

Cyanobacteria EvoMining Results

Cyanobacteria is phylum {Referencia de luis}

Tables

Table 1: Families on Cyanobacteria

Factors	Correlation between Parents & Child
GenomeDB	1245
Families	65

```
library(ggplot2)
library( reshape )
```

```
##
## Attaching package: 'reshape'

## The following object is masked from 'package:dplyr':
##
##      rename
```

```
library(plyr )
```

```
## -----

## You have loaded plyr after dplyr - this is likely to cause problems.
## If you need functions from both plyr and dplyr, please load plyr first, then dplyr:
## library(plyr); library(dplyr)

## -----

##
## Attaching package: 'plyr'

## The following objects are masked from 'package:reshape':
##
##      rename, round_any

## The following objects are masked from 'package:dplyr':
##
##      arrange, count, desc, failwith, id, mutate, rename, summarise,
##      summarize
```

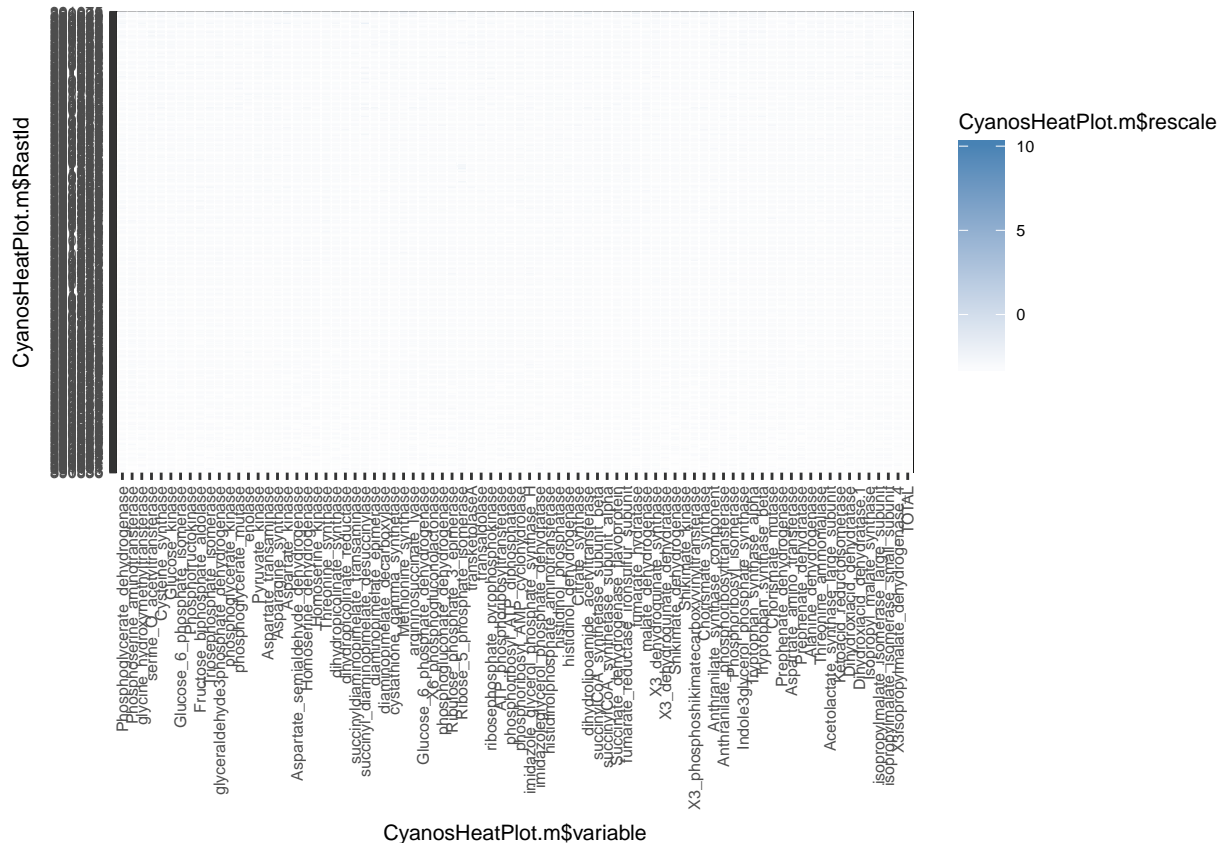
```
library(RColorBrewer)
library(scales)
library(plyr)
#setwd("/home/nelly/GIT/phd/Thesis/tesis/chap5_files")
CyanosCentral <- read.table("chapter5/CyanosCentral", header=TRUE, sep="\t")
CyanosHeatPlot <- read.table("chapter5/CyanosHeatPlot", header=TRUE, sep="\t")
CyanosNp <- read.table("chapter5/CyanosNp", header=TRUE, sep="\t")
CyanosSMASH <- read.table("chapter5/CyanosSMASH", header=TRUE, sep="\t")
CyanosTaxa <- read.table("chapter5/CyanosTaxa", header=TRUE, sep="\t")
```

