

2022-02-22

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Chapter 1

R

1.1

1.1.1

- ubuntu R

<https://cran.r-project.org/bin/linux/ubuntu/README.html>

```
# 16.04 xenial ubuntu
deb https://cloud.r-project.org/bin/linux/ubuntu xenial-cran35/
#
sudo apt-key adv --keyserver keyserver.ubuntu.com --recv-keys E298A3A825C0D65DFD57CBB6517166
sudo apt-get update
sudo apt-get install r-base r-base-dev
```

- CentOS R

```
yum install epel-release
yum install R-core R-core-devel
```

- R , minor (x.y.z y).

.

1.1.2

- cran bioconductor

.Rprofile :

```
# cran mirror
options(repos = c(CRAN = "https://mirrors.tuna.tsinghua.edu.cn/CRAN/"))
```

```
# bioconductor mirror
options(BioC_mirror = "http://mirrors.ustc.edu.cn/bioc/")
```

1.1.3

- centos 7 hdf5r

- cenos 7 stringr

```
stringr stringi, stringi ICU4C >= 55, centos 7 icu 50.2 stringi
github ICU
```

```
wget https://github.com/gagolews/stringi/archive/v1.4.6.tar.gz -O stringi-1.4.6.t
install.packages("stringi-1.4.6.tar.gz")
install.packages("stringr")
```

- install_github() Error in file.copy(file.path(R.home("doc"), "html", "R.css"), outman), centos

```
R file.path(R.home("doc"), "html", "R.css"),
```

```
if (!file.exists(x)) {
  dir.create(x, recursive=TRUE)
  file.copy(system.file("html/R.css", package="stats"), x)
}
```

- ubuntu 20.04 Cairo, lib-backend.c:34:10: fatal error: X11/Intrinsic.h: No such file or directory

```
libcairo2-dev, libxt-dev
```

1.2 R

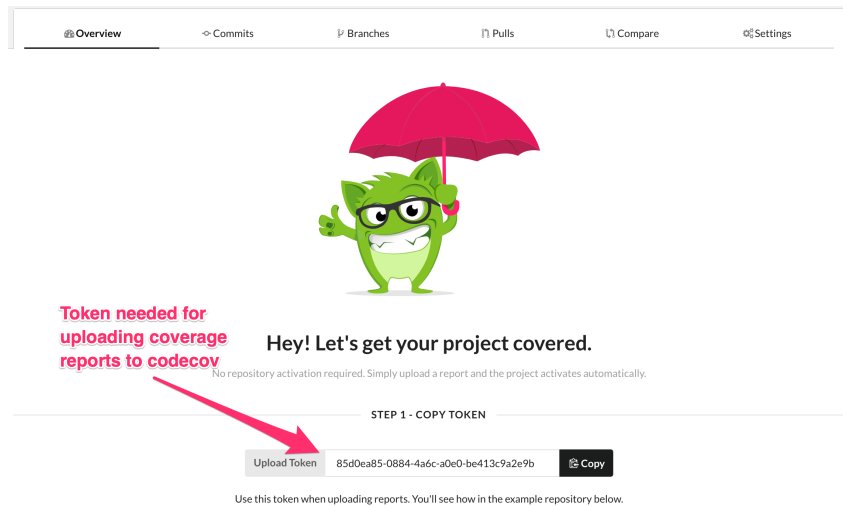
1.2.0.0.1 1. github code coverage

1. usethis::use_coverage(), test coverage

2. codecov.yml markdown README badge

```
[![Codecov test coverage](https://codecov.io/gh/yiluheihei/r-latexmath/branch/master)]
```

3. github codecov.io, codecov token ()



```
4. covr::codecov test coverage codecov
```

```
covr::codecov(token = "YOUR_TOKEN_GOES_HERE")
```

```
1.2.0.0.2 2. README.md      cran readme      man/figures/
pkgdown  cran  README.md      man/figures/  Rmd      knitr
knitr::opts_chunk(fig.path = "man/figures/")
```

```
1.2.0.0.3 3. unit test      save() saverDS()      warning
```

Added dependency on R >= 3.5.0 because serialized objects in serialize/load version 3 cannot be read in older versions of R

```
R 3.5.0      version 3,      version = 2
```

```
1.2.0.0.4 4. r-pkgs  data  check  warning (Lazyload: TRUE)
```

```
> "Variables with usage in documentation object '<data-name>' but not in
code: '<data-name>'
```

```
name  NA "<data-name>":
```

```
#' title
#'
#' Description
#'
#' @name <data-name>
NA
```

```
1.2.0.0.5 5.      \eqn{latex}{ascii}( ), \deqn{latex}{ascii}( ).
latex  LATEX , ascii      ,  $\frac{\lambda^x e^{-\lambda}}{x!}$ , :
```

```
\eqn{\frac{\lambda^x e^{-\lambda}}{x!}}{\%
\lambda^x \exp(-\lambda)/x!}

\eqn{latexascii}, latex ascii .
```

1.2.0.0.6 6.

1. `::, <pkg>::<data>;`
2. `:: <mydata> <- <pkg>::<data>;`
3. `, <pkg> NAMESPACE @export(<data>), roxygen2 @export @importFrom`
`<pkg> <data> (r-pkgs :`
Never @export a data set.

