R Markdown Template

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S1 Introduction

For large files, we can cache the file, and use `cache.lazy = T` to reuse the pre-computed results. To avoid overwriting the previously cached file, it is better to set the `cache= F`, when you want to use cachy.lazy to get the previously saved results. In this case, you do not need to cache the file again. You can also load the cached file, and check the environment to see whether the variables have already been saved.

If `cache = T`, knitr will skip the execution of this code chunk if it has been executed before and nothing in the code chunk has changed since then. This is particularly useful when you want to reuse the figure (time-consuming). **When you modify the code chunk (e.g., revise the code or the chunk options), the previous cache will be automatically invalidated, and knitr will cache the chunk again.**

```r
print("Hello R markdown!")
```

```
[1] "Hello R markdown!"
```

S2 Data and Methods

```cpp
#include <Rcpp.h>
using namespace Rcpp;
// [[Rcpp::export]]
NumericVector timesTwo(NumericVector x) {
  return x * 2;
}
```

```r
timesTwo(10) # test function in R chunk or console
```

S3 Results

We can also save the plot as png files, by setting the dev = "png", and change the quality of the picture by setting dpi = 300.

Alternatively, you can convert all the saved pdfs into pngs with imagemagick in terminal:

convert -density 150 *.pdf -quality 100 -set filename:basename "%[basename]" "%[filename:basename].png"

```stan
data{
int N; // number of observations
int H; // number of observed head
}
parameters{
real<lower=0, upper=1> p; // parameter for binomial distribution
}
model{
// you can also specify the prior here.
// If you leave it empty, it will use a flat or uniform prior
p ~ uniform(0, 1);
H ~ binomial(N, p); // likelihood func
}
```

S3.1 Cross-reference of figures, tables and equations

See Figure S1.

We can also co-refer a plot in Figure S2. Pls avoid using underscore (_) or white space in the co-reference labels. Likewise, you can also use `\@ref(tab/eq:)` to refer to the specific table or equation. See Figure S5.
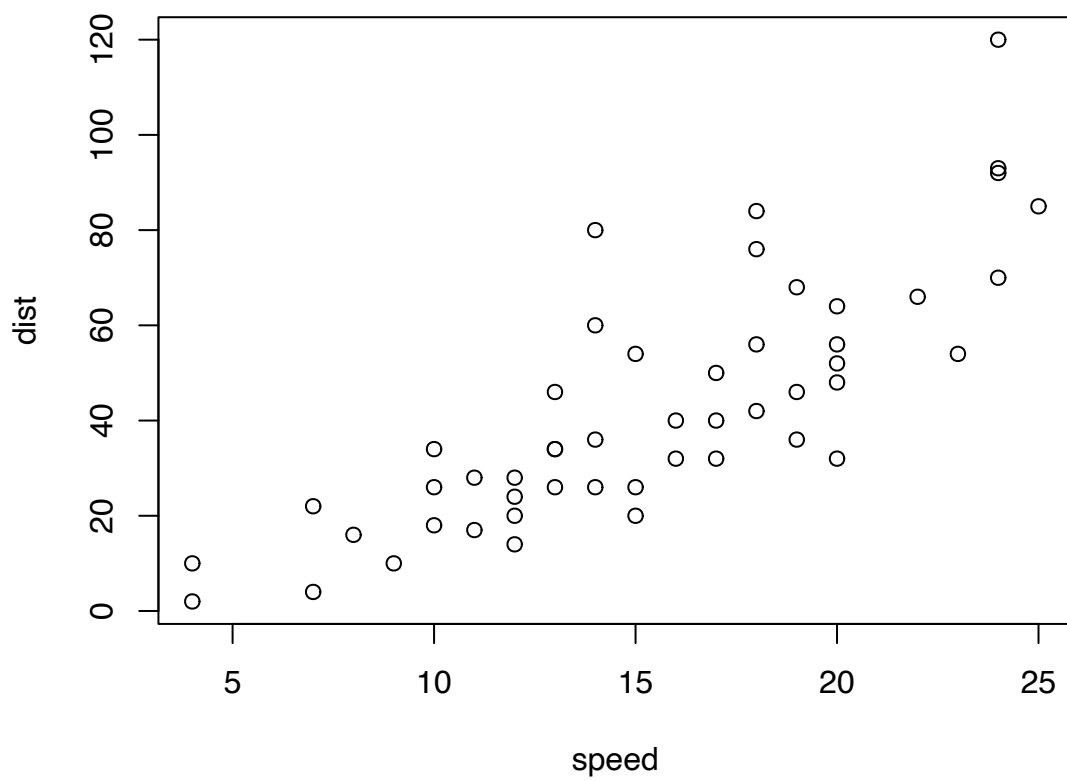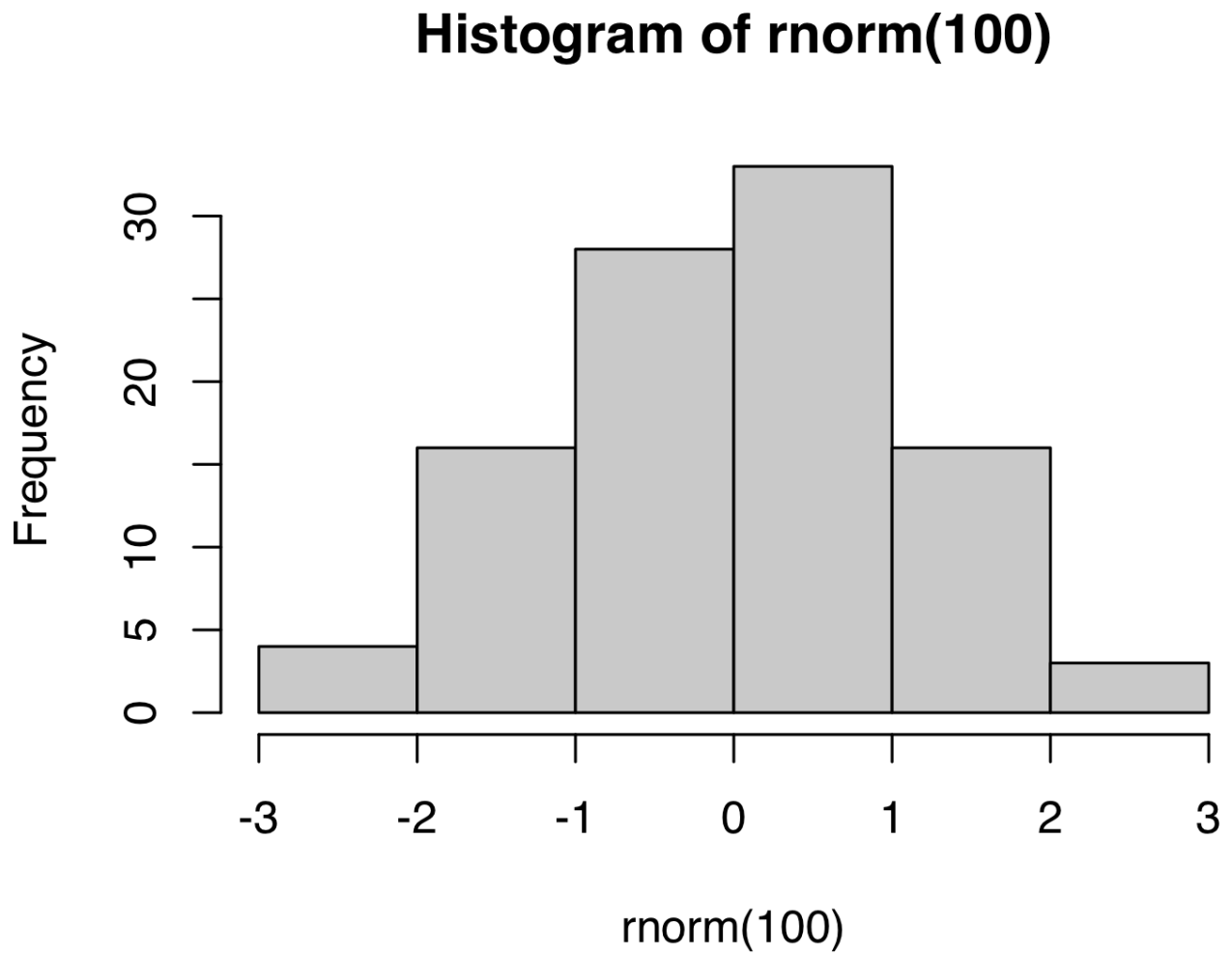
Figure S1: The cars data.

