# Untitled

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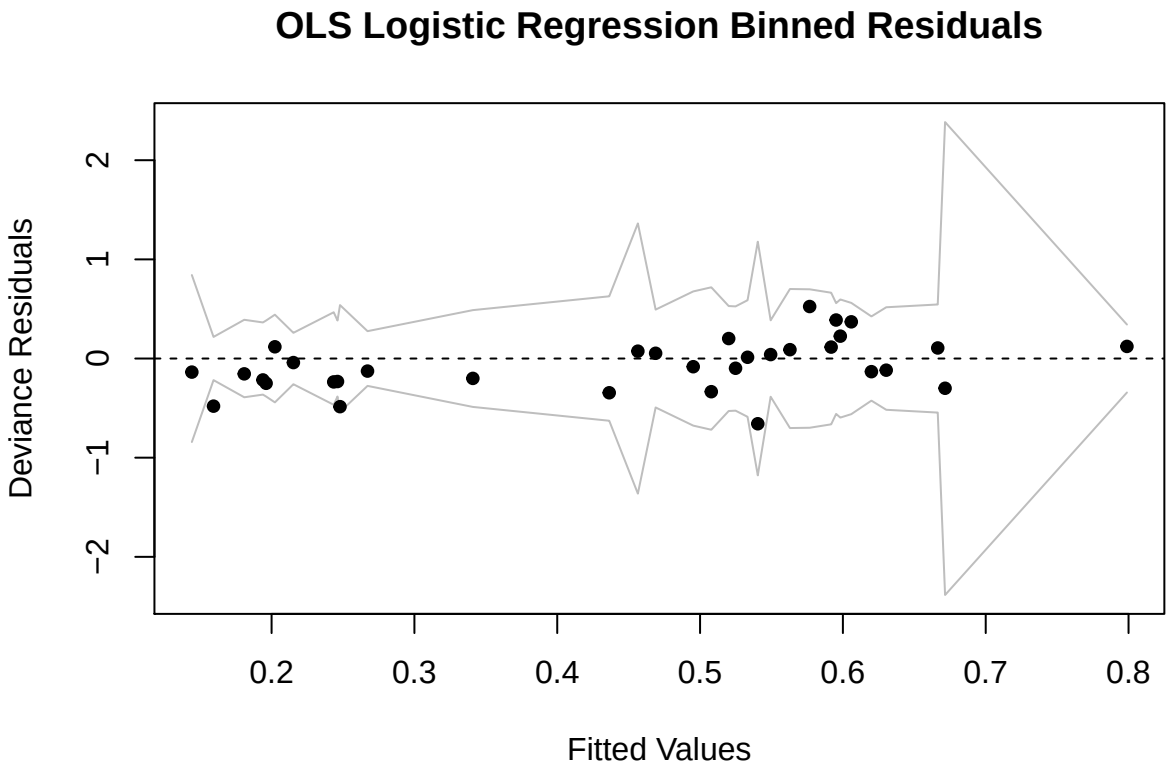
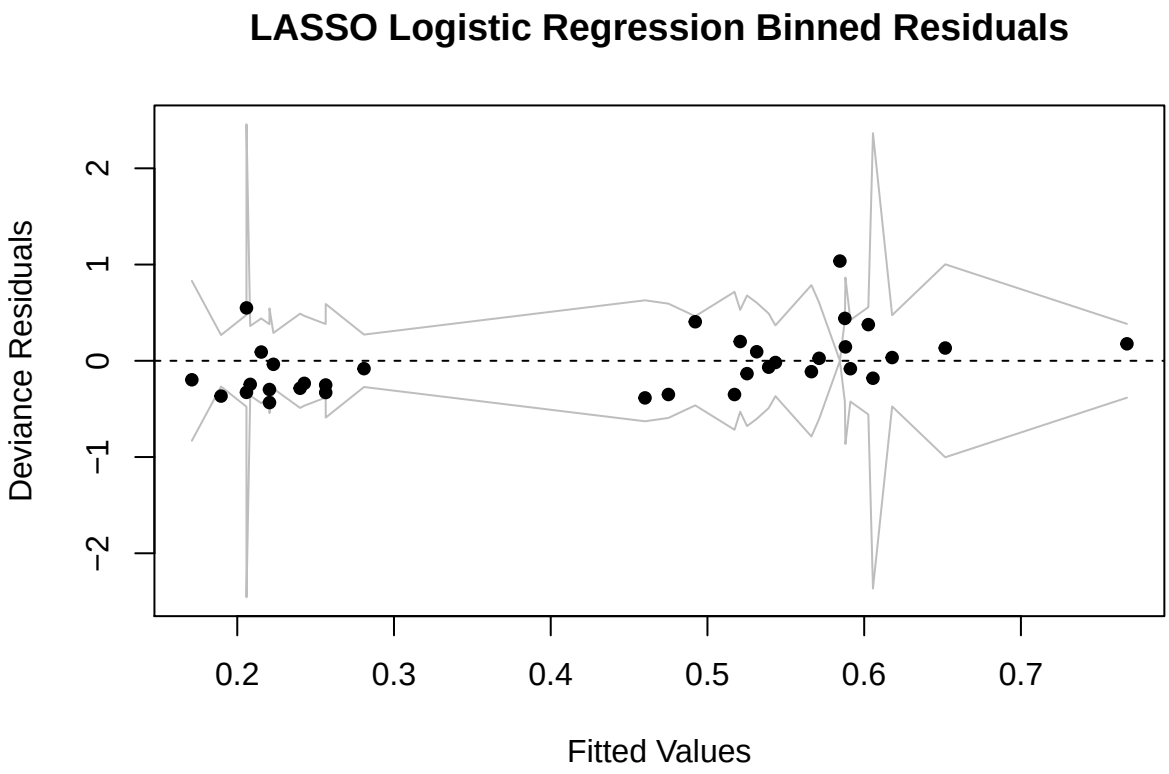
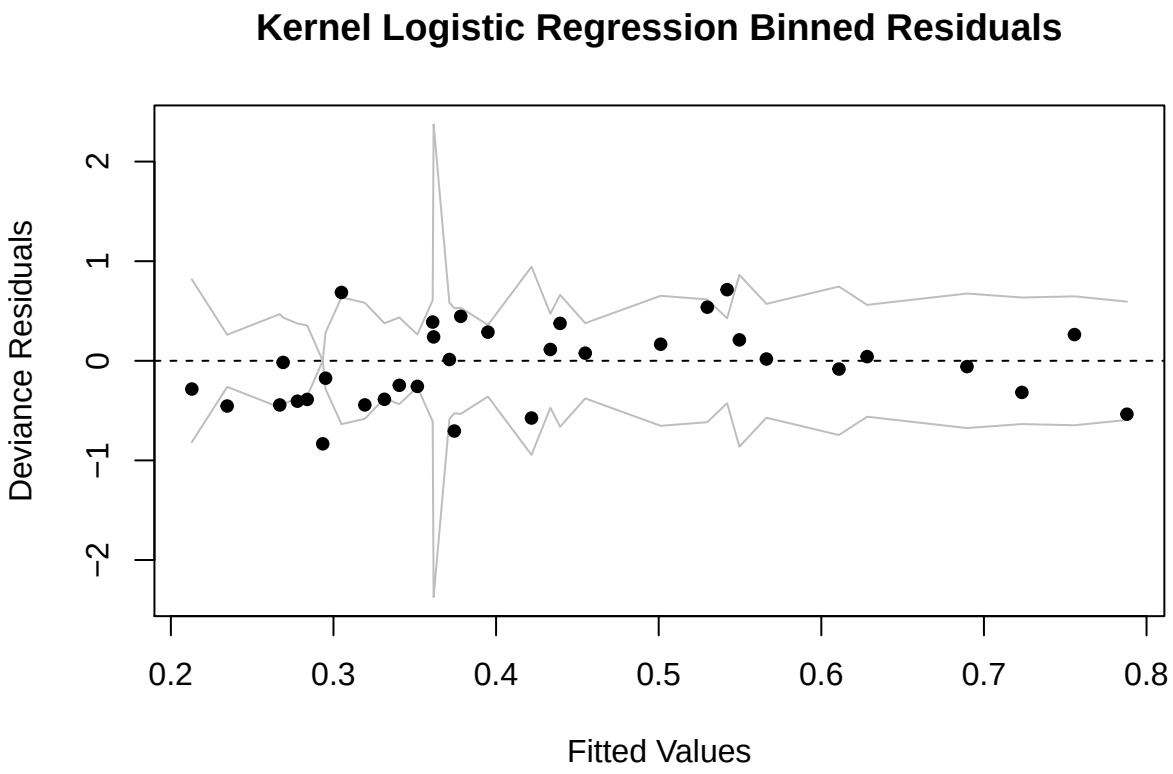



