Working with table environments in texor

by Abhishek Ulayil

Abstract This is a small sample article to demonstrate usage of **texor** to convert table environments.

1 Introduction

Tables are commonly used in R Journal articles to display data in a tabular format. However, there are differences in the way tables are handled by LaTeX and HTML. LaTeX tables have more customization and are usually optimized for printing, whereas the web articles need tables optimized for varying sizes of media. Pandoc converts most of the tables somewhat easily, but is unable to do well with table customization packages and complex tables. The **texor** packages uses the pandoc extensions `simple_tables` and `pipe_tables` to tackle these difficult cases.

2 Generic tables

Normal LaTeX tables will be converted just fine, even if they include a some math and other elements. However, note that the conversion will be done to traditional or pandoc-style markdown rather than R Markdown with the `knitr::kable(..)` function. Also any graphic commands or specific font characters will not be supported.

Graphics Format	LaTeX	Markdown	R Markdown	HTML
PNG	Yes	Yes	Yes	Yes
JPG	Yes	Yes	Yes	Yes
PDF	Yes	No	No	No
SVG	No	Yes	Yes	Yes
Tikz	Yes	No	Yes	No
Algorithm	Yes	No	No	No

Table 1: Image format support in various markup/typesetting languages.

3 Multicolumn and Multirow tables

EXAMPLE	X		Y	
	1	2	1	2
EX1	X11	X12	Y11	Y12
EX2	X21	X22	Y21	Y22
EX3	X31	X32	Y31	Y32
	X311	X322	Y311	Y322
EX4	X41	X42	Y41	Y42
	X411	X422	Y411	Y422
EX5	X51	X52	Y51	Y52

Table 2: An example table using `multicolumn` and `multirow`

Table 2 illustrates a table that uses the `multicolumn` and `multirow` command, which the **texor** package can handle through subroutines and pre-processing steps to transform the LaTeX code.

Also note that the stream editor is used to rename `table*` environment to `table` environment because the HTML format is single column, so the asterisk indicating that the table should be drawn over the full width of the page is redundant in this case.

4 Complex tables

A complex table with various other elements like figures, math, code and so on, are also supported by texor.

Inline Format	LaTeX Support	Web Support	Rendering
Text	Yes	Yes	*Hello*
Image	Yes	Yes	

CodeBlock	Yes	Yes	`x <- 1:100`
			`y <- dbinom(x,100,prob = 0.5)`
			`plot(x,y)`

Math	Yes	Yes	$e = mc^2$
Link	Yes	Yes	Google
Nested Table	Yes	No	NaN

Table 3: Image format support in various markup/typesetting languages

5 Wide tables

As for the inclusion of wide tables, they are represented as multiple tables with the first table housing the caption at the top. The numbering and references will be the same as LaTeX.

Here is a reference to Table 4 and Table 5.

6 Long Tables

Pandoc supports long tables from **longtable** CTAN package as well, here is an example as table 6.

Table 6: Table of Car data from mtcars dataset

Manafacturer	Model and Make	MPG	Engine Cylinders	Engine Displacement (cu.in.)	Weight (1000 lbs)	Number of forward gears
Mazda	RX4	21.0	6	160.0	2.620	4
Mazda	RX4 Wag	21.0	6	160.0	2.875	4
Datsun	710	22.8	4	108.0	2.320	4
Hornet	4 Drive	21.4	6	258.0	3.215	3
Hornet	Sportabout	18.7	8	360.0	3.440	3
Plymouth	Valiant	18.1	6	225.0	3.460	3
Duster	360	14.3	8	360.0	3.570	3
Merc	240D	24.4	4	146.7	3.190	4
Merc	230	22.8	4	140.8	3.150	4
Merc	280	19.2	6	167.6	3.440	4
Merc	280C	17.8	6	167.6	3.440	4
Merc	450SE	16.4	8	275.8	4.070	3
Merc	450SL	17.3	8	275.8	3.730	3
Merc	450SLC	15.2	8	275.8	3.780	3
Cadillac	Fleetwood	10.4	8	472.0	5.250	3
Lincoln	Continental	10.4	8	460.0	5.424	3
Chrysler	Imperial	14.7	8	440.0	5.345	3
Fiat	128	32.4	4	78.7	2.200	4
Honda	Civic	30.4	4	75.7	1.615	4

Toyota	Corolla	33.9	4	71.1	1.835	4
Toyota	Corona	21.5	4	120.1	2.465	3
Dodge	Challenger	15.5	8	318.0	3.520	3
AMC	Javelin	15.2	8	304.0	3.435	3
Cheverolet	Camaro Z28	13.3	8	350.0	3.840	3
Pontiac	Firebird	19.2	8	400.0	3.845	3
Fiat	X1-9	27.3	4	79.0	1.935	4
Porsche	914-2	26.0	4	120.3	2.140	5
Lotus	Europa	30.4	4	95.1	1.513	5
Ford	Pantera L	15.8	8	351.0	73.170	5
Ferrari	Dino	19.7	6	145.0	2.770	5
Maserati	Bora	15.0	8	301.0	3.570	5
Volvo	142E	21.4	4	121.0	2.780	4

7   Limitations

Limitations of the **texor** package in table handling includes:

- Usage of custom graphics/ characters like \circ will not render in HTML properly,(using it in inline math might work).
- Inclusion of code blocks might not always work and it is best avoided.
- Currently only \\ is supported as the row end command/marker.
- Some table commands/environments might not work as expected.
- Nested tabular environments will not work as expected.
- Colored backgrounds in tables are not supported yet.

8   Summary

In summary the **texor** package supports:

- Some common table environments.
- Long and Wide Tables.
- Some tables with `multicolumn` and `multirow` commands.
- Environments such as `figure/code` in tables.

9   Acknowledgements

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index	A	B	C	D	E	F	G	H
1	359.00	NaN	5796.00	0.00	16.14	1.00	NaN	0.00
2	25.73	0.00	1029.20	NaN	40.00	0.68	0.00	0.00
2.1	26.26	0.00	13.40	0.00	2.14	0.68	0.00	NaN
2.2	32.06	20.06	47.64	0.04	1.80	0.68	0.01	NaN
2.3	51.94	420.27	21.17	0.20	1.77	0.74	0.05	NaN
2.4	40.62	30.44	0.90	0.57	1.44	1.31	0.24	NaN
…	…	…	…	…	…	…	…	…

index	I	J	K	L	M	N	O
1	0.00	-1.73	0.00	0.00	0.00	0.00	NaN
2	0.21	-33.41	0.00	0.11	0.00	NaN	-197.85
2.1	0.24	-24.00	0.00	0.15	NaN	0.06	-70.46
2.2	0.6	-19.42	0.00	0.15	0.00	0.11	-16.48
2.3	0.75	-31.77	0.00	0.18	0.01	0.37	-0.82
2.4	0.26	-1.89	0.1	0.55	0.70	0.22	-6.55
…	…	…	…	…	…	…	…

Table 4: A dummy research data

Package	Commits	Version	Last Updated
texor	260	1.1.0	28-Jul-2023
rebib	76	0.2.4	29-Jul-2023
rjtools	314	1.0.11	30-Jul-2023
rmarkdown	3189	2.23	31-Jul-2023

Table 5: A dummy summary of a few CRAN packages