Central pathway expansions

```
CyanosHeatPlot$RastId <- with(CyanosHeatPlot, reorder(CyanosHeatPlot$RastId, CyanosHeatPlot$TOTAL))
CyanosHeatPlot.m <- melt(CyanosHeatPlot)
```

```
## Using RastId as id variables
```

```
CyanosHeatPlot.m<- ddply(CyanosHeatPlot.m, .(variable), transform,rescale=scale(value)) ## rescale esc
(heatplot <- ggplot(CyanosHeatPlot.m, aes(CyanosHeatPlot.m$variable, CyanosHeatPlot.m$RastId))+geom_text
```



```
ggsave("chapter5/HeatPlot.pdf", plot = heatplot,height = 3, width = 6)
```

```
label(path = "chapter5/HeatPlot.pdf", caption = "Cyanobacterial Heatplot",label = "CyanoPlot", type = "figure")
```

Cyanobacterias AntiSMASH

Figures

Lets analyze Phosphoribosyl_isomerase_3 family

In the **R** chunk below, we will load in a picture stored as `reed.jpg` in our main directory. We then give it the caption of “Reed logo”, the label of “reed”, and specify that this is a figure. Note again the use of the `results = "asis"` specification to automatically include and compile the $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X} code.$

```
label(path = "figure/reed.jpg", caption = "Reed logo",
      label = "reed", type = "figure")
```

Here is a reference to the Reed logo: Figure 2. Note the use of the inline **R** code here. By default “figure” is specified as the type. For clarity, we could have also added the `label` and `type` to the parameter specifications and this would give us the same result: Figure 2.

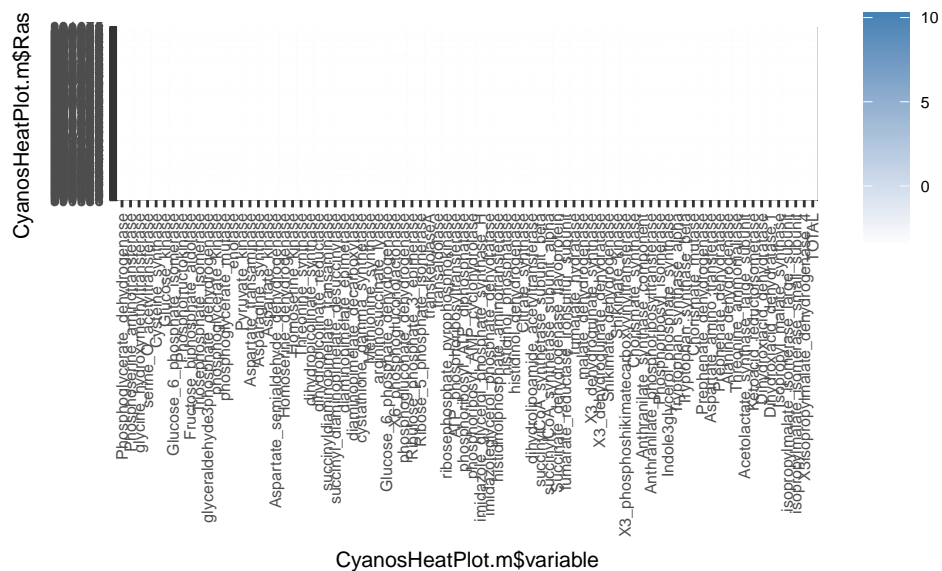


Figure 1: Cyanobacterial Heatplot



Figure 2: Reed logo

Below we will investigate how to save the output of an **R** plot and label it in a way similar to that done above. Recall the **flights** dataset from . (Note that we've shown a different way to reference a section or chapter here.) We will next explore a bar graph with the mean flight departure delays by airline from Portland for 2014. Note also the use of the **scale** parameter which is discussed on the next page.

