  | Passed on to print.htmlTable function and any argument except the useViewer will be passed on to the base: :cat() functions arguments. Note: as of version 2.0.0 styling options are still allowed but it is recommended to instead preprocess your object with addHtmlTableStyle(). |
| useViewer | If you are using RStudio there is a viewer thar can render the table within that is envoced if in base: : interactive() mode. Set this to FALSE if you want to remove that functionality. You can also force the function to call a specific viewer |

by setting this to a viewer function, e.g. useViewer = utils: :browseURL if you want to override the default RStudio viewer. Another option that does the same is to set the options(viewer=utils::browseURL) and it will default to that particular viewer (this is how RStudio decides on a viewer). Note: If you want to force all output to go through the base::cat() the set [options][base::options](htmlTable.cat = TRUE).

## Value

string Returns a string of class htmlTable

## Multiple rows of column spanners cgroup

If you want to have a column spanner in multiple levels you can set the cgroup and n.cgroup arguments to a matrix or list.
If the different levels have different number of elements and you have provided a matrix you need to set the ones that lack elements to NA. For instance cgroup = rbind(c("first", "second", NA) , c("a", "b", "c")). And the corresponding $n$. cgroup would be $\mathrm{n} . \mathrm{cgroup}=\operatorname{rbind}(c(1,2, N A), c(2,1,2))$. for a table consisting of 5 columns. The "first" spans the first two columns, the "second" spans the last three columns, "a" spans the first two, " b " the middle column, and " c " the last two columns.

It is recommended to use list as you will not have to bother with the NA.
If you want leave a cgroup empty then simply provide "" as the cgroup.

## The rgroup argument

The rgroup allows you to smoothly group rows. Each row within a group receives an indention of two blank spaces and are grouped with their corresponding rgroup element. The sum(n.rgroup) should always be equal or less than the matrix rows. If less then it will pad the remaining rows with either an empty rgroup, i.e. an "" or if the rgroup is one longer than the $n$. rgroup the last $n$. rgroup element will be calculated through nrow ( $x$ ) -sum( $n$. rgroup) in order to make the table generating smoother.

## The add attribute to rgroup

You can now have an additional element at the rgroup level by specifying the attr (rgroup, 'add '). The value can either be a vector, a list, or a matrix. See vignette("general", package = "htmlTable") for examples.

- A vector of either equal number of rgroups to the number of rgroups that aren't empty, i.e. $\operatorname{rgroup}[r g r o u p!=">]$. Or a named vector where the name must correspond to either an rgroup or to an rgroup number.
- A list that has exactly the same requirements as the vector. In addition to the previous we can also have a list with column numbers within as names within the list.
- A matrix with the dimension $\operatorname{nrow}(x) x \operatorname{ncol}(x)$ or $\operatorname{nrow}(x) x 1$ where the latter is equivalent to a named vector. If you have rownames these will resolve similarly to the names to the list/vector arguments. The same thing applies to colnames.


## Important knitr-note

This function will only work with knitr outputting $H T M L$, i.e. markdown mode. As the function returns raw HTML-code the compatibility with non-HTML formatting is limited, even with pandoc.
Thanks to the the knitr::knit_print() and the knitr::asis_output() the results='asis' is no longer needed except within for-loops. If you have a knitr-chunk with a for loop and use print() to produce raw HTML you must set the chunk option results='asis'. Note: the printfunction relies on the base: :interactive() function for determining if the output should be sent to a browser or to the terminal. In vignettes and other directly knitted documents you may need to either set useViewer = FALSE alternatively set options(htmlTable.cat = TRUE).

## RStudio's notebook

RStudio has an interactive notebook that allows output directly into the document. In order for the output to be properly formatted it needs to have the class of html. The htmlTable tries to identify if the environment is a notebook document (uses the rstudioapi and identifies if its a file with and Rmd file ending or if there is an element with html_notebook). If you don't want this behavior you can remove it using the options(htmlTable.skip_notebook = TRUE).