LASSO Logistic Regression Binned Residuals
Deviance Residuals
2
1
0
−1
−2
0.2
0.3
0.4
0.5
0.6
0.7
Fitted Values


Ridge Logistic Regression Binned Residuals
Deviance Residuals
1.0
0.5
0.0
−0.5
−1.0
0.3
0.4
0.5
0.6
Fitted Values




| | Deviance p-value |
|---|---|
| OLS | 2e-04 |
| LASSO Penalty | 3e-04 |
| Ridge Penalty | 0e+00 |
| Kernels | 0e+00 |

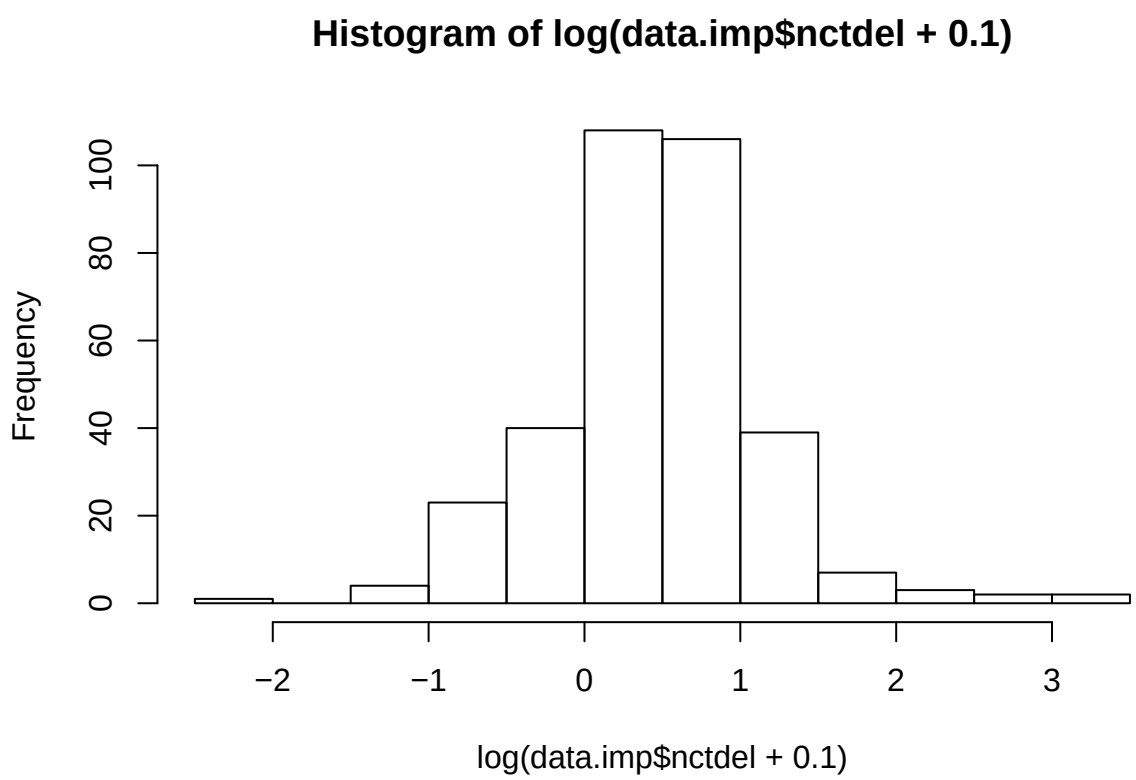
| | Lower | Upper |
|---|---|---|
| symptom0 | -1.2348 | 0.1283 |
| symptom1 | -0.8128 | 0.4192 |
| symptom2 | -0.9683 | 0.3673 |
| raceother | -0.2452 | 0.4814 |
| male | -0.6261 | 0.0439 |
| X1 | -1.6083 | -0.2653 |
| X2 | -0.1101 | 1.2464 |
| X3 | 0.1159 | 1.6606 |
| X4 | -0.6474 | 1.2667 |
| X5 | -1.0553 | 1.3369 |
| X6 | -926.4905 | 958.4814 |

| | LASSO Estimate |
|---|---|
| (Intercept) | 0.0000 |
| symptom0 | 0.0000 |

| | LASSO Estimate |
|---|---|
| symptom1 | 0.0000 |
| symptom2 | 0.0000 |
| raceother | 0.0000 |
| male | 0.0000 |
| X1 | -1.0788 |
| X2 | 0.0347 |
| X3 | 0.1736 |
| X4 | 0.0000 |
| X5 | 0.0000 |
| X6 | 0.9557 |

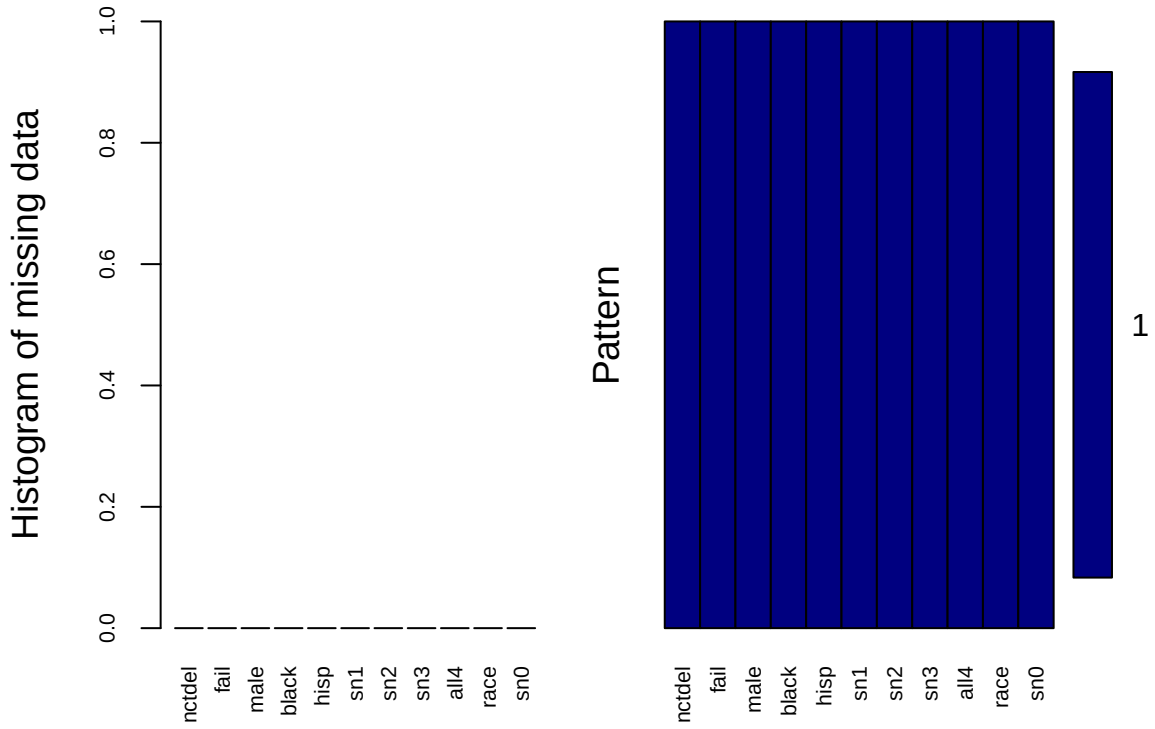
| | Ridge Estimate |
|---|---|
| (Intercept) | 0.0000 |
| symptom0 | -0.1646 |
| symptom1 | -0.0401 |
| symptom2 | -0.0893 |
| raceother | -0.0588 |
| male | -0.1393 |
| X1 | -0.5499 |
| X2 | 0.2039 |
| X3 | 0.3068 |
| X4 | 0.0513 |
| X5 | -0.0139 |
| X6 | 0.9175 |