1.2.0.0.7 7. Mac Big Sur R

1. `xcode`
2. `gfortran https://github.com/fxcoudert/gfortran-for-macOS`
3. `~/ .R/Makevars`

```
# ~/.R/Makevars,
mv ~/.R/Makevars ~/.R/Makevars.bak

vi ~/.R/Makevars #
FLIBS=-L/usr/local/gfortran/lib/gcc/x86_64-apple-darwin19/10.2.0 -L/usr/local/gfortran
CXX1X=/usr/local/gfortran/bin/g++
CXX98=/usr/local/gfortran/bin/g++
CXX11=/usr/local/gfortran/bin/g++
CXX14=/usr/local/gfortran/bin/g++
CXX17=/usr/local/gfortran/bin/g++

LLVM_LOC = /usr/local/opt/llvm
CC=/usr/local/gfortran/bin/gcc -fopenmp
CXX=/usr/local/gfortran/bin/g++ -fopenmp
CFLAGS=-g -O3 -Wall -pedantic -std=gnu99 -mtune=native -pipe
CXXFLAGS=-g -O3 -Wall -pedantic -std=c++11 -mtune=native -pipe
LDFLAGS=-L/usr/local/opt/gettext/lib -L$(LLVM_LOC)/lib -Wl,-rpath,$(LLVM_LOC)/lib
CPPFLAGS=-I/usr/local/opt/gettext/include -I$(LLVM_LOC)/include -I/Library/Developer/
```

1.3 Rstudio

- `rstudio git add commit`
`commit ctrl/command + A ,`
- `ubuntu rstudio`
`rstudio QT5 fctix (fctix) rstuido QT`

```
# 1. qt fctix rstudio
sudo ln -s /usr/lib/$(dpkg-architecture -qDEB_BUILD_MULTIARCH)/qt5/plugins/platforminputcont
Rstudio
```

1.3.1 snippet

```
snippet header_script
```

```
#####
## Description:
## Author:
## Create Time: Tue Feb 22 13:21:04 2022
## Updated Time:
#####
```

```
,
```

```
snippet header_section
```

```
#####
#####
```

1.3.2 Rstudio

1.3.2.1 Navigating code ()

1.3.2.1.1 project / ()

- ctrl + ., , Go to File/Function
- F2
- ctrl,

1.3.2.1.2

- Alt+Shift+G (Mac: Option+Shift+Cmd+G).
- (source editor) .

1.3.2.1.3 Ctrl+F9/Ctrl+F10 (Mac: Cmd+F9/Cmd+F10)

```
:
```

- source
-
-

1.3.2.2 Code folding ()

```
: {} ( ); Rmarkdown (code chunks) , (code sec-
tion); - = # ( # )
```

```
# Section One -----

# Section Two =====

### Section Three #####

• , Alt+L
• , Shit+Alt+L
• , Alt+O
• , Shit+Alt+O
• , Ctrl+Shit+R (Mac: Cmd+Shift+R)
• , Shit+Alt+J
```

1.4 R

- `1:seq_along(y)` `1:length(y)`
`1:seq_along(y)` `length(y) = 0` `seq_along(y)` `integer(0)` `1:seq_along(y)`
`1:length(y)` `1:0` R for Data Science (Grolemund and Wickham, 2019)

You might not have seen `seq_along()` before. It's a safe version of the familiar `1:length(1)`, with an important difference: if you have a zero-length vector, `seq_along()` does the right thing

```
y <- vector("double", 0)
#
seq_along(y)
## integer(0)
sapply(1:seq_along(y), function(x) x + 1)
## Error in 1:seq_along(y): argument of length 0

#
1:length(y)
## [1] 1 0
sapply(1:length(y), function(x) x + 1)
## [1] 2 1
```

- `~/.Rprofile` `.Rprofile` `github fork` `~/.Rprofile`
`# ~/.Renviron` `site profile` `R_PROFILE=~/.Rprofile.site` `.Rprofile` `~/Rprofile.site`
- Alfred `rstudio` project
`Preferences > Features > Default Results > Advanced` `.Rproj`
- `rlang` `C:\R-3.6.0\library\00LOCK-rlang\00new\rlang\libs\x64\rlang.dll`
`C:\R-3.6.0\library\rlang\libs\x64\rlang.dll` `Permission`
`denied`

R c++/c/Fortran rlang R

- :C stack usage xxxx is too close to the limit

```
foo <- function(...) {
  foo(...)
}
```

- data.frame list

```
      (      ) do.call()      c(list(arg1=value1, arg2=value2),
arg3=value3),      data.frame (value3) data.frame      , data.frame      data.frame
      list(df),      c(list(arg1=value1, arg2=value2),
arg3=list(value3))
```

- switch NA,

```
switch(
  var,
  var1 = ...,
  var2 = ...,
  `NA` = ...
)
```

1.5 tidyverse

- data.frame (transpose)

tidyverse tibble, R data.frame tibble t() tidyverse

t()

```
#
df <- data.frame(a = 1:3, b = 4:6)
row.names(df) <- paste0("r", 1:3)

# as.data.frame(),
t(df) %>% as.data.frame()
```

```
##   r1 r2 r3
## a  1  2  3
## b  4  5  6
```

```
# as_tibble,
t(df) %>% tibble::as_tibble()
```

```
## # A tibble: 2 x 3
##   r1    r2    r3
```

```
##   <int> <int> <int>
## 1     1     2     3
## 2     4     5     6

#   `rowname = NA` ,   `*`   tibble
t(df) %>% tibble::as_tibble(rownames = NA)

## # A tibble: 2 x 3
##   r1    r2    r3
## * <int> <int> <int>
## 1     1     2     3
## 2     4     5     6

tidyr

#   , column_to_rownames   data.frame
tibble::rownames_to_column(df) %>%
  tidyr::pivot_longer(-rowname) %>%
  tidyr::pivot_wider(names_from = "rowname", values_from = "value") %>%
  tibble::column_to_rownames("name")

##   r1 r2 r3
## a  1  2  3
## b  4  5  6

purrr::transpose

#   transpose
purrr::transpose(df) %>%
  purrr::map(unlist) %>%
  dplyr::bind_cols()

## New names:
## * `` -> ...1
## * `` -> ...2
## * `` -> ...3

## # A tibble: 2 x 3
##   ...1 ...2 ...3
##   <int> <int> <int>
## 1     1     2     3
## 2     4     5     6
```