## Table counter

If you set the option table_counter you will get a Table 1,2,3 etc before each table, just set options(table_counter=TRUE). If you set it to a number then that number will correspond to the start of the table_counter. The table_counter option will also contain the number of the last table, this can be useful when referencing it in text. By setting the option options(table_counter_str = "<b>Table \%s:</b>") you can manipulate the counter table text that is added prior to the actual caption. Note, you should use the sprintf() \%s instead of \%d as the software converts all numbers to characters for compatibility reasons. If you set options(table_counter_roman $=$ TRUE) then the table counter will use Roman numerals instead of Arabic.

## Empty data frames

An empty data frame will result in a warning and output an empty table, provided that rgroup and n. rgroup are not specified. All other row layout options will be ignored.

## Options

There are multiple options that can be set, here is a set of the perhaps most used

- table_counter - logical - activates a counter for each table
- table_counter_roman - logical - if true the counter is in Roman numbers, i.e. I, II, III, IV...
- table_counter_str - string - the string used for generating the table counter text
- useViewer - logical - if viewer should be used fro printing the table
- htmlTable.cat - logical - if the output should be directly sent to cat()
- htmlTable.skip_notebook - logical - skips the logic for detecting notebook
- htmlTable.pretty_indentation - logical - there was some issues in previous Pandoc versions where HTML indentation caused everything to be interpreted as code. This seems to be fixed and if you want to look at the raw HTML code it is nice to have this set to TRUE so that the tags and elements are properly indented.


## Other

Copy-pasting: As you copy-paste results into Word you need to keep the original formatting. Either right click and choose that paste option or click on the icon appearing after a paste. Currently the following compatibilities have been tested with MS Word 2016:

- Internet Explorer (v. 11.20.10586.0) Works perfectly when copy-pasting into Word
- RStudio (v. 0.99.448) Works perfectly when copy-pasting into Word. Note: can have issues with multi-line cgroups - see bug
- Chrome (v. 47.0.2526.106) Works perfectly when copy-pasting into Word. Note: can have issues with multi-line cgroups - see bug
- Firefox (v. 43.0.3) Works poorly - looses font-styling, lines and general feel
- Edge (v. 25.10586.0.0) Works poorly - looses lines and general feel

Direct word processor opening: Opening directly in Libre Office or Word is no longer recommended. You get much prettier results using the cut-and-paste option.
Google docs: Copy-paste directly into a Google docs document is handled rather well. This seems to work especially well when the paste comes directly from a Chrome browser.
Note that when using complex cgroup alignments with multiple levels not every browser is able to handle this. For instance the RStudio webkit browser seems to have issues with this and a bug has been filed.

As the table uses HTML for rendering you need to be aware of that headers, row names, and cell values should try respect this for optimal display. Browsers try to compensate and frequently the tables still turn out fine but it is not advised. Most importantly you should try to use \< instead of < and \> instead of >. You can find a complete list of HTML characters here.
Lastly, I want to mention that function was inspired by the Hmisc : : latex () that can be an excellent alternative if you wish to switch to PDF-output. For the sibling function tidyHtmlTable() you can directly switch between the two using the table_fn argument.

## See Also

```
addHtmlTableStyle(), setHtmlTableTheme(), tidyHtmlTable(). txtMergeLines(),Hmisc::latex()
```

Other table functions: tblNoLast(), tblNoNext()

