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/"))
  ```

```
# 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

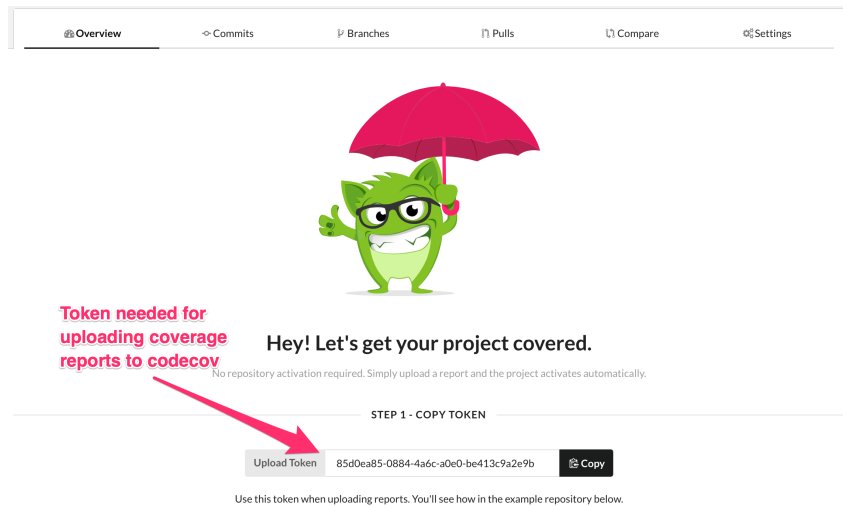   libcairo2-dev,   libxt-dev

1.2   R

1.2.0.0.1   1. github   code coverage

1. usethis::use_coverage(),   test coverage

2.   codecov.yml   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*}(   ), \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/Co
```

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 01:44:19 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

  ```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\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,

```
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
```

```
#   `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:
## * 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**.

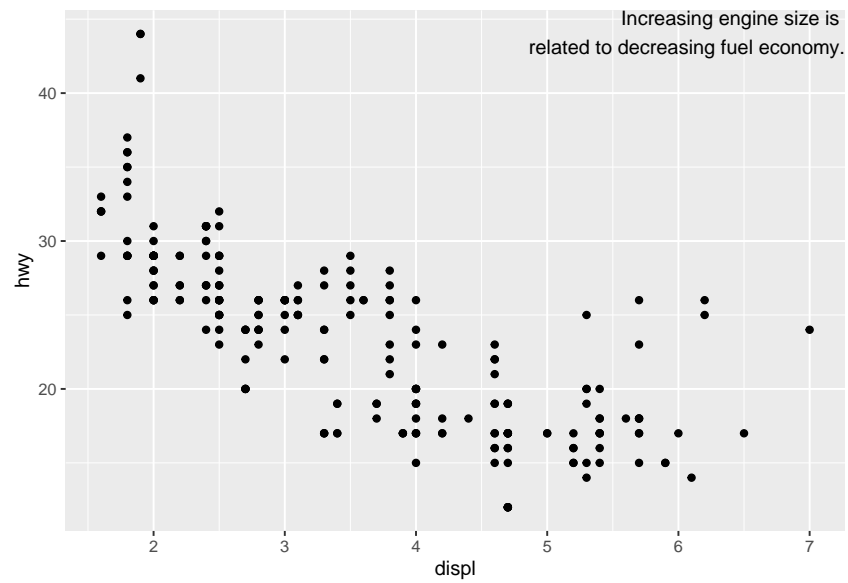- **ggplot** aes(group)

-

- label

-