Figure S2: Histogram plot

Histogram of rnorm(100)

Figure S3: Histogram plot from R Core Team (2020)
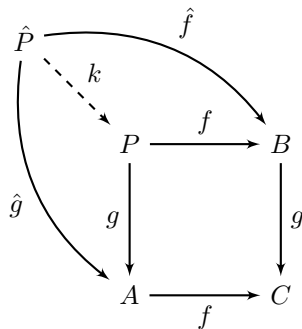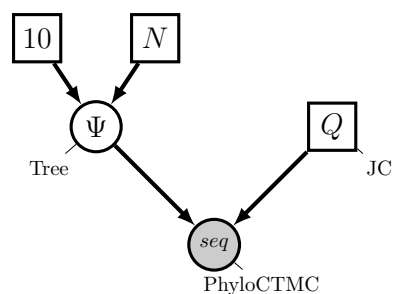
S4 Discussion

Figure S4: Tikz graph example

S5 Conclusions

Note: it seems that tikz does not support both fig.cap and fig.scap at the same time. It may cause fig.cap cannot recognize the latex code.


```
psi ~ dnUniformTopologyBranchLength(names, dnExponential(10))

Q_morpho <- fnJC(2)

phyMorpho ~ dnPhyloCTMC( tree=phylogeny,
siteRates=rates_morpho, Q=Q_morpho,
type="Standard", coding="variable" )

phyMorpho.clamp( data )
```

Figure S5: A example graphs of CTMC model (fig.size cannot be changed via fig.width or fig.height)

We can also add the cross-reference inside the figure cation via `\\ref{fig:}`.
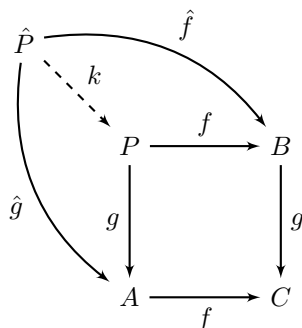

Figure S6: A copy of CTMC model in Figure S2 or Figure S2 (reuse by its labels; doesn't work for read_utf8)

References

R Core Team (2020). *R: A Language and Environment for Statistical Computing.* https://www.R-project.org/. R Foundation for Statistical Computing.