## Examples

```
library(magrittr)
# Basic example
output <- matrix(1:4,
    ncol=2,
    dimnames = list(list("Row 1", "Row 2"),
                                    list("Column 1", "Column 2")))
htmlTable(output)
###############################################
# Below saves all outputs to a list that #
# it outputted all at once at the end #
```

```
# this is mostly for allowing you to view #
# and evaluate each example section as #
# they would otherwise be overwritten by #
# eachother #
###############################################
all_tables <- list()
htmlTable(output) ->
    all_tables[["Basic table"]]
# An advanced output
output <-
    matrix(ncol=6, nrow=8)
for (nr in 1:nrow(output)){
    for (nc in 1:ncol(output)){
        output[nr, nc] <-
            paste0(nr, ":", nc)
    }
}
output %>%
    addHtmlTableStyle(align="r",
                col.columns = c(rep("none", 2),
                            rep("#F5FBFF", 4)),
            col.rgroup = c("none", "#F7F7F7"),
            css.cell = "padding-left: .5em; padding-right: .2em;") %>%
    htmlTable(header = paste(c("1st", "2nd",
                                    "3rd", "4th",
                                    "5th", "6th"),
                    "hdr"),
            rnames = paste(c("1st", "2nd",
                    "3rd",
                        paste0(4:8, "th")),
                            "row"),
            rgroup = paste("Group", LETTERS[1:3]),
            n.rgroup = c(2,4,nrow(output) - 6),
            cgroup = rbind(c("", "Column spanners", NA),
                    c("", "Cgroup 1", "Cgroup 2&dagger;")),
                n.cgroup = rbind(c(1,2,NA),
                    c(2,2,2)),
            caption="Basic table with both column spanners (groups) and row groups",
            tfoot="&dagger; A table footer commment",
            cspan.rgroup = 2) ->
    all_tables[["Advanced table"]]
# An advanced empty table
suppressWarnings({
    matrix(ncol = 6,
        nrow = 0) %>%
        addHtmlTableStyle(col.columns = c(rep("none", 2),
                            rep("#F5FBFF", 4)),
                            col.rgroup = c("none", "#F7F7F7"),
            css.cell = "padding-left: .5em; padding-right: .2em;") %>%
```

```
        htmlTable(align="r",
            header = paste(c("1st", "2nd",
                            "3rd", "4th",
                                    "5th", "6th"),
                            "hdr"),
            cgroup = rbind(c("", "Column spanners", NA),
                    c("", "Cgroup 1", "Cgroup 2&dagger;")),
            n.cgroup = rbind(c(1,2,NA),
                            c(2,2,2)),
            caption="Basic empty table with column spanners (groups) and ignored row colors",
                    tfoot="&dagger; A table footer commment",
                cspan.rgroup = 2) ->
            all_tables[["Empty table"]]
})
# An example of how to use the css.cell for header styling
simple_output <- matrix(1:4, ncol=2)
simple_output %>%
    addHtmlTableStyle(css.cell = rbind(rep("background: lightgrey; font-size: 2em;",
                                    times=ncol(simple_output)),
                                    matrix("',
                                    ncol=ncol(simple_output),
                                    nrow=nrow(simple_output)))) %>%
    htmlTable(header = LETTERS[1:2]) ->
    all_tables[["Header formatting"]]
concatHtmlTables(all_tables)
# See vignette("tables", package = "htmlTable")
# for more examples
```

htmlTableWidget htmlTable with pagination widget

## Description

This widget renders a table with pagination into an htmlwidget

## Usage

```
htmlTableWidget(
    x,
    number_of_entries = c(10, 25, 100),
    width = NULL,
    height = NULL,
    elementId = NULL,
)
```


## Arguments

x
A data frame to be rendered
number_of_entries
a numeric vector with the number of entries per page to show. If there is more than one number given, the user will be able to show the number of rows per page in the table.
width Fixed width for widget (in css units). The default is NULL, which results in intelligent automatic sizing based on the widget's container.
height Fixed height for widget (in css units). The default is NULL, which results in intelligent automatic sizing based on the widget's container.
elementId Use an explicit element ID for the widget (rather than an automatically generated one). Useful if you have other JavaScript that needs to explicitly discover and interact with a specific widget instance.
... Additional parameters passed to htmlTable

## Value

an htmlwidget showing the paginated table
htmlTableWidget-shiny Shiny bindings for htmlTableWidget

## Description

Output and render functions for using htmlTableWidget within Shiny applications and interactive Rmd documents.

## Usage

htmlTableWidgetOutput(outputId, width $=$ " $100 \%$ ", height $=$ " $400 \mathrm{px} "$ )
renderHtmlTableWidget(expr, env = parent.frame(), quoted = FALSE)

## Arguments

outputId output variable to read from
width, height Must be a valid CSS unit (like '100\%', '400px', 'auto') or a number, which will be coerced to a string and have 'px' appended.
expr An expression that generates a htmlTableWidget ()
env The environment in which to evaluate expr.
quoted Is expr a quoted expression (with quote())? This is useful if you want to save an expression in a variable.

