2022-01-05

Contents

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/"))
    ```

```r
# 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

  ```r
  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")   ,

  ```r
  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

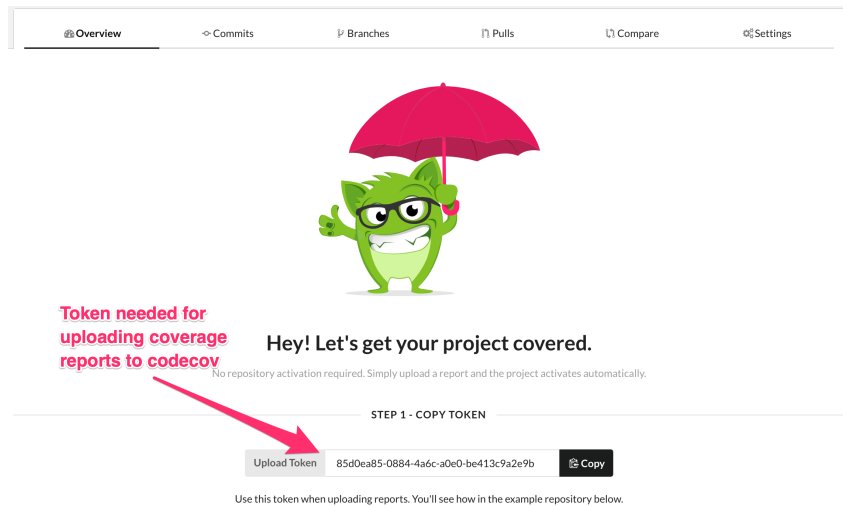1. usethis::use_coverage(),   test coverage

2.   codecov.yml   markerdown   README   badage

   [![Codecov test coverage](https://codecov.io/gh/yiluheihei/rlatexmath/branch/maste

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. $\eqn\{latex\}\{ascii\}(\quad)$, $\deqn\{latex\}\{ascii\}(\qquad)$.
$latex$ **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/C
```

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: Wed Jan  5 01:56:49 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(l)`, with an important difference: if
  > you have a zero-length vector, `seq_along()` does the right thing

```r
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\OOLOCK-rlang\OOnew\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,

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

1.5 tidyverse

- data.frame (transpose)

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

