

Diallel SNPs

Jinliang Yang

Octo 29th, 2014

SNP for founder lines

The following part of work was done on farm. First of all, SNPs (N=10,991) on chro were removed. A total number of 13,771,818 for the diallel founder lines were used for the following study.

```
### convert data to density SNP format (DSF)
source("munge/2.SNP_filter/2.A.1_SNP_founders.R")
```

Then, run the following snpfrq python script to get the SNP frequency and missing rate of the founder lines.

```
#snpfrq is a function in my zmSNPtools repo: https://github.com/yangjl/zmSNPtools
cd /home/jolyang/Documents/pvpDiallel/largedata/SNP
snpfrq -i allsnps_13.7m.ds2 -s 5 -e 16 -m NH -a 0 -b 1 -o allsnps_frq.out
```

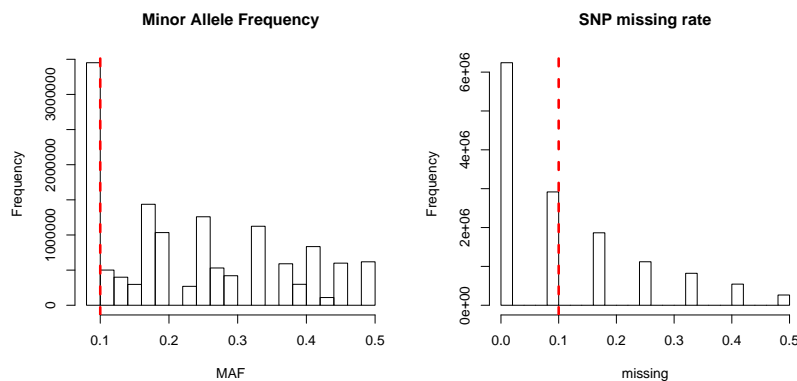


Figure 1: Minor allele frequency and missing rate of the about 14 million SNP on founder lines

```
#SNP filtering based on MAF<0.1 and SNP missing rate >0.5
cd /home/jolyang/Documents/pvpDiallel/largedata/SNP
snpfrq -i allsnps_13.7m.ds2 -s 5 -e 16 -m H -a 0.1 -b 0.5 -o allsnps_frq.out
```

After filtering, 10,320,715 SNPs were remaining. These SNPs were then projected onto the F₁ in the diallel population.

The Tufte-L^AT_EX¹ document classes define a style similar to the style Edward Tufte uses in his books and handouts. Tufte's style is known for its extensive use of sidenotes, tight integration of graphics with text, and well-set typography.

¹ <https://code.google.com/p/tufte-latex/>

Headings

This style provides a- and b-heads (that is, # and ##), demonstrated above. An error is emitted if you try to use ### and smaller headings.

IN HIS LATER BOOKS², Tufte starts each section with a bit of vertical space, a non-indented paragraph, and sets the first few words of the sentence in small caps. To accomplish this using this style, use the \newthought command as demonstrated at the beginning of this paragraph.

² http://www.edwardtufte.com/tufte/books_be

Figures

Margin Figures

Images and graphics play an integral role in Tufte's work. To place figures or tables in the margin you can use the fig.margin knitr chunk option. For example:

```
library(ggplot2)
qplot(Sepal.Length, Petal.Length, data = iris,
      color = Species)
```

Note the use of the fig.cap chunk option to provide a figure caption. You can adjust the proportions of figures using the fig.width and fig.height chunk options. These are specified in inches, and will be automatically scaled down to fit within the handout margin.

Equations

You can also include L^AT_EX equations in the margin by explicitly invoking the marginfigure environment.

Note the use of the \caption command to add additional text below the equation.

$$\frac{d}{dx} \left(\int_0^x f(u) du \right) = f(x).$$

Figure 2: An equation

Full Width Figures

You can arrange for figures to span across the entire page by using the fig.fullwidth chunk option.

```
qplot(wt, mpg, data = mtcars, colour = factor(cyl))
```

Note the use of the fig.width and fig.height chunk options to establish the proportions of the figure. Full width figures look much better if their height is minimized.

Main Column Figures

Besides margin and full width figures, you can of course also include figures constrained to the main column.

```
qplot(factor(cyl), mpg, data = mtcars, geom = "boxplot")
```

Sidenotes

One of the most prominent and distinctive features of this style is the extensive use of sidenotes. There is a wide margin to provide ample room for sidenotes and small figures. Any use of a footnote will automatically be converted to a sidenote.³

If you'd like to place ancillary information in the margin without the sidenote mark (the superscript number), you can use the `\marginnote` command.

Note also that the two footnote references (`tufte_latex` and `books_be`, both defined below) were also included in the margin on the first page of this document.

³ This is a sidenote that was entered using a footnote.

This is a margin note. Notice that there isn't a number preceding the note.

Tables

You can use the `xtable` package to format \LaTeX tables that integrate well with the rest of the Tufte handout style. Note that it's important to set the `xtable.comment` and `xtable.booktabs` options as shown below to ensure the table is formatted correctly for inclusion in the document.

```
library(xtable)
options(xtable.comment = FALSE)
options(xtable.booktabs = TRUE)
xtable(head(mtcars[, 1:6]), caption = "First rows of mtcars")
```