## Examples

```
## Not run:
# In the UI:
htmlTableWidgetOutput("mywidget")
# In the server:
renderHtmlTableWidget({
        htmlTableWidget(iris)
    })
    ## End(Not run)
```

    innerJoinByCommonCols A simple function for joining two tables by their intersected columns
    
## Description

A simple function for joining two tables by their intersected columns

## Usage

innerJoinByCommonCols(x, y)

## Arguments

x
data.frame
$y \quad$ data.frame

## Value

data.frame
interactiveTable An interactive table that allows you to limit the size of boxes

## Description

This function wraps the htmlTable and adds JavaScript code for toggling the amount of text shown in any particular cell.

## Usage

```
interactiveTable(
    x,
    ...,
    txt.maxlen = 20,
    button = getOption("htmlTable.interactiveTable.button", default = FALSE),
    minimized.columns,
    js.scripts = c()
)
## S3 method for class 'htmlTable'
interactiveTable(
    tbl,
    txt.maxlen = 20,
    button = getOption("htmlTable.interactiveTable.button", default = FALSE),
    minimized.columns = NULL,
    js.scripts = c()
)
## S3 method for class 'interactiveTable'
knit_print(x, ...)
## S3 method for class 'interactiveTable'
print(x, useViewer, ...)
```


## Arguments

x
The interactive table that is to be printed
... The exact same parameters as htmlTable() uses
txt.maxlen The maximum length of a text
button Indicator if the cell should be clickable or if a button should appear with a plus/minus
minimized.columns
Notifies if any particular columns should be collapsed from start
js.scripts If you want to add your own JavaScript code you can just add it here. All code is merged into one string where each section is wrapped in it's own <scrip></script> element.
tbl An htmlTable object can be directly passed into the function
useViewer If you are using RStudio there is a viewer thar can render the table within that is envoced if in base: : interactive() mode. Set this to FALSE if you want to remove that functionality. You can also force the function to call a specific viewer by setting this to a viewer function, e.g. useViewer = utils: :browseURL if you want to override the default RStudio viewer. Another option that does the same is to set the options(viewer=utils::browseURL) and it will default to that particular viewer (this is how RStudio decides on a viewer). Note: If you want to force all output to go through the base: :cat () the set [options][base::options](htmlTable.cat = TRUE).

## Value

An htmlTable with a javascript attribute containing the code that is then printed

## Examples

```
library(magrittr)
# A simple output
long_txt <- "Lorem ipsum dolor sit amet, consectetur adipiscing elit,
sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi
ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit
in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur
sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt
mollit anim id est laborum"
short_txt <- gsub("(^[^.]+).*", "\\1", long_txt)
cbind(rep(short_txt, 2),
            rep(long_txt, 2)) %>%
    addHtmlTableStyle(col.rgroup = c("#FFF", "#EEF")) %>%
    interactiveTable(minimized.columns = ncol(.),
                    header = c("Short", "Long"),
                        rnames = c("First", "Second"))
```

prBindDataListIntoColumns
Merge columns into a tibble

## Description

Almost the same as tibble::tibble() but it solves the issue with some of the arguments being columns and some just being vectors.

## Usage

prBindDataListIntoColumns(dataList)

## Arguments

dataList list with the columns/data.frames

## Value

data.frame object
prConvertDfFactors Convert all factors to characters to print them as they expected

## Description

Convert all factors to characters to print them as they expected

## Usage

prConvertDfFactors(x)

## Arguments

$x \quad$ The matrix/data.frame with the data. For the print and knit_print it takes a string of the class htmlTable as x argument.

## Value

The data frame with factors as characters

```
prepGroupCounts Retrieves counts for rgroup, cgroup, & tspanner arguments
```


## Description

This function is a wrapper to base : :rle() that does exactly this but is a little too picky about input values.

## Usage

prepGroupCounts(x)

## Arguments

X
The vector to process

## Value

list(n = rle\$lengths, names = rle\$values)

## Examples

prepGroupCounts(c(1:3, 3:1))

```
    prEscapeHtml Remove html entities from table
```


## Description

Removes the htmlEntities from table input data. Note that this also replaces $\$$ signs in order to remove the MathJax issue.

## Usage

prEscapeHtml(x)

## Arguments

x
The matrix/data.frame with the data. For the print and knit_print it takes a string of the class htmlTable as x argument.