```
 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
```

```r
#   `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

```r
#     , 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

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

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

- **individal geom** **collective geom**? geom **individal
  geom** `geom_point` geom **collective geom**, `geom_bar` bar.

- **ggplot** `aes(group)`
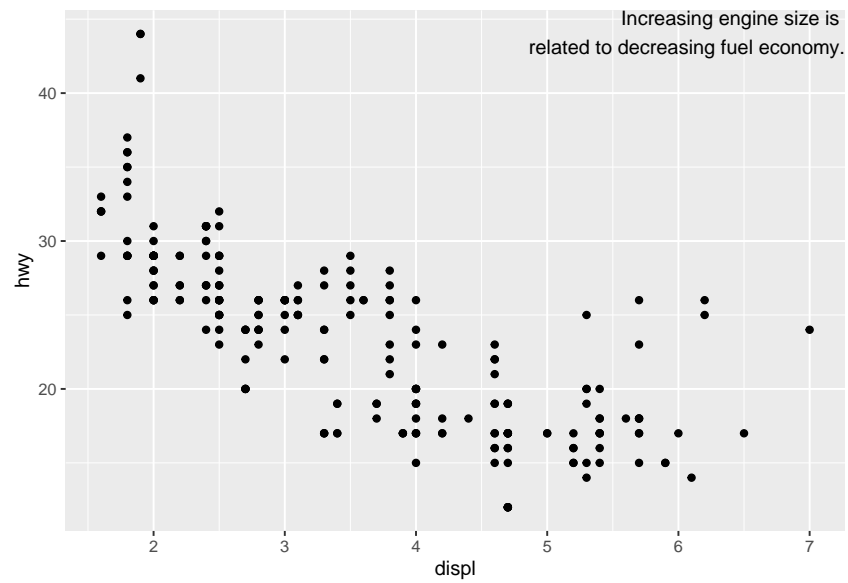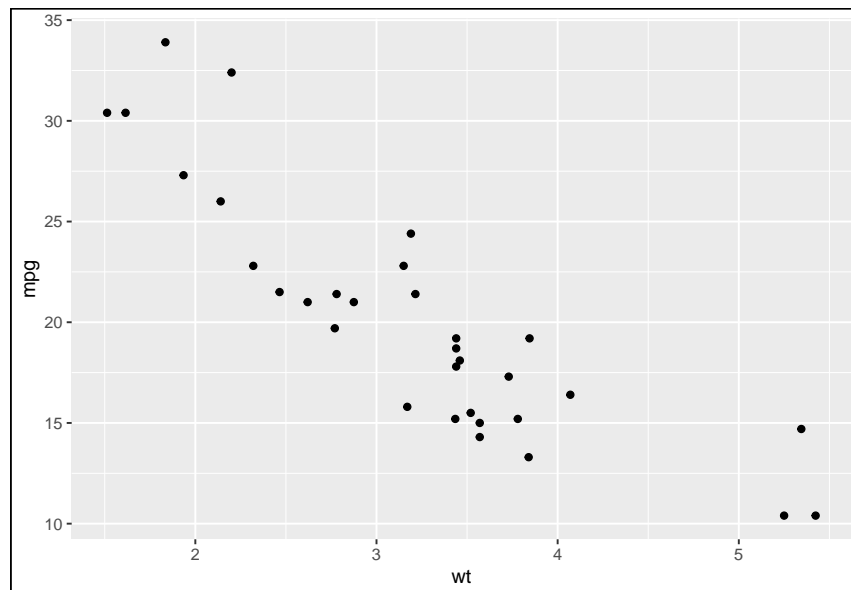
-

- 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
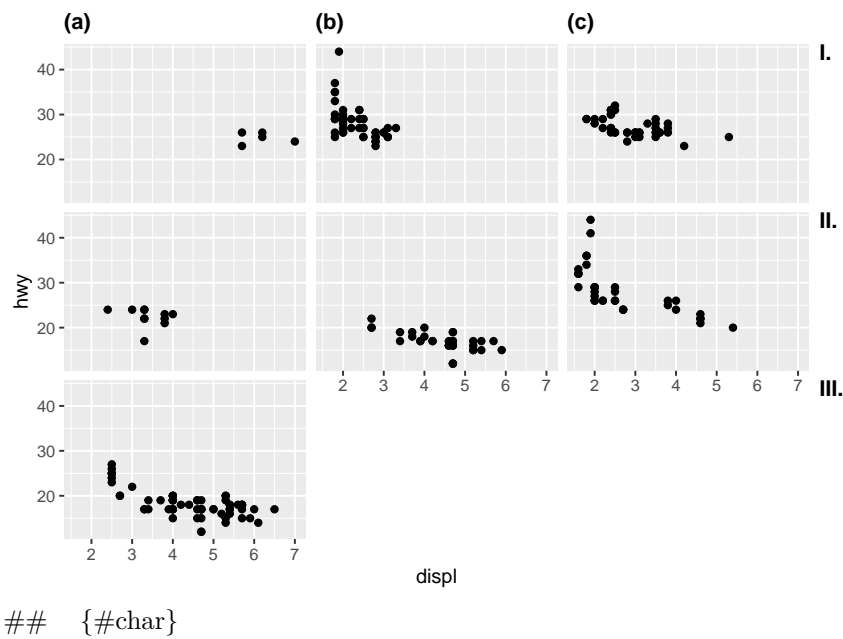
```
breaks(          )   .
```

- ggplot

- ggplot   tag (A,B, C)

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



```
##    {#char}
```

1.6.3

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

- 　　　　　　　　?

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

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

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

```r
# 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.

```yaml
# 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-hel
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
```

```yaml
    # 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

```r
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

" " μ σ^2

n $X_1, X_2, ..., X_n$ $(n$ $)$:

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

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

$)$

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

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

S_n^2 σ^2:

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

$n-1$ n , :

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

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

21

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

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

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

effect size

p   p   0.05   p
d_{Cohen},

          H0   ,   H0   ,   H0,   , α ;   ,   H0   ,   H0 β
,α ,β ,   ,   , α (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())
    (unifrac), `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

- velocyto.R.

  - clang: error: unsupported option '-fopenmp'

    mac clang openmp   openmp clang.   ~/.R/Makevars(compliers 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/gfortr
```

- `velocyto.py`

  mac pip   gcc   conda `conda install velocyto.py`

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`

  splotlight

-

  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 softwar
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 univers
deb http://mirrors.aliyun.com/ubuntu/ xenial-security universe
deb http://mirr.iyun.com/ubuntu/ xenial-security multiverse
```

- ubuntu 18.04

ubutu 18.04 systemd systemd /etc/systemd/system /lib/systemd/system

```
ls /lib/systemd/system   rc-local.service rc.local.service
 , rc.local.servce  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 `$USER` 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-lin
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/reslov.conf   DNS
  (114.114.114.114)   /etc/systemd/resolved.conf   DNS
       /etc/reslov.conf (   ):

```
#     /etc/reslov.conf
# chattr -i /etc/reslov.conf
mv /etc/reslov.conf /etc/reslov.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/reslov.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

7.3.0.0.1   {-}

  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

7.4 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/yiluheihei/beginr.git
    ```

- untracted 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/pkgs/main
  - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free
  - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/r
  - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/pro
  - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/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   collecions ( )

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.