Huxtable functionality demo/test

David Hugh-Jones

2/03/2017

Basic usage

Creating a huxtable

```
ht_orig <- huxtable(a = c('Parsley', 'Sage', 'Rosemary', 'Thyme'), b = 10 ^ (2:5))
ht_orig <- set_all_borders(ht_orig, 1:nrow(ht_orig), 1:ncol(ht_orig), 1)
ht_orig
```

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Borders

```
ht <- ht_orig
ht <- set_all_borders(ht, 1:4, 1:2, 0)
top_border(ht) <- c(2, 0, 0, 1)
bottom_border(ht)[4,] <- 2
ht
```

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Cell alignment

```
ht <- ht_orig
align(ht)[,1] <- 'left'
ht
```

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Vertical alignment

```
ht <- ht_orig
row_height(ht) <- '50pt'
valign(ht)[,1] <- 'top'
valign(ht)[,2] <- 'bottom'
ht
```

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Column span

```
ht <- ht_orig
background_color(ht)[1,1] <- 'green'
colspan(ht)[1,1] <- 2
ht
```

Parsley	
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Row span

```
ht <- ht_orig
ht[1,1] <- 'A rather long block of text'
background_color(ht)[1,1] <- 'green'
rowspan(ht)[1,1] <- 2
ht
```

A rather long block of text	100.00
	1000.00
Rosemary	10000.00
Thyme	100000.00

Table position

```
ht <- ht_orig
position(ht) <- 'left'
ht
```

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Table width

```
ht <- ht_orig
width(ht) <- 1/3
ht
```

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Column width

```
ht <- ht_orig
col_width(ht) <- c(.8, .2)
ht
```

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Row height

```
ht <- ht_orig
height(ht) <- 0.2;
if (! is_latex) height(ht) <- '100px' # need a specific height for row heights to work in HTML
row_height(ht) <- c(.4, .2, .2, .2) * 0.2
ht
```

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Text color, bold, italic, font size

```
ht <- ht_orig
text_color(ht)[,2] <- 'red'
bold(ht)[1,] <- TRUE
italic(ht)[3,] <- TRUE
font_size(ht)[2,] <- 14
font(ht)[4,] <- if (is_latex) 'phv' else 'times'
ht
```

Parsley	**100.00**
Sage	1000.00
Rosemary	*10000.00*
Thyme	100000.00

Number formatting

```
ht <- ht_orig
ht[,2] <- ht[,2] + rnorm(4)
number_format(ht)[2,] <- 2
number_format(ht)[3,] <- '%011.4f'
number_format(ht)[4,] <- list(function(x) prettyNum(round(x, 3), big.mark = ','))

ht
```

Parsley	99.76
Sage	998.70
Rosemary	009999.8773
Thyme	100,000.2

Replace NAs

```
ht <- ht_orig
ht[2,] <- NA
ht
```

Parsley	100.00
Rosemary	10000.00
Thyme	100000.00

```
na_string(ht) <- '--'
ht
```

Parsley	100.00
–	–
Rosemary	10000.00
Thyme	100000.00

Pipe style with magrittr

```
if (require('magrittr')) {
ht <- ht_orig
ht %>%
      set_all_borders(1:4, 1:2, 0)            %>%
      set_top_border(1, 1:2, 1)               %>%
      set_bold(1, 1:2, TRUE)                  %>%
      set_background_color(1:4, 1:2, 'wheat') %>%
      set_number_format(1:4, 1:2, '%03.1d')   %>%
      set_align(1:4, 1, 'left')               %>%
      set_align(1:4, 2, 'right')
}
```

```
## Loading required package: magrittr
```

Parsley	**100**
Sage	1000
Rosemary	10000
Thyme	100000

Quick themes

```
ht <- ht_orig
ht <- rbind(c("Herb", "Amount"), ht)
theme_minimal(ht)
```

Herb	Amount
Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

```
theme_striped(ht, header_col = FALSE)
```

Herb	Amount
Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

```
theme_article(ht)
```