## Value

x without the html entities

## See Also

Other hidden helper functions for htmlTable: prAddCells(), prAddSemicolon2StrEnd(), prGetCgroupHeader(), prGetRowlabelPos(), prGetStyle(), prPrepInputMatrixDimensions(), prPrepareAlign(), prPrepareCgroup(), prTblNo()

```
prExtractElementsAndConvertToTbl
```

Extract the elements and generate a table with unique elements

## Description

Extract the elements and generate a table with unique elements

## Usage

prExtractElementsAndConvertToTbl(x, elements)

## Arguments

x
list with columns to be joined
elements
char vector with the elements to select

## Description

For the vignettes there is a dataset downloaded by using the get_pxweb_data() call. The data is from SCB (Statistics Sweden) and downloaded using the pxweb package:

## Author(s)

Max Gordon [max@gforge.se](mailto:max@gforge.se)

## References

http://scb.se

## Examples

```
## Not run:
# The data was generated through downloading via the API
library(pxweb)
# Get the last 15 years of data (the data always lags 1 year)
current_year <- as.integer(format(Sys.Date(), "%Y")) -1
SCB <- get_pxweb_data(
    url = "http://api.scb.se/OV0104/v1/doris/en/ssd/BE/BE0101/BE0101B/BefolkningMedelAlder",
        dims = list(Region = c('00', '01', '03', '25'),
            Kon = c('1', '2'),
            ContentsCode = c('BE0101G9'),
            Tid = (current_year-14):current_year),
    clean = TRUE)
# Some cleaning was needed before use
SCB$region <- factor(substring(as.character(SCB$region), 4))
Swe_ltrs <- c("å" = "&aring;",
                        "Å" = "&Aring;",
                        "ä" = "&auml;",
        "Ä" = "&Auml;",
        "ö" = "&ouml;",
        "Ö" = "&Ouml;")
for (i in 1:length(Swe_ltrs)){
    levels(SCB$region) <- gsub(names(Swe_ltrs)[i],
                        Swe_ltrs[i],
        levels(SCB$region))
}
save(SCB, file = "data/SCB.rda")
## End(Not run)
```


## Description

The theme guides many of the non-data objects visual appearance. The theme can be over-ridden by settings for each table. Too get a more complete understanding of the options, see addHtmlTableStyle().

## Usage

```
setHtmlTableTheme(
    theme = NULL,
    align = NULL,
    align.header = NULL,
    align.cgroup = NULL,
    css.rgroup = NULL,
    css.rgroup.sep = NULL,
    css.tspanner = NULL,
    css.tspanner.sep = NULL,
    css.total = NULL,
    css.cell = NULL,
    css.cgroup = NULL,
    css.header = NULL,
    css.header.border_bottom = NULL,
    css.class = NULL,
    css.table = NULL,
    pos.rowlabel = NULL,
    pos.caption = NULL,
    col.rgroup = NULL,
    col.columns = NULL,
    padding.rgroup = NULL,
    padding.tspanner = NULL
)
```


## Arguments

| theme | A list containing all the styles or a string that is matched to some of the preset style (See details below in the Theme options section). Note: the full name of the theme is not required as they are matched using base::match.arg(). |
| :---: | :---: |
| align | A character strings specifying column alignments, defaulting to ' c ' to center. Valid chars for alignments are $1=$ left, $\mathrm{c}=$ center and $\mathrm{r}=$ right. You can also specify align='c\|c' and other LaTeX tabular formatting. If you want to set the alignment of the rownames this string needst to be $n \operatorname{col}(x)+1$, otherwise it automatically pads the string with a left alignment for the rownames. |
| align.header | A character strings specifying alignment for column header, defaulting to centered, i.e. [paste][base::paste](rep('c',ncol(x)),collapse=%22). |


| align.cgroup <br> css.rgroup | The justification of the cgroups <br> CSS style for the rgroup, if different styles are wanted for each of the rgroups <br> you can just specify a vector with the number of elements. |
| :--- | :--- |
| css.rgroup.sep | The line between different rgroups. The line is set to the TR element of the |
| lower rgroup, i.e. you have to set the border-top/padding-top etc to a line with |  |
| the expected function. This is only used for rgroups that are printed. You can |  |
| specify different separators if you give a vector of rgroup - 1 length (this is since |  |
| the first rgroup doesn't have a separator). |  |

## Value

An invisible list with the new theme

## Theme options

The styles available are:

- standard: The traditional standard style used in htmlTable() since the early days
- Google docs: A style that is optimized for copy-pasting into documents on Google drive. This is geared towards minimal padding and margins so that the table is as dense as possible.
- blank: Just as the name suggests the style is completly empty in terms of CSS. Positions for rowlabel and caption are set to bottom as these cannot be blank.