1.6

1.6.1

- `par("pin"), par("usr")`

```
par("pin")      (width * height) par("usr")      c(xmin, xmax,
ymin, ymax)
```

- - `image(1, 1, as.matrix(1), col = "#E64B35")`
 - `scales::show_col("#E64B35")`

1.6.2 ggplot

- individual geom collective geom? geom individual
 geom geom_point geom collective geom, geom_bar bar.

- `ggplot aes(group)`

-

- `label`

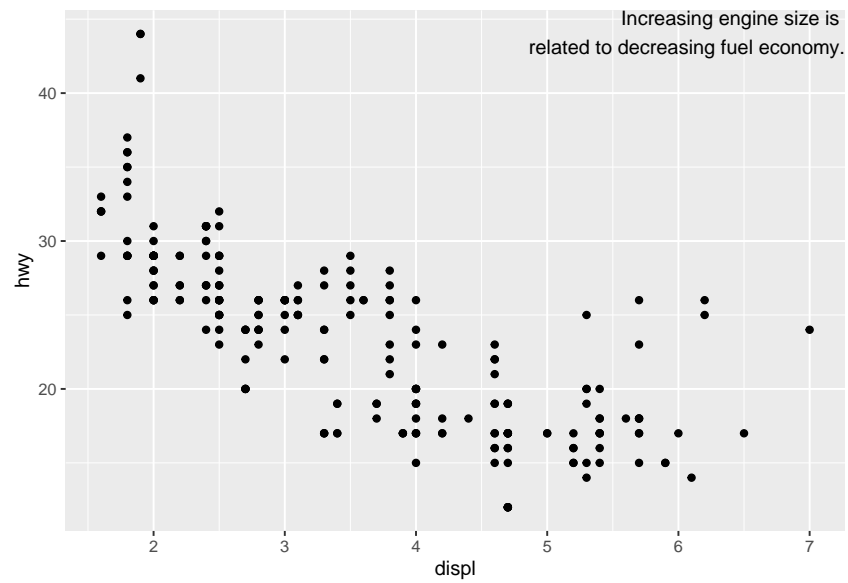
-

-

Inf -Inf

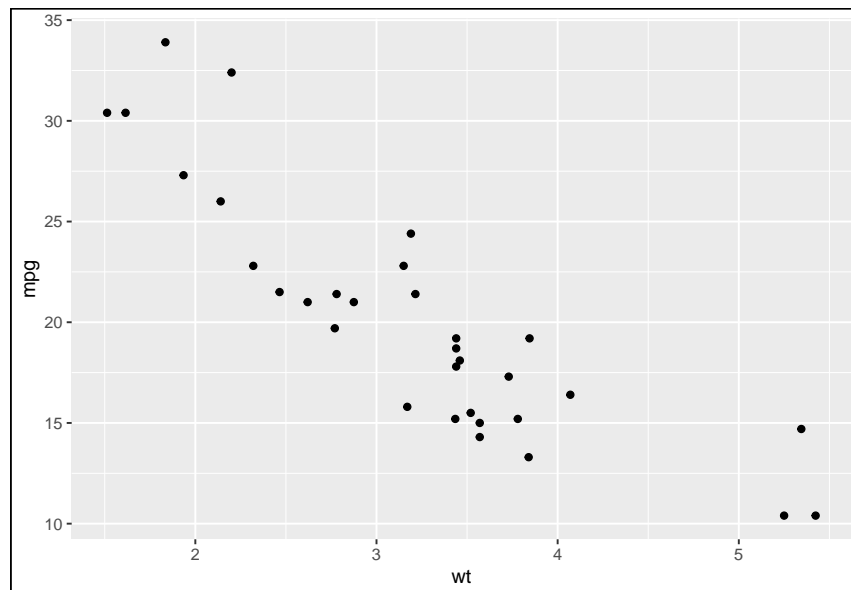
```
# https://r4ds.had.co.nz/graphics-for-communication.html
library(ggplot2)
label <- tibble::tibble(
  displ = Inf,
  hwy = Inf,
  label = "Increasing engine size is \nrelated to decreasing fuel economy."
)

ggplot(mpg, aes(displ, hwy)) +
  geom_point() +
  geom_text(aes(label = label), data = label, vjust = "top", hjust = "right")
```



•

```
theme(plot.background = element_rect())
ggplot(mtcars, aes(wt, mpg)) +
  geom_point() +
  theme(plot.background = element_rect(color = "black"))
```