| | Lower | Upper |
|---|---|---|
| symptom0 | -1.3827 | -0.0953 |
| symptom1 | -0.9360 | 0.2222 |
| symptom2 | -1.0734 | 0.1903 |
| raceother | -0.2915 | 0.4013 |
| male | -0.5736 | 0.0674 |
| k1 | -5.6259 | -0.1256 |
| k2 | 5.8663 | 13.2598 |

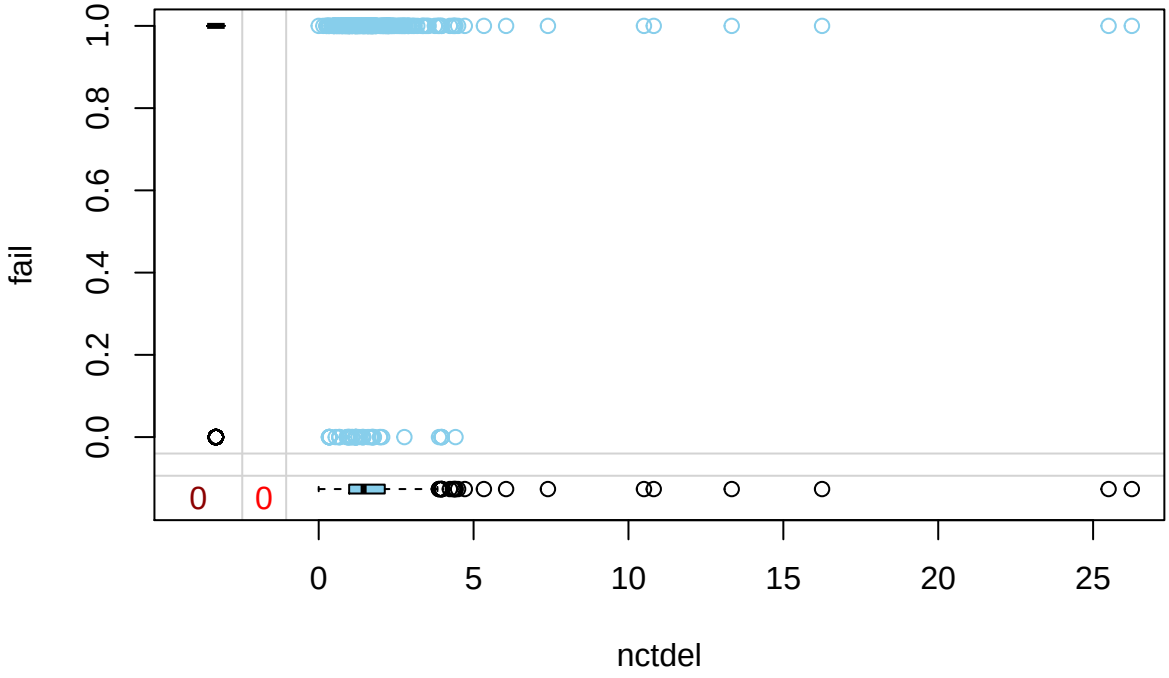


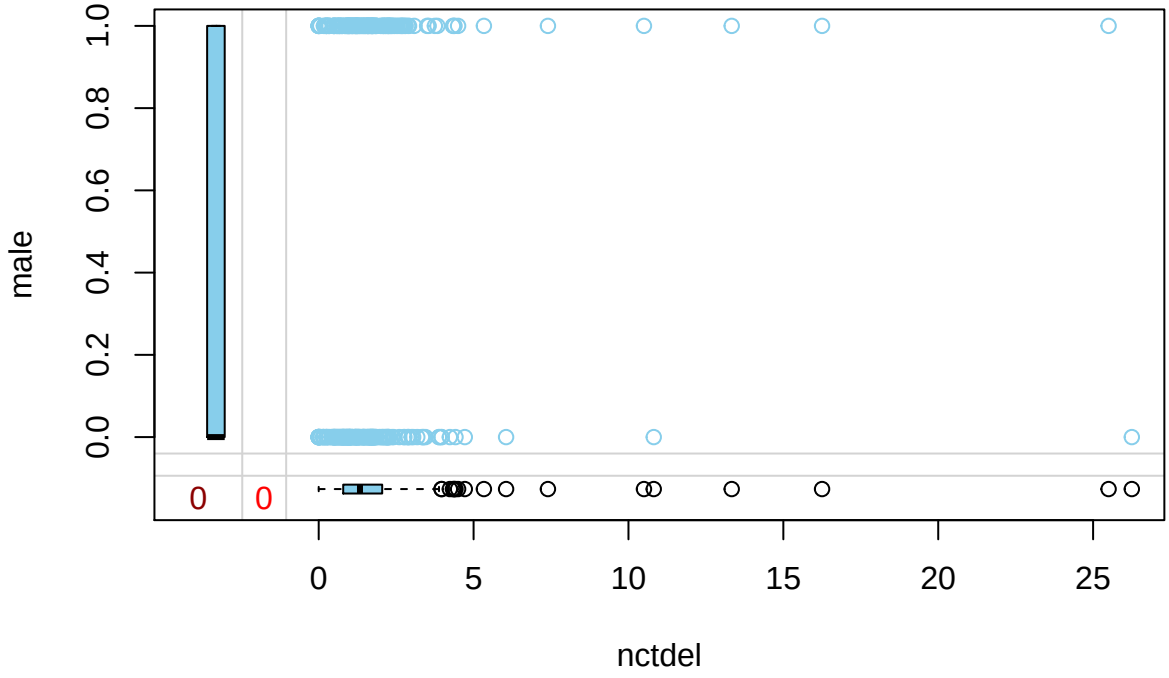

##Assumptions

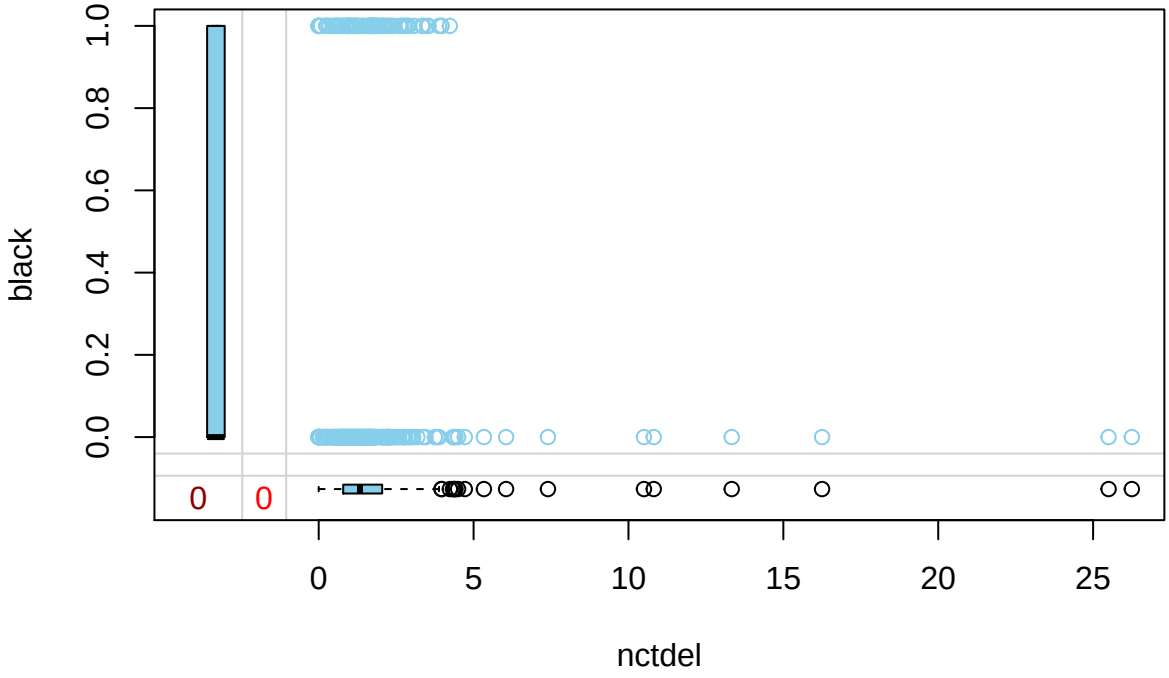
```
##      nctdel fail male black hisp sn1 sn2 sn3 all4 race sn0
## [1,]      1    1    