You can also provide your own style. Each style should be a names vector, e.g. c (width $=$ "100px" , color = "red") or just a real css string, width: 100px; color: red;.

## Examples

```
## Not run:
setHtmlTableTheme("Google", align = "r")
## End(Not run)
```

tblNoLast Gets the last table number

## Description

The function relies on options("table_counter") in order to keep track of the last number.

## Usage

tblNoLast(roman = getOption("table_counter_roman", FALSE))

## Arguments

roman Whether or not to use roman numbers instead of arabic. Can also be set through options(table_caption_no_roman = TRUE)

## See Also

Other table functions: htmlTable, tblNoNext()

## Examples

```
org_opts <- options(table_counter=1)
tblNoLast()
options(org_opts)
```

tblNoNext Gets the next table number

## Description

The function relies on options("table_counter") in order to keep track of the last number.

## Usage

tblNoNext(roman = getOption("table_counter_roman", FALSE))

## Arguments

roman Whether or not to use roman numbers instead of arabic. Can also be set through options(table_caption_no_roman = TRUE)

## See Also

Other table functions: htmlTable, tblNoLast()

## Examples

```
org_opts <- options(table_counter=1)
tblNoNext()
options(org_opts)
```

tidyHtmlTable Generate an htmlTable using tidy data as input

## Description

Builds an htmlTable by mapping columns from the input data, $x$, to elements of an output htmlTable (e.g. rnames, header, etc.). This provides a ggplot2-like interface you can pivot rows/columns as required. The typical use case is when you are using dplyr together with the tidyverse data processing functions, see vignette("tidyHtmlTable").

## Usage

tidyHtmlTable( x , value, header, rnames, rgroup, hidden_rgroup, cgroup,

```
    tspanner,
    hidden_tspanner,
    skip_removal_warning = getOption("htmlTable.skip_removal_warning", FALSE),
    table_fn = htmlTable,
)
```


## Arguments

| x | Tidy data used to build the htmlTable |
| :---: | :---: |
| value | The column containing values filling individual cells of the output htmlTable. Defaults to "value" as used by tidyr: :pivot_longer(). |
| header | The column in $x$ specifying column headings |
| rnames | The column in $x$ specifying row names. Defaults to "name" as used by tidyr: : pivot_longer (). |
| rgroup | The column in $x$ specifying row groups |
| hidden_rgroup | strings with rgroup values that will be hidden (the values will still be there but the spanner will be set to " " and thus ignored by htmlTable()). |
| cgroup | The column or columns in x specifying the column groups |
| tspanner | The column in $x$ specifying tspanner groups |
| hidden_tspanner |  |
|  | strings with tspanner values that will be hidden (the values will still be there but the spanner will be set to " " and thus ignored by htmlTable()). |
| skip_removal_warning |  |
| table_fn | The table function that should receive the input, defaults to htmlTable() but you can provide any function that uses the same input formatting. This package was inspired by the Hmisc: :latex() function. |
|  | Additional arguments that will be passed to the inner htmlTable() function |

## Value

Returns html code that will build a pretty table

## Column-mapping parameters

The tidyHtmlTable function is designed to work like ggplot2 in that columns from $x$ are mapped to specific parameters from the htmlTable function. At minimum, $x$ must contain the names of columns mapping to rnames, header, and rnames. header and rnames retain the same meaning as in the htmlTable function. value contains the individual values that will be used to fill each cell within the output htmlTable.
A full list of parameters from htmlTable which may be mapped to columns within x include:

- value
- header
- rnames
- rgroup
- cgroup
- tspanner

Also note that the coordinates of each value within $x$ must be unambiguously mapped to a position within the output htmlTable. Therefore, the each row-wise combination the variables specified above contained in x must be unique.