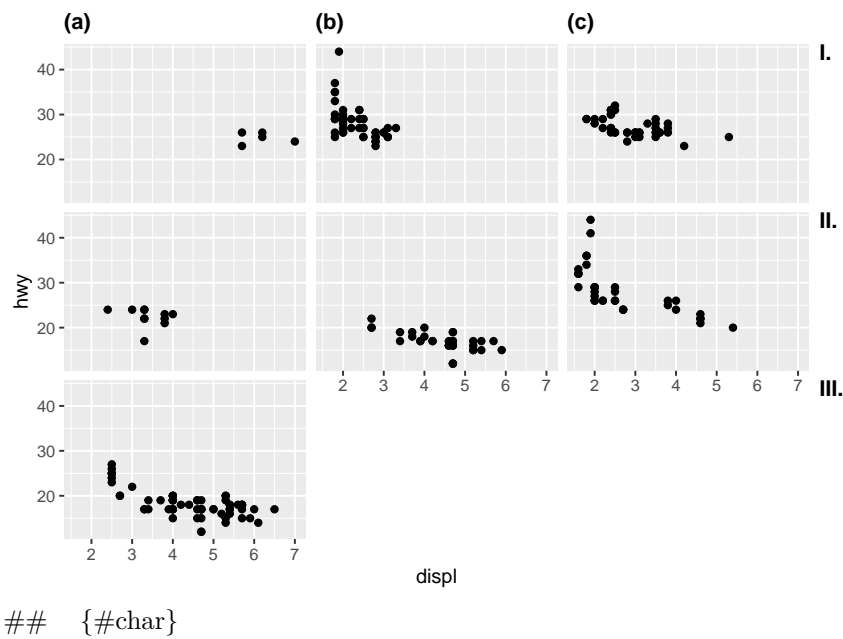
• `geom_contour()` levels


```
breaks( ) .
```

- ggplot

- ggplot + tag (A,B, C)

```
p <- ggplot(mpg, aes(displ, hwy)) +
  geom_point() +
  facet_wrap(vars(class))
egg::tag_facet_outside(p)
```



1.6.3

- [] [] [.] ., [.] \\. , [] - ^] \
- ?

```
# a
sub("a+", "", "aac")
## [1] "c"

# a
sub("a+?", "", "aac")
## [1] "ac"
```

- *()?(0 1)+()

```
# b
sub("ab+", "", "ababc")
## [1] "abc"

# ab
sub("(ab)+", "", "ababc")
## [1] "c"
```

1.7

1.7.1 Rmarkdown - Knitr

- Rmarkdown pdf


```
rticles, yaml rticles::ctex.

documentclass: ctexart
output:
  rticles::ctex
```
- knitr pre


```
collapse = TRUE
```
- github markdown


```
github_document github markdown README.Rmd README.MD
```
- knitr


```
cache =TRUE cache.lazy = FALSE
```
- ```
figure.show asis figure.show='hold'
```
- Rmarkdown ( markdown )
 

```
markdown *` `*, <code> : <code> * */</code>
.
```

### 1.7.2 bookdown

- {-}
- <https://bookdown.org/yihui/bookdown/internationalization.html>

```
%60_bookdown.yml'

language:
 ui:
chapter_name: [" ", " "]
```

The `chapter_name` field can be either a character string to be prepended to chapter numbers in chapter titles (e.g., 'CHAPTER'), or an R function that takes the chapter number as the input and returns a string as the new chapter number (e.g., `!expr function(i) paste('Chapter', i)`). If it is a character vector of length 2, the chapter title prefix will be `paste0(chapter_name[1], i, chapter_name[2])`, where `i` is the chapter number.

- Error in `split_chapters(output, gitbook_page, number_sections, split_by, :Automatically generated filenames contain duplicated ones: -`

```
split_by {$ID}
, split_by none rmd .
```

**1.7.2.0.1 github action bookdown github page** <https://github.com/r-lib/actions/blob/v2-branch/examples/bookdown.yaml>. [r-lib/actions/setup-r-dependencies@v2](#) DESCRIPTION ; PDF TinyTex.

```
Workflow derived from https://github.com/r-lib/actions/tree/master/examples
Need help debugging build failures? Start at https://github.com/r-lib/actions#where-to-find-help
on:
 push:
 branches: [main, master]

name: bookdown

jobs:
 bookdown:
 runs-on: ubuntu-latest
 env:
 GITHUB_PAT: ${ secrets.GITHUB_TOKEN }
 steps:
 - uses: actions/checkout@v2

 - uses: r-lib/actions/setup-pandoc@v1

 - uses: r-lib/actions/setup-r@v1
 with:
 use-public-rspm: true

 - uses: r-lib/actions/setup-renv@v1

DESCRIPTION
```

```

https://github.com/r-lib/actions/tree/v2-branch/setup-r-dependencies
- uses: r-lib/actions/setup-r-dependencies@v2

- name: Cache bookdown results
 uses: actions/cache@v2
 with:
 path: _bookdown_files
 key: bookdown-${{ hashFiles('**/*Rmd') }}
 restore-keys: bookdown-

pdf TinyTeX
- name: Install TinyTeX
 uses: r-lib/actions/setup-tinytex@v1
 env:
 # install full prebuilt version
 TINYTEX_INSTALLER: TinyTeX

- name: Build site
 run: |
 Rscript -e 'bookdown::render_book("index.Rmd", quiet = TRUE)'
 Rscript -e "bookdown::render_book('index.Rmd', 'bookdown::pdf_book')"

- name: Deploy to GitHub pages
 uses: JamesIves/github-pages-deploy-action@4.1.4
 with:
 branch: gh-pages
 folder: _book

```

### 1.7.3 tinytex

- `pkgdown jss` ! LaTeX Error: File `ae.sty` not found. `ae`

```

tlmgr_search('ae.sty')
remote repository 2018 < 2019, texlive
tinytex::reinstall_tinytex()

tlmgr_search('ae.sty')
ae:
texmf-dist/tex/latex/ae/ae.sty

#
tlmgr_install('ae')