Herb	Amount
Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Converting other objects to huxtables

```
defaults <- function(ht) {
  bottom_border(ht)[1,] <- 1
  background_color(ht)[seq(1, nrow(ht), 2), ] <- grey(.9)
  ht
}
```

```
defaults(as_hux(letters[1:5]))
```

```
defaults(as_hux(matrix(letters[1:10], 2)))
```

a
b
c
d
e

a	c	e	g	i
b	d	f	h	j

```
data(mtcars)
defaults(as_hux(mtcars[1:10,]))
```

21.00	6.00	160.00	110.00	3.90	2.62	16.46	0.00	1.00
21.00	6.00	160.00	110.00	3.90	2.88	17.02	0.00	1.00
22.80	4.00	108.00	93.00	3.85	2.32	18.61	1.00	1.00
21.40	6.00	258.00	110.00	3.08	3.21	19.44	1.00	0.00
18.70	8.00	360.00	175.00	3.15	3.44	17.02	0.00	0.00
18.10	6.00	225.00	105.00	2.76	3.46	20.22	1.00	0.00
14.30	8.00	360.00	245.00	3.21	3.57	15.84	0.00	0.00
24.40	4.00	146.70	62.00	3.69	3.19	20.00	1.00	0.00
22.80	4.00	140.80	95.00	3.92	3.15	22.90	1.00	0.00
19.20	6.00	167.60	123.00	3.92	3.44	18.30	1.00	0.00

```
car_table <- xtabs(~ cyl + gear, mtcars)
defaults(as_hux(car_table))
```

1.00	8.00	2.00
2.00	4.00	1.00
12.00	0.00	2.00

```
car_ft <- ftable(cyl ~ gear + vs, mtcars)
defaults(as_hux(car_ft))
```

		cyl	4.00	6.00	8.00
gear	vs				
3.00	0.00		0.00	0.00	12.00
	1.00		1.00	2.00	0.00
4.00	0.00		0.00	2.00	0.00
	1.00		8.00	2.00	0.00
5.00	0.00		1.00	1.00	2.00
	1.00		1.00	0.00	0.00

Joining, subsetting and manipulating huxtables

Subsets

```
ht <- ht_orig
bottom_border(ht)[c(1,4),] <- 1
background_color(ht)[1,] <- 'wheat'

ht[1:3,1]
```

Parsley
Sage
Rosemary

Joining

```
ht2 <- ht_orig
italic(ht2) <- TRUE
rbind(ht, ht2)
```

```
cbind(ht, ht2)
```

```
rbind(c("Oregano", 300), ht)
```

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00
Parsley	*100.00*
Sage	*1000.00*
Rosemary	*10000.00*
Thyme	*100000.00*

Parsley	100.00	*Parsley*	*100.00*
Sage	1000.00	*Sage*	*1000.00*
Rosemary	10000.00	*Rosemary*	*10000.00*
Thyme	100000.00	*Thyme*	*100000.00*

Oregano	300.00
Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Transpose

```
colspan(ht)[1, 1] <- 2
ht
```

Parsley	
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

```
t(ht)
```

Parsley	Sage	Rosemary	Thyme
	1000.00	10000.00	100000.00

Advanced features

Printing on screen

```
ht <- ht_orig
# Basic data:
print(ht)
```

```
##          a     b
## 1  Parsley 1e+02
## 2     Sage 1e+03
## 3 Rosemary 1e+04
## 4    Thyme 1e+05
```

```
# Pretty print:
print_screen(ht)
```

```
##  ------------------------
##  | Parsley  | 100.00    |
##  ------------------------
##  | Sage     | 1000.00   |
##  ------------------------
##  | Rosemary | 10000.00  |
##  ------------------------
##  | Thyme    | 100000.00 |
##  ------------------------
```

```
# Markdown:
print_md(ht)
```

```
## ------------------------------------------------------------------------------
## Parsley                                 100.00
## --------------------------------------- ---------------------------------------
## Sage                                    1000.00
##
## Rosemary                                10000.00
##
```

```
## Thyme                                    100000.00
##
## ------------------------------------------------------------------------
```

Padding

```
ht <- ht_orig
ht <- set_all_padding(ht, 1:4, 1:2, 0)
left_padding(ht)[,1] <- 40
right_padding(ht)[,2] <- 40
top_padding(ht) <- 20
bottom_padding(ht) <- 20
ht
```

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Cell rotation

```
ht <- ht_orig
height(ht) <- 0.2 # necessary
if (! is_latex) height(ht) <- '300px'
col_width(ht) <- c(.25, .75)
rotation(ht)[,1] <- 90
ht
```

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Border width

```
ht <- ht_orig
bottom_border(ht)[1,] <- 3
ht
```

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Caption

```
ht <- ht_orig
caption(ht) <- 'A simple table'
ht
```

Table 1: A simple table

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Caption below

```
ht <- ht_orig
caption(ht) <- 'A simple table'
caption_pos(ht) <- 'bottom'
ht
```

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Table 2: A simple table

Label

```
ht <- ht_orig
caption(ht) <- 'Captions are required for labels to work'
label(ht) <- 'tab:mytable'
ht
```

```
knitr::asis_output('If this is LaTeX we can see a reference to table \\ref{tab:mytable}.')
```

If this is LaTeX we can see a reference to table 3.