## Sorting

Sorting of rows is as of version 2.0 skipped as we may have situations with repeating inputs and this can easily be performed pre-function by calling dplyr: : arrange() prior to tidyHtmlTable.

Columns are sorted by arrange (cgroup, header) where cgroup will be expanded to the columns of the cgroup argument, e.g. cgroup $=c(a, b)$, header $=c$ will become arrange $(a, b, c)$. If you want to sort in non-alphabetic order you can provide a factor variable and that information will be retained.

## Hidden values

htmlTable Allows for some values within rgroup, cgroup, etc. to be specified as "". The following parameters allow for specific values to be treated as if they were a string of length zero in the htmlTable function.

- hidden_rgroup
- hidden_tspanner


## Simple tibble output

The tibble discourages the use of row names. There is therefore a convenience option for tidyHtmlTable where you can use the function just as you would with htmlTable() where rnames is populated with the rnames argument provided using tidyselect syntax (defaults to the "names" column if present int the input data).

## Additional dependencies

In order to run this function you also must have dplyr, tidyr, tidyselect and purrr packages installed. These have been removed due to the additional 20 Mb that these dependencies added (issue \#47). Note: if you use tidyverse it will already have all of these and you do not need to worry.

## See Also

```
htmlTable()
```


## Examples

```
library(tibble)
library(dplyr)
library(tidyr)
mtcars %>%
```

```
    rownames_to_column() %>%
    select(rowname, cyl, gear, hp, mpg, qsec) %>%
    pivot_longer(names_to = "per_metric",
            cols = c(hp, mpg, qsec)) %>%
group_by(cyl, gear, per_metric) %>%
summarise(
    Mean = round(mean(value), 1),
    SD = round(sd(value), 1),
    Min = round(min(value), 1),
    Max = round(max(value), 1)
) %>%
pivot_longer(names_to = "summary_stat",
                    cols = c(Mean, SD, Min, Max)) %>%
ungroup() %>%
mutate(
    gear = paste(gear, "Gears"),
    cyl = paste(cyl, "Cylinders")
) %>%
addHtmlTableStyle(align = "r") %>%
tidyHtmlTable(
    header = gear,
    cgroup = cyl,
    rnames = summary_stat,
    rgroup = per_metric,
    skip_removal_warning = TRUE)
```

    txtInt SI or English formatting of an integer
    
## Description

English uses ',' between every 3 numbers while the SI format recommends a ', if $x>10^{\wedge} 4$. The scientific form $10 \mathrm{e}+$ ? is furthermore avoided.

## Usage

txtInt (x, language $=$ "en", html $=$ TRUE, ...)

## Arguments

x
language The ISO-639-1 two-letter code for the language of interest. Currently only English is distinguished from the ISO format using a', as the separator.
html If the format is used in HTML context then the space should be a non-breaking space, \ 
... Passed to base: : format()

## Value

string

## See Also

Other text formatters: txtMergeLines(), txtPval(), txtRound()

## Examples

txtInt(123)
txtInt(1234)
txtInt(12345)
txtInt(123456)
txtMergeLines A merges lines while preserving the line break for HTML/LaTeX

## Description

This function helps you to do a table header with multiple lines in both HTML and in LaTeX. In HTML this isn't that tricky, you just use the <br /> command but in LaTeX I often find myself writing vbox/hbox stuff and therefore I've created this simple helper function

## Usage

txtMergeLines(..., html = 5)

## Arguments

> ... The lines that you want to be joined
> html If HTML compatible output should be used. If FALSE it outputs LaTeX formatting. Note if you set this to 5 then the HTML5 version of $b r$ will be used: <br> otherwise it uses the <br /> that is compatible with the XHTML-formatting.

## Value

string

## See Also

Other text formatters: txtInt(), txtPval(), txtRound()

## Examples

```
txtMergeLines("hello", "world")
txtMergeLines("hello", "world", html=FALSE)
txtMergeLines("hello", "world", list("A list", "is OK"))
```

txtPval Formats the p-values

## Description

Gets formatted p-values. For instance you often want 0.1234 to be 0.12 while also having two values up until a limit, i.e. 0.01234 should be 0.012 while 0.001234 should be 0.001 . Furthermore you want to have $<0.001$ as it becomes ridiculous to report anything below that value.