```

# Chapter 2

$$n \text{ } X_1, X_2, \dots, X_n \text{ } (n \text{ } ) \text{ } : \mu \text{ } \sigma^2$$

$$\overline{X} = \frac{1}{n} \sum_{i=1}^n X_i$$

$$E(\overline{X}) = \mu$$

$$Var(\overline{X}) = \frac{1}{n} \sigma^2$$

$$\overline{X} \text{ } \mu, \overline{X} \text{ } \mu$$

$$S_n^2 \text{ } \sigma^2:$$

$$S_n^2 = \frac{1}{n-1} \sum_{i=1}^n (X_i - \mu)^2$$

$$n-1 \text{ } n \text{ } , \text{ } :$$

$$E[(X_i - \mu)^2] = \sigma^2$$

$$E[\frac{1}{n} \sum_{i=1}^n (X_i - \mu)^2] = \sigma^2$$

$$\frac{1}{n} \sum_{i=1}^n (X_i - \bar{X})^2 = \frac{1}{n} \sum_{i=1}^n (X_i - \mu)^2 - (\mu - \bar{X})^2$$

$$\frac{1}{n} \sum_{i=1}^n (X_i - \bar{X})^2 = \frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X})^2 : \quad \text{degrees of freedom}$$

$$E\left[\frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X})^2\right] = E\left[\frac{1}{n} \sum_{i=1}^n (X_i - \mu)^2\right] = \sigma^2 = \sigma^2$$

**effect size**

$$p = 0.05 \quad \text{p-value}$$

$$d_{Cohen}$$

$H_0$  ,  $H_0$  ,  $H_0$ ,  $\alpha$  ; ,  $H_0$  ,  $H_0$   $\beta$   
 $\alpha$  ,  $\beta$  ,  $\alpha$  (level of a test),  $1 - \beta$  (power of a test).  
 .

## Chapter 3

# python

- linux    pip  
    ~/.pip/pip.conf  
    #  
    [global]  
    timeout = 300  
    index-url = https://pypi.tuna.tsinghua.edu.cn/simple  
    [install]  
    trusted-host = tsinghua.edu.cn





# Chapter 4

## 4.1

4.1.0.0.1 1. Ubuntu 20.04 qiime1 conda create -n qiime1  
python=2.7 qiime matplotlib=1.4.3 mock nose -c bioconda Pack-  
agesNotFoundError matplotlib=1.4.3

```
conda qiime1, conda create -n qiime1 python=2.7, pip mat-
plotlib python
```

```
1 matplotlib==1.4.3 "The following required packages can
not be built: * freetype", pip
sudo apt-get install libfreetype6-dev libxft-dev
pip install matplotlib==1.4.3
```

```
2 qiime biom-format>=2.1.4,<2.2.0, python 2.7
2.1.4
pip install biom-format==2.1.4
```

```
3 qiime
pip install qiime
```

```

print_qiime_config.py -t
```

```
pick otu (chimera) usearch61 , usearch
```

```
, /usr/local/bin/ :
```

```
sudo mv usearch* /usr/local/bin/usearch61
```

```
#
```

```
chmod a+x /usr/local/bin/usearch61
```

```
4.1.0.0.2 2. ubuntu 20.04 picrust1 conda create -n picrust1
-c bioconda -c conda-forge picrust failed with repodata from
current_repodata.json
```

```
bioconda , conda create -n picrust1 -c bioconda picrust.
```

```
4.1.0.0.3 3. mac lefse homebrew lefse brew install biobakery/biobakery/lefse; conda
conda config --add channels biobakery
conda install -c biobakery lefse
```

```
4.1.0.0.4 4. Q: qiime1 pycharm matplotlib.pyplot
from urllib.parse import urlencode ImportError: No module named
parse pycharm Preferences -> Tools -> Python Scientific Show
plots in tool window
```

```
4.1.0.0.5 5. Q: phyloseq distance() ordinate() (distance())
(unifracs), Warning message: In matrix(tree$edge[order(tree$edge[,
1]),], 2], byrow = TRUE, : data length [86515] is not a sub-multiple
or multiple of the number of rows [43258] OTU (
OTU)
```

```
new_tre <- ape::multi2di(phy_tree(ps))
phy_tree(ps) <- new_tre
```

## 4.2 scRNA-seq

- velocity.R.

```
- clang: error: unsupported option '-fopenmp'
```

```
mac clang openmp openmp clang. ~/.R/Makevars(compilers library)
```

```
CC=/usr/local/clang7/bin/clang
SHLIB_CXXLD=/usr/local/clang7/bin/clang++
CXX= /usr/local/clang7/bin/clang++ -Wall
CXX1X= /usr/local/clang7/bin/clang++
CXX98= /usr/local/clang7/bin/clang++
CXX11= /usr/local/clang7/bin/clang++
CXX14= /usr/local/clang7/bin/clang++
CXX17= /usr/local/clang7/bin/clang++
LDFLAGS=-L/usr/local/clang7/lib
```

```
- library not found for -lboost_filesystem
```

```
boost brew install boost
```

```
- library not found for -lgfortran
```

```

gfortran gcc gcc homebrew /Library/Frameworks/R.framework/Resources/etc/Makeconf
homebrew gcc
FLIBS = -L/usr/local/lib/gcc/8/gcc/x86_64-apple-darwin17.5.0/8.1.0 -L/usr/local/lib/gcc/
Library/Frameworks/R.framework/Resources/etc/Makeconf
FLIBS = -L/usr/local/gfortran/lib/gcc/x86_64-apple-darwin15/6.1.0 -L/usr/local/gfortran

