

Working with Code environments in texor

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

1 Introduction

Pandoc naturally converts verbatim environment easily, however the redefinition of other commands such as `example`, `example*`, `Sinput` etc to verbatim does not work well in pandoc.

Hence, the `texor` package uses a stream editor to search find and replace matching code environments to verbatim before pandoc touches it.

This way the the code is not lost in conversion, also a pandoc extension is used to add attributes to the markdown code using `fenced_code_attributes`

Code Environment types are well summarized in the table 1

Code Environment Type					
Example	<code>example</code>	<code>example*</code>			
S.series	<code>Sin</code>	<code>Sout</code>	<code>Sinput</code>	<code>Soutput</code>	<code>Scode</code>
Special Verbatim	<code>boxedverbatim</code>				

Table 1: Code Environment support in texor

2 Environments

Verbatim Series

While verbatim is naturally supported in pandoc, other extensions of verbatim environment like `boxedverbatim` from `moreverb` package (Fairbairns, Duggan, Schöpf, Eijkhout, 2011) falls back to normal verbatim.

1. verbatim :

```
print("Hello world")
```

2. boxedverbatim :

```
print("Hello world")
```

S series

S series code environment is defined in `Rjournal.sty` file. Most of these are extensions of verbatim environment and are represented as vanilla verbatim in HTML.

1. Sinput :

```
print("Hello world")
```

2. Soutput :

```
[1] "hello world"
```

3. Sin :

```
print("Hello world")
```

4. Sout :

```
[1] "hello world"
```

Example series

Example series of code environment is defined in Rjournal.sty file. Examples are extensions of verbatim environment and are represented as vanilla verbatim in HTML.

1. example :

```
print("Hello world")
```

2. example* :

```
print("Hello world")
```

3 Code in Figure Environments

A small example of this is visible in 1. This is a common practice in Rnews articles as it used to add a boxed border around the code which looks attractive. However, in web articles there isn't much advantage to it.

```
code_in_figure <- function() {
  if (pandoc_version >= 3) {
    print("Code in Figure Supported")
  }
  else {
    print("code in Figure not supported")
  }
}
```

Figure 1: Example Code inside Figure environment

Pandoc v3 or greater (Krewinkel, Lucero, 2023) has a Figure object which allows non-image figures to be treated like one. This is why **texor** package requires atleast version 3 of pandoc.

4 Code in Table Environments

We can use code environments in a table using minipage environments. This is not a common practice among LaTeX article authors, but a few articles had such complex structures. So, as a example to demonstrate pandoc and **texor** package's capabilities, I have included a few of them.

Table 2 is an example of code environments within a table.

Language	Function Definition Syntax
R	<pre>fun <- function(){ print("A function in R") return(0) }</pre>
Python	<pre>def fun(): print("A function in Python")</pre>
Lua	<pre>function fun() print("A function in Lua") end</pre>

Table 2: Code in a table

A similar arrangement can be had for figures/plots besides code environment. Table 3 demonstrates a table with code and figure.

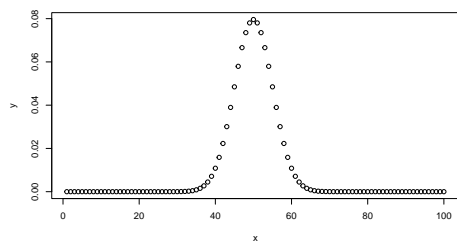
Code	Plot
<pre>x <- 1:100 y <- dbinom(x,100,prob = 0.5) plot(x,y)</pre>	

Table 3: Code and Plot side by side

5 Inline Code usage

Using inline code in LaTeX is possible using `\verb` command. It would be reproduced similarly, as a Inline code element.

`\verb|x <- 1:100|`

will be represented as `x <- 1:100` in Inline format.

6 Code chunks using Schunk

Code chunks within an Schunk environment to demonstrate Input/Output

Input :

```
print("Hello world")
```

Output :

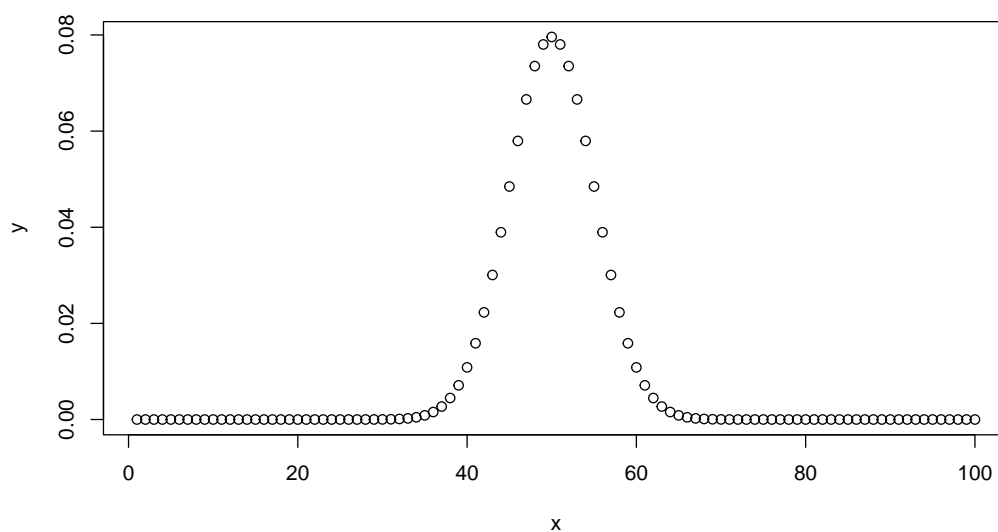
```
[1] "hello world"
```

Similar arrangement can be had for Plots as well using figure environment.

Input :

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

Output :



7 Including ‘R code chunks’

Including R code chunks in an article that is to be converted to R markdown can be a bit tricky as the `knitr` package will interpret and execute the R code chunks as actual code bits. A workaround for this issue has been described in this [posit support article](#). Below is an example with the workaround adapted from [Stephens \(2022\)](#).

```
`r '```{r}'  
plot(cars)  
`
```

8 Summary

In summary the `texor` package supports:

- Almost all code environments in RJournal.
- Code Highlight for R language.
- Inline Code.
- Code in different environments like tables/figures.

Bibliography

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R. Fairbairns, A. Duggan, R. Schöpf and V. Eijkhout The moreverb package documentation CTAN 2011 URL <https://mirror.niser.ac.in/ctan/macros/latex/contrib/moreverb/moreverb.pdf> [p1]

Nathan Stephens Including verbatim R code chunks inside R Markdown *Posit support forum*, 2022 URL <https://support.posit.co/hc/en-us/articles/360018181633-Including-verbatim-R-code-chunks-inside-R-Markdown> [p4]

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