Table 3: Captions are required for labels to work

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

NB: references may not work if knitting PDFs in Rstudio.

Testing corner cases

Heights and padding

```
ht <- ht_orig

row_height(ht) <- c(.1, .05, .05, .05)
# top_padding(ht) <- 10
# bottom_padding(ht) <- 20
ht
```

Parsley	100.00
Sage	1000.00
Rosemary	10000.00
Thyme	100000.00

Row and column span

```
ht <- ht_orig
ht[1,1] <- 'A rather long block of text'
background_color(ht)[1,1] <- 'green'
rowspan(ht)[1,1] <- 2
colspan(ht)[1,1] <- 2
ht
```

A rather long block of text	
Rosemary	10000.00
Thyme	100000.00

Huge table of cross-validation

```
set_rowcol <- function(ht, fun, rc, value) {
  ht[1, rc] <- ht[rc, 1] <- paste(deparse(substitute(fun)), '=', value)
  ht <- fun(ht, rc, 1:ncol(ht), value)
  ht <- fun(ht, 1:nrow(ht), rc, value)
  ht
}

N <- 22
megahux <- as_hux(matrix("", N, N))
megahux[1:5,] <- 'Some text'
megahux[6:10,] <- rnorm(5*N)
megahux[11:15,] <- 'Some more text'
megahux[18:22, ] <- rnorm(5*N)
megahux[16:17, ] <- substring(stringi::stri_rand_lipsum(2*N), 0, 50)
# for (col in c(2,7,12,17,22)) test_hux[,col] <- sample(test_hux[,col])


megahux <- megahux                                  %>%
      set_rowcol(set_valign, 1, 'top')              %>%
      set_rowcol(set_align, 2, 'left')              %>%
      set_rowcol(set_top_border, 3, 1)              %>%
      set_rowcol(set_bottom_border, 4, 2)           %>%
      set_rowcol(set_left_border, 5, 1)             %>%
      set_rowcol(set_right_border, 6, 1)            %>%
      set_rowcol(set_background_color, 9, 'wheat')  %>%
      set_rowcol(set_text_color, 10, 'red')         %>%
      set_rowcol(set_top_padding, 12, 20)           %>%
      set_rowcol(set_bottom_padding, 13, 20)        %>%
      set_rowcol(set_left_padding, 14, 20)          %>%
      set_rowcol(set_right_padding, 15, 20)         %>%
      set_rowcol(set_escape_contents, 16, FALSE)    %>%
      set_rowcol(set_na_string, 17, 'N.a.')         %>%
      set_rowcol(set_bold, 18, TRUE)                %>%
      set_rowcol(set_italic, 19, TRUE)              %>%
      set_rowcol(set_font_size, 20, 20)             %>%
      set_rowcol(set_number_format, 21, '%9.6f')    %>%
      set_rowcol(set_font, 22, 'times')

colspan(megahux)[11, 4] <- 6
rowspan(megahux)[4, 11] <- 6
megahux[11,4] <- stringi::stri_rand_lipsum(1)
megahux[4, 11] <- stringi::stri_rand_lipsum(1)
megahux[,16] <- megahux[16,] <- '<b>Non escaped HTML</b>'
megahux[,17] <- megahux[17,] <- sample(c(1:10, rep(NA, 12)))

megahux
```

set_valign = top	set_align = left	set_top_border =
set_align = left	Some text	Some text
set_top_border = 1	Some text	Some text
set_bottom_border = 2	Some text	Some text
set_left_border = 1	Some text	Some text
set_right_border = 1	-1.31	-0.45
-0.54	0.48	0.00
1.61	1.41	-1.06
set_background_color = wheat	0.15	-1.12
set_text_color = red	-0.42	-0.26
Some more text	Some more text	Some more text
set_top_padding = 20	Some more text	Some more text
set_bottom_padding = 20	Some more text	Some more text
set_left_padding = 20	Some more text	Some more text
set_right_padding = 20	Some more text	Some more text
Non escaped HTML	Non escaped HTML	Non escaped H
9.00	N.a.	7.00
set_bold = TRUE	**-0.85**	**0.30**