```

- velocityto.py

```

mac pip gcc conda conda install velocityto.py

```

## 4.3 RNA structure

RNA RNA

### 4.3.1

- CONTRAfold, make

```

LBFGS.ipp:110:33: error: 'DoLineSearch' was not declared in this scope, and no declarations
 Real step = DoLineSearch(x[k%2], f[k%2], g[k%2], d,
                        ~~~~~^~~~~~
                        x[(k+1)%2], f[(k+1)%2], g[(k+1)%2],
                        ~~~~~~
 Real(0), std::min(Real(10), MAX_STEP_NORM / std::max(Real(1)
()
1. Makefile -fpermissive CXXFLAGS:
CXXFLAGS = -O3 -DNDEBUG -W -pipe -Wundef -Winline --param large-function-growth=100000 -Wall
#
CXXFLAGS = -O3 -DNDEBUG -W -pipe -Wundef -Winline --param large-function-growth=100000 -Wall
2. Utilities.hpp #include <limits.h>

```



# Chapter 5

## 5.1 PPT

- mac powerpoint

```
powerpoint -> -> -> 5)
ppt
/Users/(username)/Library/Containers/com.Microsoft.Powerpoint/Data/Library
```

## 5.2 EXCEL

- A1/B1 A2/B2 A1  
\$ \$A\$1/B1 \$A\$1

## 5.3 PS CC

- RGB “ -> -> RGB”
- :



# Chapter 6

## Mac OS

### 6.1 homebrew

- homebrew

```
Error: An unexpected error occurred during the `brew link` step
The formula built, but is not symlinked into /usr/local
Permission denied @ dir_s_mkdir - /usr/local/Frameworks
Error: Permission denied @ dir_s_mkdir - /usr/local/Frameworks

$(brew --prefix)/* /usr/local sudo chown -R $(whoami)
$(brew --prefix)/*
```

### 6.2

- xxx.app    app

```
sudo sptcl --master-disable -> ->
app
```

#### 6.2.1 Alfred

Mac        app    spotlight

- cmd + space

spotlight

- 

mac            mac os    “Rebuild macOS Metadata”





# Chapter 7

## linux

### 7.1

- TP-P53 ubuntu 18.04

1. bios Secure Boot, startup Both (UEFI/legacy), usb
2. Install Ubuntu e set gfxpayload=\*\*text\*\*  
=casper only-ubiquity \*\*nomodeset\*\* nouveau n-  
vidia T2000
- 3.
4. ,ctrl + alt + F1 nomodeset sudo  
ubuntu-drivers autoinstall

```
configuration driver=nvidia nomodeset
nouveau
sudo lshw -C display
*-display
description: VGA compatible controller
product: NVIDIA Corporation
vendor: NVIDIA Corporation
physical id: 0
bus info: pci@0000:01:00.0
version: a1
width: 64 bits
clock: 33MHz
capabilities: pm msi pciexpress vga_controller bus_master cap_list rom
configuration: driver=nvidia latency=0
```

- ubuntu sudo

```
root
su -
#
useradd xxx
sudo
usermod -aG sudo xxx

/etc/sudoers, root
chmod u+w /etc/sudoers
root ALL=(ALL) ALL root xxx
xxx ALL=(ALL) ALL
```

- ubuntu

ubuntu log rc.local recovery

1. shift esc grub
2. recovery mode
3. Drop To Root Shell Prompt root

- Mac ubuntu

IP Mac IP 192.168.11.1 255.255.255.0 ubuntu  
IP 192.168.11.2 255.255.255.0

- ubuntu aliyun

16.04 xenial

```
#
mv /etc/apt/sources.list /etc/apt/sources.list.backup

#
touch /etc/apt/sources.list

deb-src http://archive.ubuntu.com/ubuntu xenial main restricted # Added by software
deb http://mirrors.aliyun.com/ubuntu/ xenial main restricted
deb-src http://mirrors.aliyun.com/ubuntu/ xenial main restricted multiverse univer
deb http://mirrors.aliyun.com/ubuntu/ xenial-updates main restricted
deb-src http://mirrors.aliyun.com/ubuntu/ xenial-updates main restricted multivers
deb http://mirrors.aliyun.com/ubuntu/ xenial universe
deb http://mirrors.aliyun.com/ubuntu/ xenial-updates universe
deb http://mirrors.aliyun.com/ubuntu/ xenial multiverse
deb http://mirrors.aliyun.com/ubuntu/ xenial-updates multiverse
deb http://mirrors.aliyun.com/ubuntu/ xenial-backports main restricted universe mu
deb-src http://mirrors.aliyun.com/ubuntu/ xenial-backports main restricted univers
deb http://archive.canonical.com/ubuntu xenial partner
deb-src http://archive.canonical.com/ubuntu xenial partner
```

```
deb http://mirrors.aliyun.com/ubuntu/ xenial-security main restricted
deb-src http://mirrors.aliyun.com/ubuntu/ xenial-security main restricted multiverse universe
deb http://mirrors.aliyun.com/ubuntu/ xenial-security universe
deb http://mirr.iyun.com/ubuntu/ xenial-security multiverse
```