## Usage

txtPval(pvalues, lim. 2dec $=10^{\wedge}-2$, lim.sig $=10^{\wedge}-4$, html $=$ TRUE, $\ldots$ )

## Arguments

| pvalues | The p-values |
| :--- | :--- |
| lim. 2dec | The limit for showing two decimals. E.g. the p-value may be 0.056 and we <br> may want to keep the two decimals in order to emphasize the proximity to the <br> all-mighty 0.05 p -value and set this to $10^{-} 2$. This allows that a value of 0.0056 <br> is rounded to 0.006 and this makes intuitive sense as the 0.0056 level as this is <br> well below the 0.05 value and thus not as interesting to know the exact proxim- <br> ity to 0.05. Disclaimer: The $0.05-l i m i t ~ i s ~ r e a l l y ~ s i l l y ~ a n d ~ d e b a t e d, ~ u n f o r t u n a t e l y ~$ |
| it remains a standard and this package tries to adapt to the current standards in |  |
| order to limit publication associated issues. |  |

## Value

vector

## See Also

Other text formatters: txtInt(), txtMergeLines(), txtRound()

## Examples

txtPval(c(0.10234,0.010234, 0.0010234, 0.000010234))

## Description

If you provide a string value in X the function will try to round this if a numeric text is present. If you want to skip certain rows/columns then use the excl.* arguments.

## Usage

```
txtRound(x, ...)
## Default S3 method:
txtRound(
    x,
    digits = 0,
    digits.nonzero = NA,
    txt.NA = "",
    dec = getOption("htmlTable.decimal_marker", default = "."),
    scientific = NULL,
    txtInt_args = getOption("htmlTable.round_int", default = NULL),
)
## S3 method for class 'data.frame'
txtRound(x, ...)
## S3 method for class 'table'
txtRound(x, ...)
## S3 method for class 'matrix'
txtRound(x, digits = 0, excl.cols = NULL, excl.rows = NULL, ...)
```


## Arguments

X
... Passed to next method
digits The number of digits to round each element to. If you provide a vector each element will apply to the corresponding columns.
digits.nonzero The number of digits to keep if the result is close to zero. Sometimes we have an entire table with large numbers only to have a few but interesting observation that are really interesting
txt.NA The string to exchange NA with
dec The decimal marker. If the text is in non-English decimal and string formatted you need to change this to the appropriate decimal indicator. The option for this is htmlTable.decimal_marker.

| scientific | If the value should be in scientific format. |
| :--- | :--- |
| txtInt_args | A list of arguments to pass to $t x t$ Int () if that is to be used for large values that <br> may require a thousands separator. The option for this is htmlTable.round_int. |
| excl.cols | Columns to exclude from the rounding procedure. This can be either a number <br> or regular expression. Skipped if $x$ is a vector. |
| excl.rows | Rows to exclude from the rounding procedure. This can be either a number or <br> regular expression. |

## Value

matrix/data.frame

## See Also

Other text formatters: txtInt()$, \operatorname{tx}$ MergeLines(), txtPval()

## Examples

```
mx <- matrix(c(1, 1.11, 1.25,
    2.50, 2.55, 2.45,
    3.2313, 3, pi),
    ncol = 3, byrow=TRUE)
txtRound(mx, 1)
```

    vector2string \(\quad\) Collapse vector to string
    
## Description

Merges all the values and outputs a string formatted as '1st element', '2nd element', ...

## Usage

```
vector2string(
        x,
        quotation_mark = "'",
        collapse = sprintf("%s, %s", quotation_mark, quotation_mark)
    )
```


## Arguments

| x | The vector to collapse |
| :--- | :--- |
| quotation_mark | The type of quote to use |
| collapse | The string that separates each element |

## Value

A string with ' , ' separation

## Examples

```
vector2string(1:4)
vector2string(c("a", "b'b", "c"))
vector2string(c("a", "b'b", "c"), quotation_mark = '"')
```


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