1     1    1   1   1   1    1    1   1 0
## [2,]      0    0    0     0    0   0   0   0    0    0   0 0
```

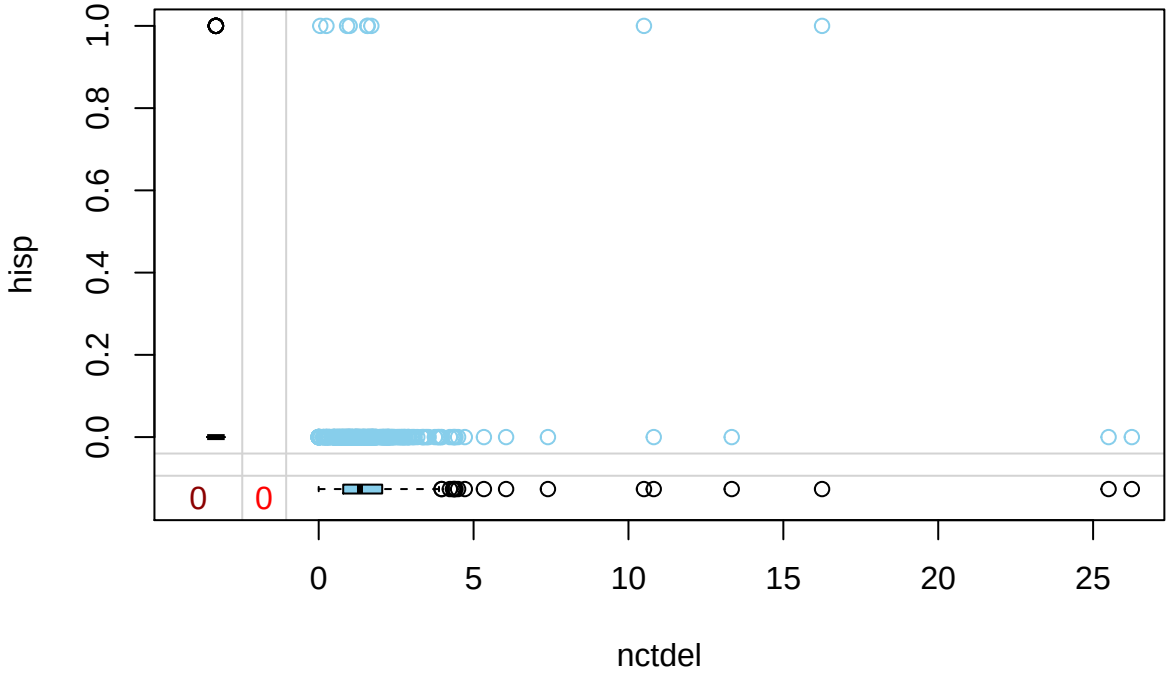


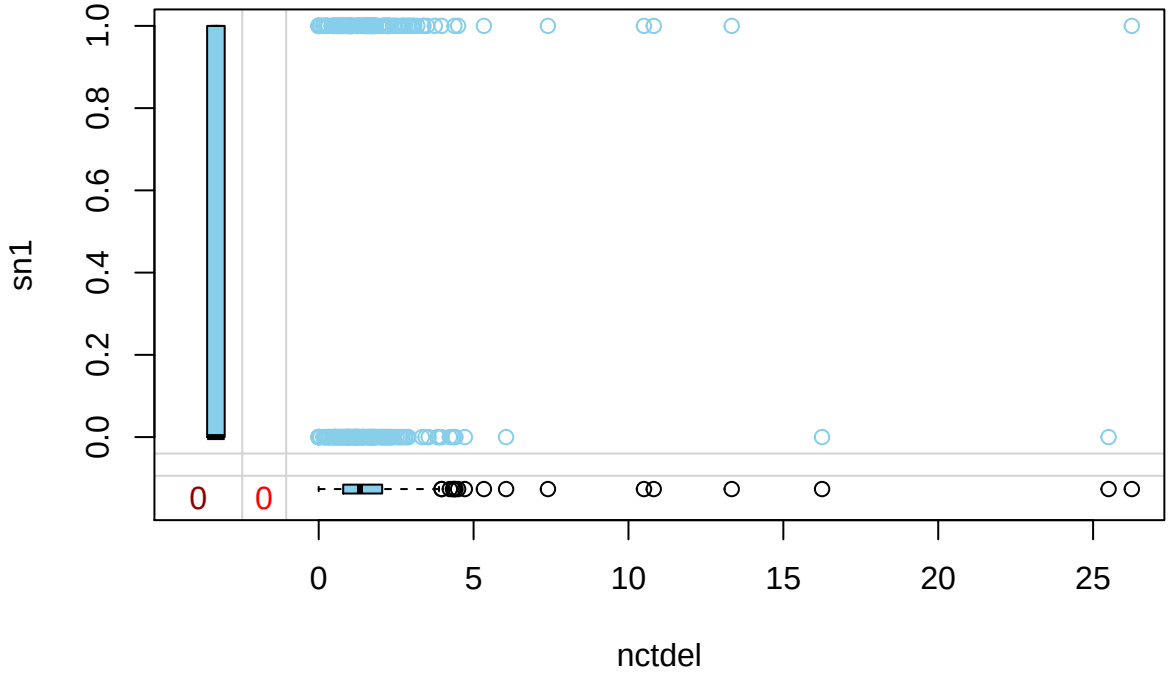

```
##
##  Variables sorted by number of missings:
##  Variable Count
##    nctdel     0
##      fail     0
##      male     0
##     black     0
##      hisp     0
##       sn1     0
##       sn2     0
##       sn3     0
##      all4     0
##      race     0
##       sn0     0
```