- ubuntu 18.04

```
ubuntu 18.04 systemd systemd /etc/systemd/system /lib/systemd/system
```

```
ls /lib/systemd/system rc-local.service rc-local.service
, rc.local.service rc-local.service
```

```
SPDX-License-Identifier: LGPL-2.1+
#
This file is part of systemd.
#
systemd is free software; you can redistribute it and/or modify it
under the terms of the GNU Lesser General Public License as published by
the Free Software Foundation; either version 2.1 of the License, or
(at your option) any later version.

This unit gets pulled automatically into multi-user.target by
systemd-rc-local-generator if /etc/rc.local is executable.
[Unit]
Description=/etc/rc.local Compatibility
ConditionFileIsExecutable=/etc/rc.local
After=network.target

[Service]
Type=forking
ExecStart=/etc/rc.local start
TimeoutSec=0
RemainAfterExit=yes
GuessMainPID=on
```

```
INSTALL rc-local.service
```

```
[INSTALL]
WantedBy=multi-user.target
Alias=rc-local.service
```

```
/etc/rc.local
```

```
!bin/sh -e
xx-net
/<path_to_xx-net>/xx_net.sh
```

x

```
sudo chmod +x /etc/rc.load
```

```
rc-local.service /etc/systemd/system/
```

```
sudo ln -s /lib/systemd/system/rc-local.service /etc/systemd/system/
/etc/rc.local
```

- ubuntu workspace grid

```
ubuntu workspace gnome-shell-wsmatrix workspace
```

1. **gnome-shell-wsmatrix**
2. `~/.local/share/gnome-shell/extensions/`
3. `metadata.json` `uuid` `wsmatrix@martin.zurowietz.de`
4. `alt + f2` `r` `××gnome shell××`

- ubuntu

```
fusuma
```

1. **INPUT**

```
sudo gpasswd -a `$(whoami)` input
```

- 2.

```
sudo apt-get install libinput-tools
sudo gem install fusuma
sudo apt-get install xdotool
```

```
: gnome-session-properties fusuma (which fusuma) ,
-d
```

```
~/.config/fusuma/config.yml
```

- ubuntu

- 1.
2. `sudo apt-get install -f`
- 3.

```
cd ~/.config
rm -rf SogouPY* sogou*
fcitx -r
```

- ubuntu

```
/etc/default/apport, enable=0
```

- centos 7 ,

```
elrepo elrepo rpm
public key
rpm --import https://www.elrepo.org/RPM-GPG-KEY-elrepo.org
http://elrepo.org/tiki/tiki-index.php
rpm -Uvh https://www.elrepo.org/elrepo-release-7.0-4.el7.elrepo.noarch.rpm

#
yum --disablerepo="*" --enablerepo="elrepo-kernel" list available

#
yum --enablerepo=elrepo-kernel install kernel-ml

#
grub2-mkconfig -o /boot/grub2/grub.cfg

#
cat /boot/grub2/grub.cfg |grep menuentry

if [x"${feature_menuentry_id}" = xy]; then
 menuentry_id_option="--id"
 menuentry_id_option=""
export menuentry_id_option
menuentry 'CentOS Linux (5.5.5-1.el7.elrepo.x86_64) 7 (Core)' --class centos --class gnu-linux
menuentry 'CentOS Linux (3.10.0-1062.el7.x86_64) 7 (Core)' --class centos --class gnu-linux

CentOS Linux (5.5.5-1.el7.elrepo.x86_64) 7 (Core)
grub2-set-default "CentOS Linux (5.5.5-1.el7.elrepo.x86_64) 7 (Core)"

#
reboot
```

- centos 7 Intel Wi-Fi 6 AX200 160MHz

```
[](https://www.intel.cn/content/www/cn/zh/support/articles/000005511/
network-and-i-o/wireless-networking.html 5.1 , README
cp iwlwifi-cc-a0-46.ucode /lib/firmware
```

- ubuntu 20.04 IP Temporary failure in name resolution

```
ping ip ,ping /etc/resolv.conf DNS
(114.114.114.114) /etc/systemd/resolved.conf DNS
/etc/resolv.conf ():
```

```
/etc/resolv.conf
chattr -i /etc/resolv.conf
mv /etc/resolv.conf /etc/resolv.conf.bak

/etc/systemd/resolved.conf DNS
vim /etc/systemd/resolved.conf # DNS = 114.114.114.114 8.8.8.8
#
ln -s /run/systemd/resolve/resolv.conf /etc/resolv.conf
```

## 7.2

### 1.

•

```
sudo umount </media/share>, target is busy,
#
fuser -km </media/share>
sudo umount </media/share>
```

•

```
#
blkid </dev/sdx>
UUID="7c6c4126-26ec-4071-966a-0cdb5c8a8f96" TYPE="ext4" ...

fstab () blkid
UUID
UUID=7c6c4126-26ec-4071-966a-0cdb5c8a8f96 < > ext4 defaults 0 0

##
sudo mount -a
```

## 7.3 VIM

### 7.3.1

#### 7.3.1.1 Formatting

```
line-width ()

gq: line-width 80
gqq: line-width
ngqq: n
```

### 7.3.2

**7.3.2.0.1**

```

1. vim-plug, plug-vim ~/.vim/autoload/plug.vim:
curl -fLo ~/.vim/autoload/plug.vim --create-dirs \
 https://raw.githubusercontent.com/junegunn/vim-plug/master/plug.vim

2. ~/.vimrc

" , ~/.vim/plugged
" pathogen ~/.vim/bundle,
call plug#begin('~/.vim/bundle')
" Make sure you use single quotes
"
" Shorthand notation; fetches https://github.com/junegunn/vim-easy-align
Plug 'junegunn/vim-easy-align'
call plug#end()

filetype plugin indent on syntax enable

3. vim, :PlugInstall

```

**7.3.2.0.2 python autocompletion jedi-vim vim**

```

python(3.5) , jedi-vim python3.5 (:python3 import sys;
print(sys.version_info)), python (3.9), File "/home/user/.vim/plugged/jedi-vim/pythonx/
line 113 node_map: Dict[str, type] = {} ^ SyntaxError: invalid
syntax.

: conda python vim conda install -c conda-forge vim. .
vim python, python3 .