A table linking these carrier codes to airline names is available at <https://github.com/ismayc/pnwflights14/blob/master/data/airlines.csv>.

Next, we will explore the use of the `scale` parameter which can be used to shrink or expand an image. Here we use the mathematical graph stored in the “subdivision.pdf” file. Note that we didn’t specify the `caption` = or `label` = here, but we could have.

Here is a reference to this image: `??`. (Move this around throughout the document as you wish.)

More Figure Stuff

Lastly, we will explore how to rotate figures using the `angle` parameter.

As another example, here is a reference to this figure: `??`.

Common Modifications

The following figure features the more popular changes thesis students want to make to their figures. We can add math to the caption that displays below the picture, specify the size of our caption to display below the figure (list of sizes available at this link), and also specify that a different caption `alt.cap` be what appears in the Table of Figures for this figure.

If you’d like to make further tweaks to figures, you might need to invoke some L^AT_EX code. Please email us at data@reed.edu if you need assistance.

Footnotes and Endnotes

You might want to footnote something.¹ The footnote will be in a smaller font and placed appropriately. Endnotes work in much the same way. More information can be found about both on the CUS site or feel free to reach out to data@reed.edu.

Bibliographies

Of course you will need to cite things, and you will probably accumulate an armful of sources. There are a variety of tools available for creating a bibliography database (stored with the .bib extension). In addition to BibTeX suggested below, you may want to consider using the free and easy-to-use tool called Zotero. The Reed librarians have created Zotero documentation at <http://libguides.reed.edu/citation/zotero>. In addition, a tutorial is available from Middlebury College at <http://sites.middlebury.edu/zoteromiddlebury/>.

R Markdown uses *pandoc* (<http://pandoc.org/>) to build its bibliographies. One nice caveat of this is that you won’t have to do a second compile to load in references as standard L^AT_EX requires. To cite references in your thesis (after creating your bibliography database), place the reference name inside square brackets and precede it by the “at” symbol. For example, here’s a reference to a book about worrying: `[@Molina1994]`. This `Molina1994` entry appears in a file called `thesis.bib` in the `bib` folder. This bibliography database file was created by a program called BibTeX. You can call this file something else if you like (look at the YAML header in the main .Rmd file) and, by default, is to placed in the `bib` folder.

For more information about BibTeX and bibliographies, see our CUS site (<http://web.reed.edu/cis/help/latex/index.html>)². There are three pages on this topic: *bibtex* (which talks about using BibTeX, at <http://web.reed.edu/cis/help/latex/bibtex.html>), *bibtexstyles* (about how to find and use the bibliography style that best suits your needs, at <http://web.reed.edu/cis/help/latex/bibtexstyles.html>) and *bibman* (which covers how to make and maintain a bibliography by hand, without BibTeX, at <http://web.reed.edu/cis/help/latex/bibman.html>). The last page will not be useful unless you have only a few sources.

If you look at the YAML header at the top of the main .Rmd file you can see that we can specify the style of the bibliography by referencing the appropriate csl file. You can download a variety of different style files at <https://www.zotero.org/styles>. Make sure to download the file into the csl folder.

¹footnote text

²@reedweb2007

Tips for Bibliographies

- Like with thesis formatting, the sooner you start compiling your bibliography for something as large as thesis, the better. Typing in source after source is mind-numbing enough; do you really want to do it for hours on end in late April? Think of it as procrastination.
- The cite key (a citation’s label) needs to be unique from the other entries.
- When you have more than one author or editor, you need to separate each author’s name by the word “and” e.g. `Author = {Noble, Sam and Youngberg, Jessica},.`
- Bibliographies made using BibTeX (whether manually or using a manager) accept L^AT_EX markup, so you can italicize and add symbols as necessary.
- To force capitalization in an article title or where all lowercase is generally used, bracket the capital letter in curly braces.
- You can add a Reed Thesis citation³ option. The best way to do this is to use the `phdthesis` type of citation, and use the optional “type” field to enter “Reed thesis” or “Undergraduate thesis.”

Anything else?

If you’d like to see examples of other things in this template, please contact the Data @ Reed team (email data@reed.edu) with your suggestions. We love to see people using *R Markdown* for their theses, and are happy to help.

³@noble2002