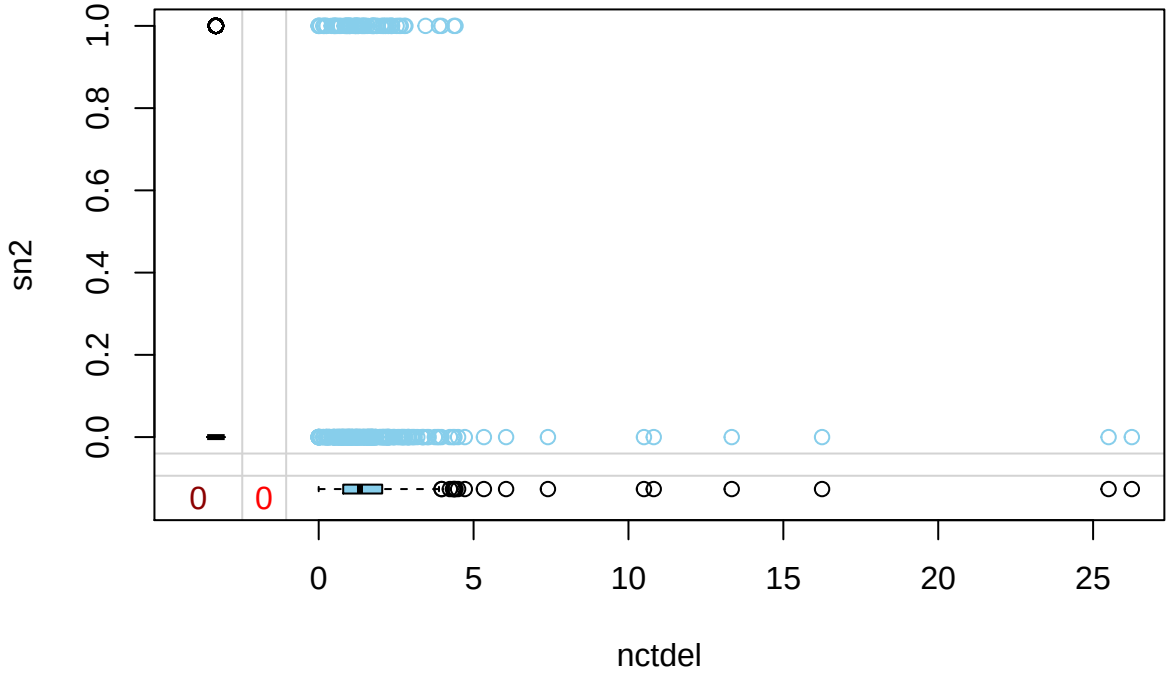

fail
0.0
0.2
0.4
0.6
0.8
1.0
0
0
0
5
10
15
20
25
nctdel

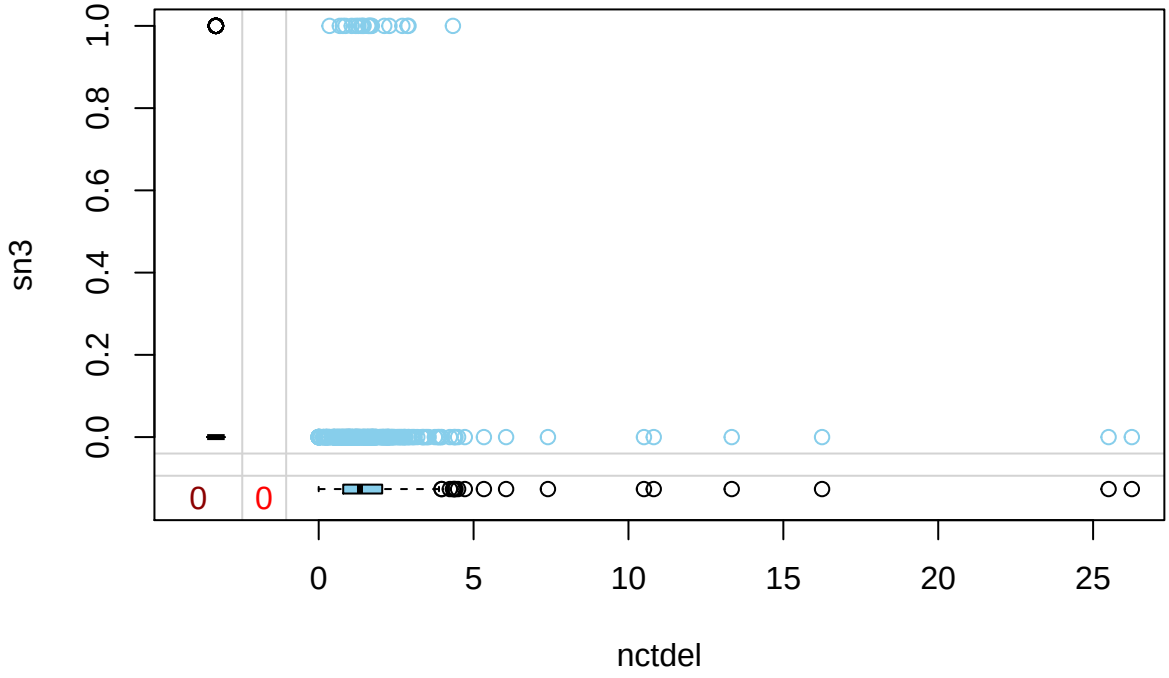

male
0.0
0.2
0.4
0.6
0.8
1.0
0
0
0
5
10
15
20
25
nctdel

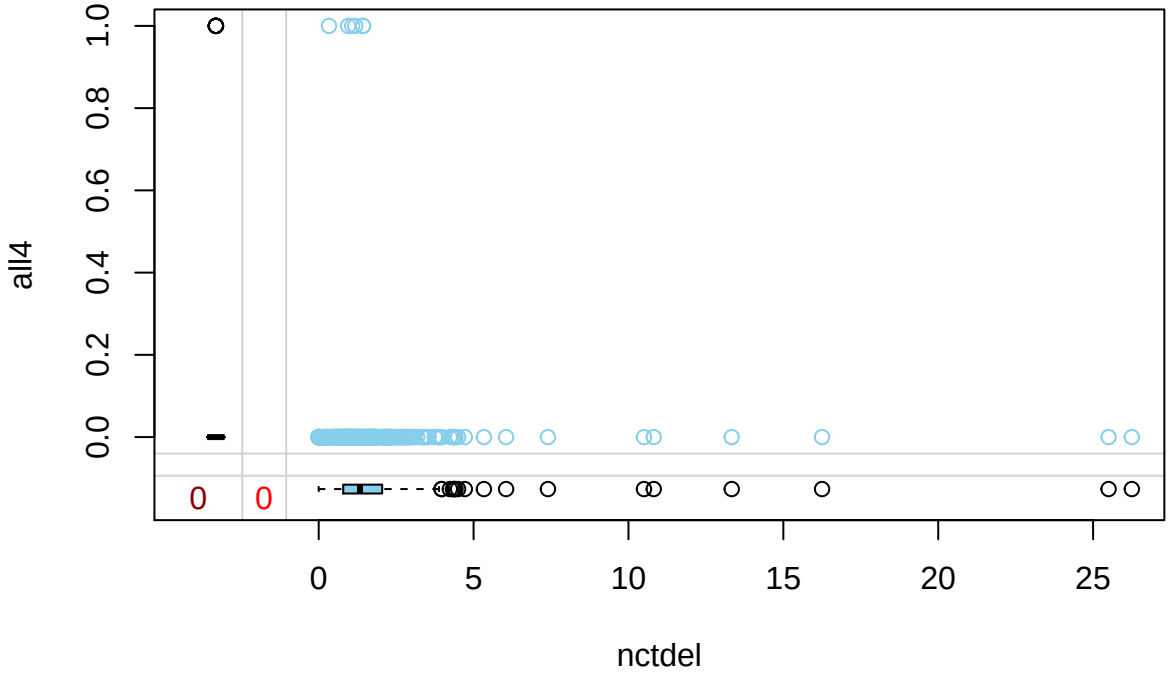

black
0.0
0.2
0.4
0.6
0.8
1.0
0
0
0
5
10
15
20
25