-

```
   Inf -Inf
```

```r
#   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())
```

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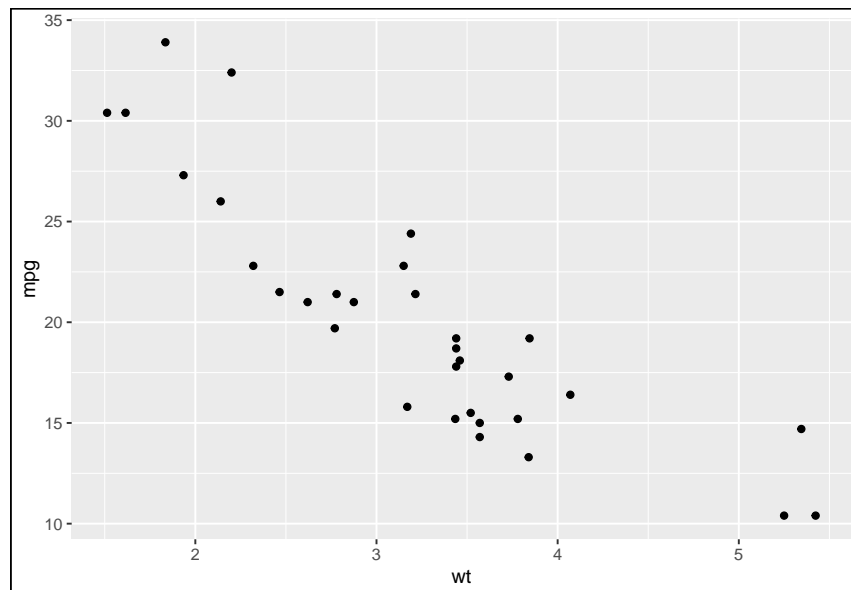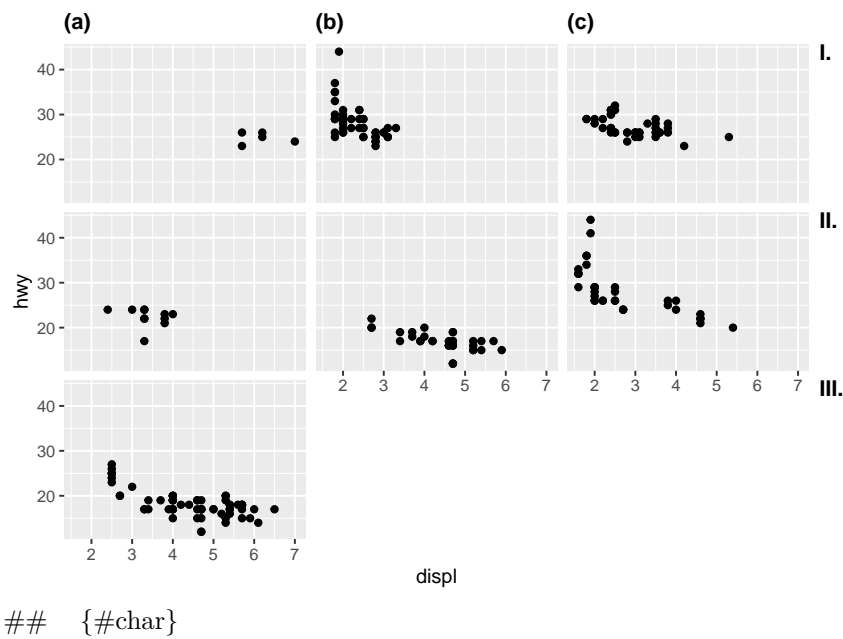

*   `geom_contour()`   levels

      `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
```

```
     # 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

" " μ σ^2

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

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

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

$)$

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

$\overline{X}$ μ, $\overline{X}$ μ

S_n^2 σ^2:

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

$n-1$ n , :

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

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

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

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

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

effect size

p $\quad\quad\quad$ p $\quad$ 0.05 $\quad\quad\quad\quad\quad\quad$ p
d_{Cohen},

$\quad\quad$ H0 $\quad\quad$, $\quad$ H0 , $\quad$ H0, $\quad$,α ; $\quad$, $\quad$ H0 , $\quad\quad$ H0 $\quad$ β
,α ,β , $\quad\quad$, $\quad\quad$, $\quad$ α $\quad$ (level of a test), $1-\beta$ $\quad$ (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` PackagesNotFoundError matplotlib=1.4.3

conda qiime1, `conda create -n qiime1 python=2.7,` pip matplotlib 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

  $ A1/B1 A1

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 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/#/a

- 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.