```

**7.4 Misc**

## • screen

1. ctrl + A, ESC, ("Copy mode"), ESC .
2. : echo 'termcapinfo xterm\* ti@:te@' >> ~/.screenrc.





# Chapter 8

## tools

### 8.1 git github

- push github

ssh

```
git clone git@github.com:<repo>

https
ssh
clone
git remote -v
#
git remote rm origin
#
git remote add origin git@github.com:<repo>
```

ssh github github ,

```
~/.ssh id_rsa
ssh-keygen -t rsa -C "<github >"
~/.ssh/id_rsa.pub github
```

push

```
git push --set-upstream origin master
```

- commit message

```
commit hash
git rebase -i <commit_hash>
```

```
message pick r(reword) message
```

```
github commit push
```

```
git push -f
```

- 

```
git log <commit_hash> <file_name>
```

- (github) push

```
git push --force
```

- 

```
git push origin --delete <remote_branch>
```

- 

```
git remote set-url origin https://github.com/yiluheihe/beginr.git
```

- untracked files

```
#
```

```
git clean -n
```

```
#
```

```
git clean -f
```

```
#
```

```
git clean -f -d
```

```
ignore
```

```
git clean -f -X
```

```
ignore ignore
```

```
git clean -f -x
```

- unstage git add

```
git reset HEAD <file>
```

- 

```
unstage
```

```
git checkout <file>
```

```
`git add` stage unstage
```

```
git reset HEAD <file>
```

```
git checkout <file>
```

- 

```
#
git stash
#
git pull <remote branch>
stash
git stash pop
```

- commit        pull        commit    push        commit  
         merge    commit

```
#
git fetch

origin
#
git rebase origin/master
```

- ignore

```
index
git rm -r --cached <file>

ignore commit
git commit
```

- push

```
commit
git log --diff-filter=D -- <filename>

, ~n commit n
git checkout <commit>~1 -- <filename>
```

- 

```
git ls-files | xargs wc -l
R
git ls-files | grep '.R$' | xargs wc -l
```

- windows    git

```
LESSCHARSET=utf-8
```

## 8.2 hugo

- hugo blogdown panic: BUG: Expected valid escape code after \, but got '\r'.

```
config.toml "" \, , .
```

## 8.3 docker

- (centos)

```
curl -sSL get.docker.com -o get-docker.sh
#
sh get-docker.sh --mirror Aliyun

docker
sudo systemctl enable docker
sudo systemctl start docker

docker root
docker docker
sudo usermod -aG dokcer $USER
docker
newgrp docker
```

- docker

```
, /etc/docker/daemon.json

{
 "registry-mirrors":
 ["https://docker.mirrors.ustc.edu.cn/"]
}
```

```
docker sudo systemctl restart docker
```

<https://cr.console.aliyun.com/#/>

- docker

```
1. x server
xhost local:root # xhost +

X11 docker
docker run -v /tmp/.X11-unix:/tmp/.X11-unix -e DISPLAY=unix$DISPLAY <the image>
```

## 8.4 conda

- ```
channels:
  - conda-forge
  - bioconda
  - defaults
show_channel_urls: true
channel_alias: https://mirrors.tuna.tsinghua.edu.cn/anaconda
default_channels:
  - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/main
  - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/free
  - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/r
  - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/pro
  - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/msys2
custom_channels:
  conda-forge: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
  msys2: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
  bioconda: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
  menpo: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
  pytorch: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
  simpleitk: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
```
- ```
biconda : UnsatisfiableError: The following
specifications were found to be incompatible with each
other: Output in format: Requested package -> Available
versions.

conda channels bioconda (conda-forge > bioconda >
defaults) . . .
```

Output in format: Requested package -> Available versions

- macOS 10.14 Mojave,conda qt conda-forge::qt-5.9.7-h93ee506\_1'.  
PermissionError(1, 'Operation not permitted')
- ```
# for base:
cd ~/anaconda3/bin
ls *.app
rm -rf *.app
conda update --all --yes

# for some_env:
cd ~/anaconda3/envs/some_env/bin
ls *.app
rm -rf *.app
```

```
conda update -n some_env --all --yes
```

8.5 Zotero

8.5.1 collections ()

Zotero () () (My Library)

- -
 - copy
 - move Mac: Cmd Windows:Shift
 - ()
 -
 - - remove, Delete , ().
 - - delete, Cmd/Ctrol+delete
 - Mac:Option/Windows:Control/Linux:Alt
- Zotero
- (Duplicated Items),
 - (Unfiled Items), ()
 - (Trash), 30
- (Advanced Pane) -> (Config Editor), extensions.zotero.recursiveCollection

8.5.2

Library () word

8.6 VSCode

8.6.1 python

- python REPL editor.trimAutoWhitespace": false.

Chapter 9

- mac www.baidu.com
 wifi dns google 8.8.8.8,

Bibliography

Grolemund, G. and Wickham, H. (2019). *R for Data Science*. 00215.