nctdel

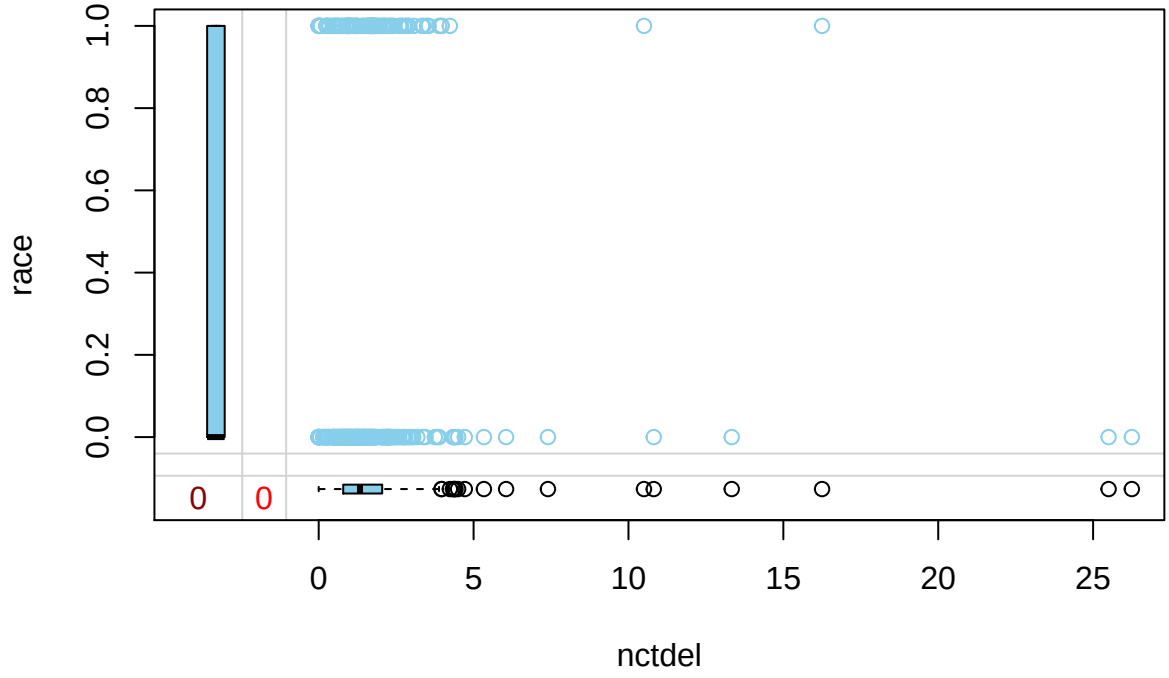

hisp
0.0
0.2
0.4
0.6
0.8
1.0
0
0
0
5
10
15
20
25
nctdel


sn1
0.0
0.2
0.4
0.6
0.8
1.0
0
0
0
5
10
15
20
25
nctdel


sn2
0.0
0.2
0.4
0.6
0.8
1.0
0
0
0
5
10
15
20
25
nctdel

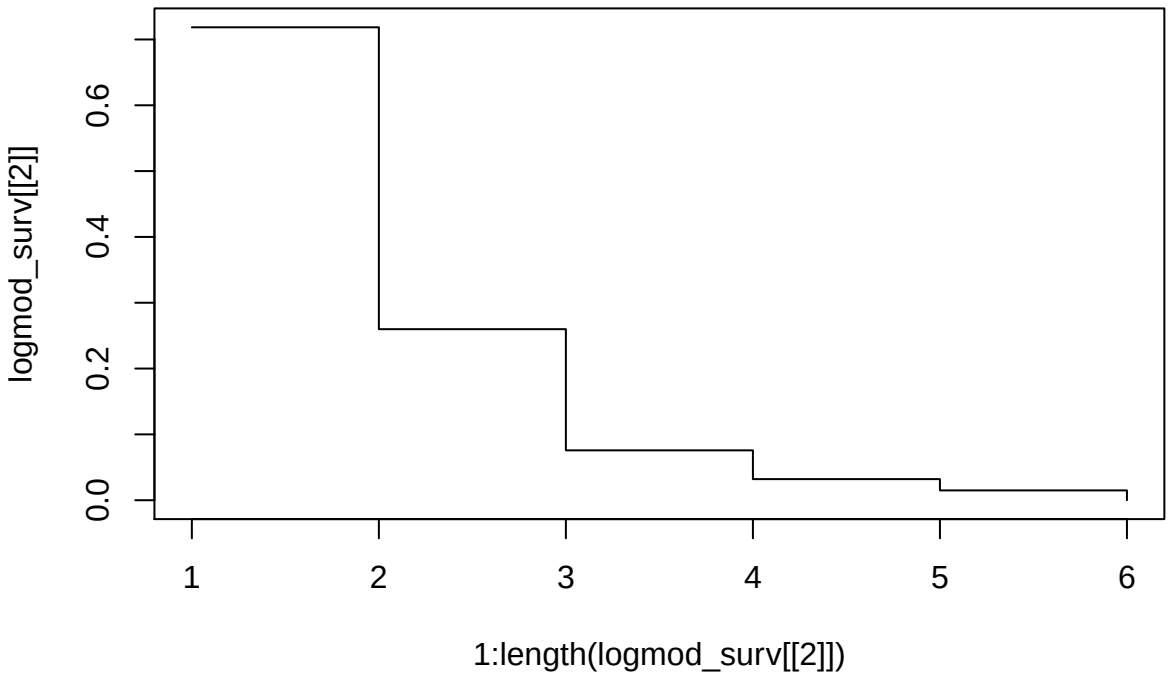

sn3
0.0
0.2
0.4
0.6
0.8
1.0
0
0
0
5
10
15
20
25
nctdel

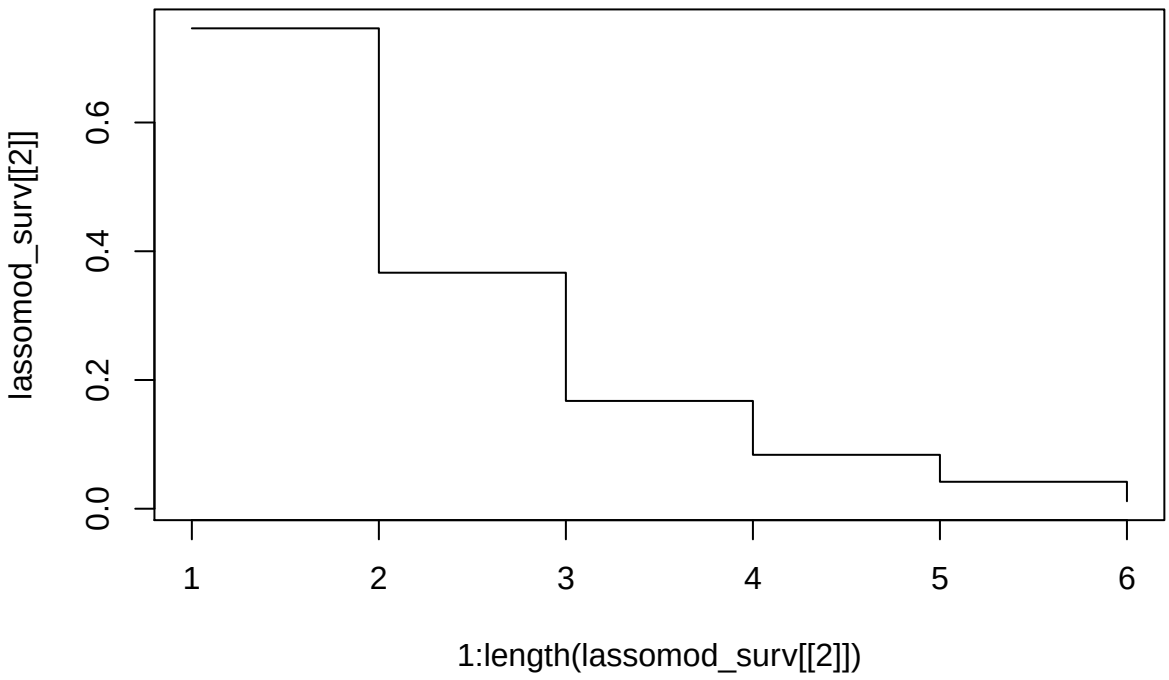

all4
0.0
0.2
0.4
0.6
0.8
1.0
0
0
0
5
10
15
20
25
nctdel

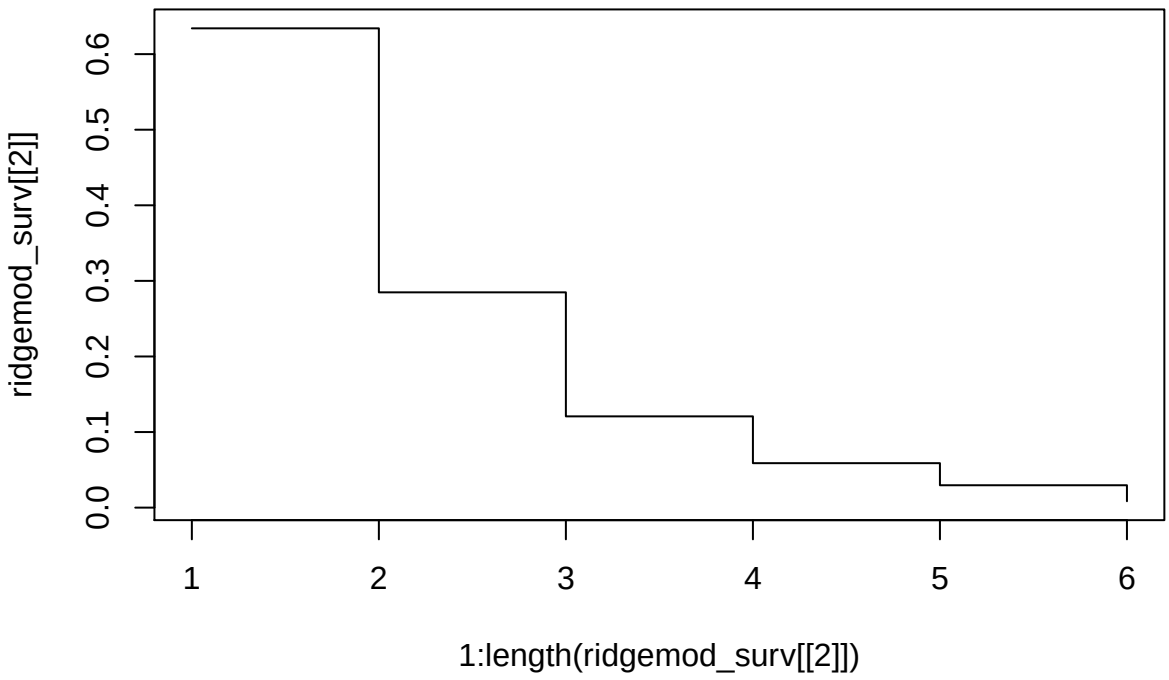

race
0.0
0.2
0.4
0.6
0.8
1.0
0
0
0
5
10
15
20
25
nctdel

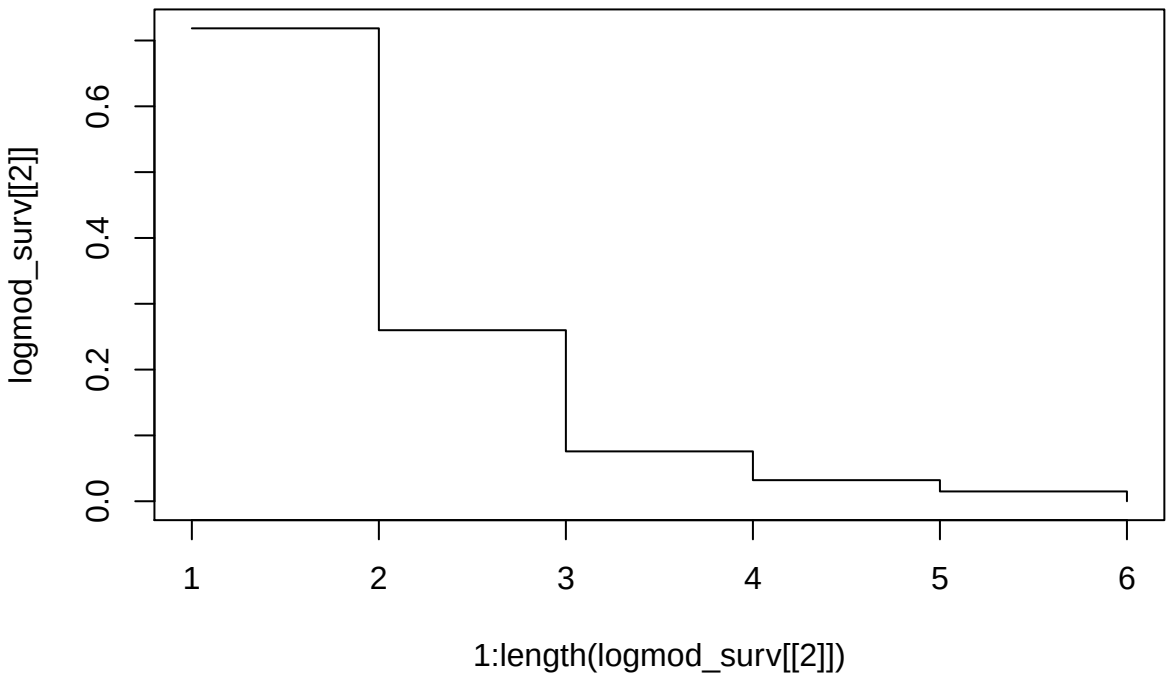
## Survival Curves:

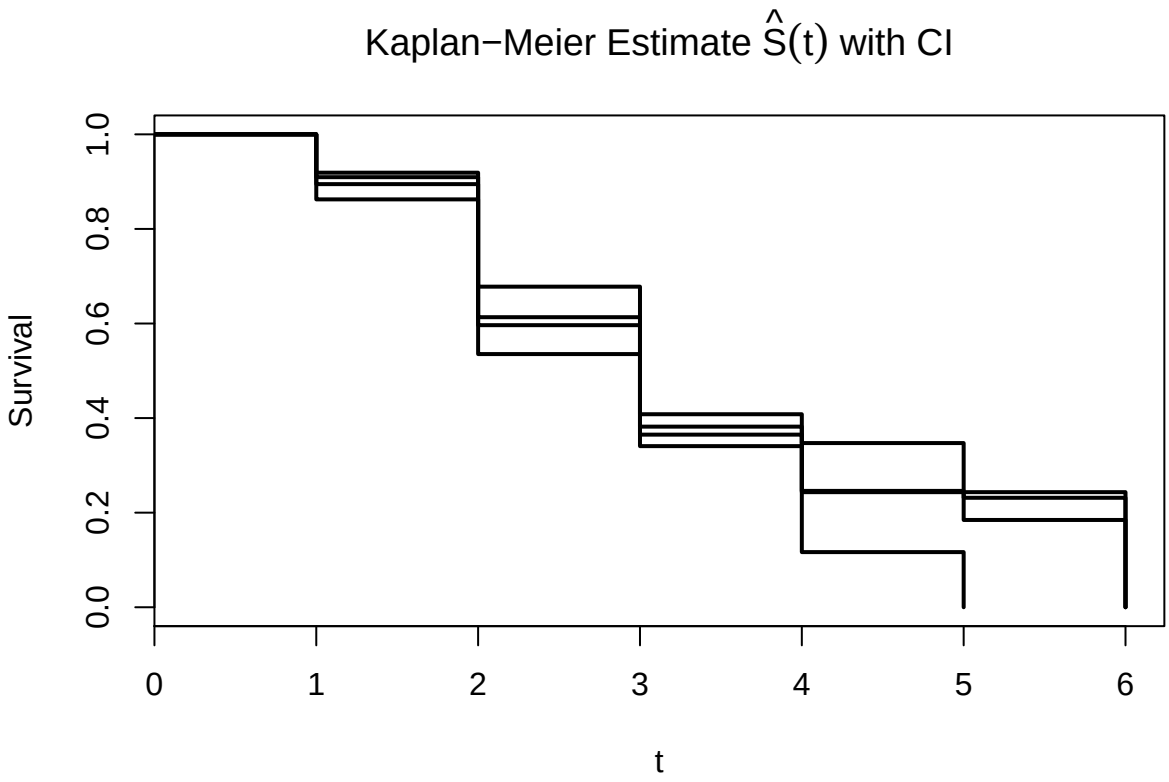
**Question for Jonathan: how do we plot a survival curve from glm???**

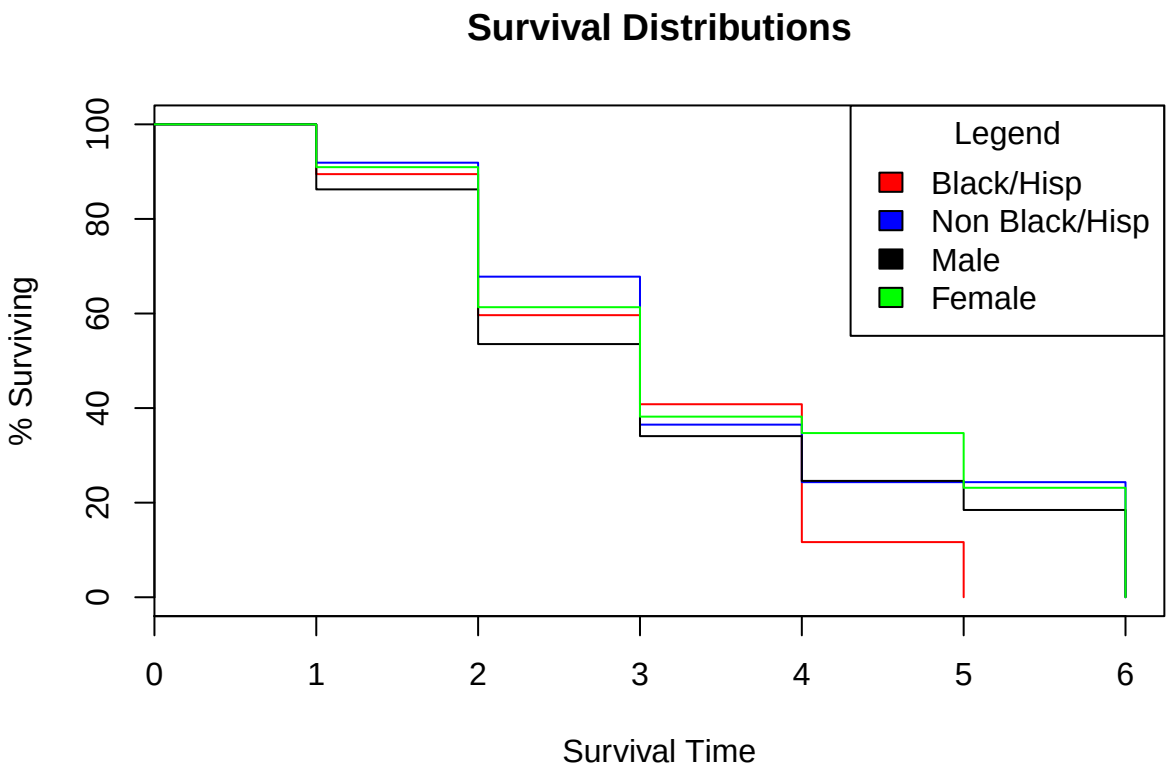



lassomod_surv[[2]]
0.0
0.2
0.4
0.6
1
2
3
4
5
6
1:length(lassomod_surv[[2]])


ridgemod_surv[[2]]
0.0
0.1
0.2
0.3
0.4
0.5
0.6
1
2
3
4
5
6
1:length(ridgemod_surv[[2]])


logmod_surv[[2]]
0.0
0.2
0.4
0.6
1
2
3
4
5
6
1:length(logmod_surv[[2]])


Kaplan−Meier Estimate Ŝ(t) with CI
Survival
0.0
0.2
0.4
0.6
0.8
1.0
0
1
2
3
4
5
6
t




```
## Call:
## survdiff(formula = Surv(timecat, fail) ~ raceother + male, data = datcat_X)
##
##                          N Observed Expected (O-E)^2/E (O-E)^2/V
## raceother=0, male=0  95       38     35.6     0.164      0.26
## raceother=0, male=1 111       42     47.7     0.675      1.17
## raceother=1, male=0 240      103     91.2     1.517      3.20
## raceother=1, male=1 243       94    102.5     0.706      1.60
##
##  Chisq= 4.4  on 3 degrees of freedom, p= 0.225
```

## Discussion

why nothing is significant:

```
## # A tibble: 4 x 6
##   symptom     mean     n        sd    lower    upper
##     <chr>    <dbl> <int>     <dbl>    <dbl>    <dbl>
## 1       0 1.560370    45 0.8675425 1.306892 1.813849
## 2       1 1.547995   133 0.7804779 1.415350 1.680640
## 3       2 1.618750    56 0.7784150 1.414871 1.822629
## 4      3+ 1.493333    25 0.6746227 1.228881 1.757785
```

```
## # A tibble: 2 x 3
##   gender     mean   median
##    <chr>    <dbl>    <dbl>
```

```
## 1 female 1.516541 1.433333
## 2   male 1.606217 1.566667
```

```
## # A tibble: 2 x 3
##                race     mean   median
##               <chr>    <dbl>    <dbl>
## 1 Black or Hispanic 1.727556 1.716667
## 2             Other 1.491938 1.383333
```

# References

https://www.r-bloggers.com/imputing-missing-data-with-r-mice-package/