

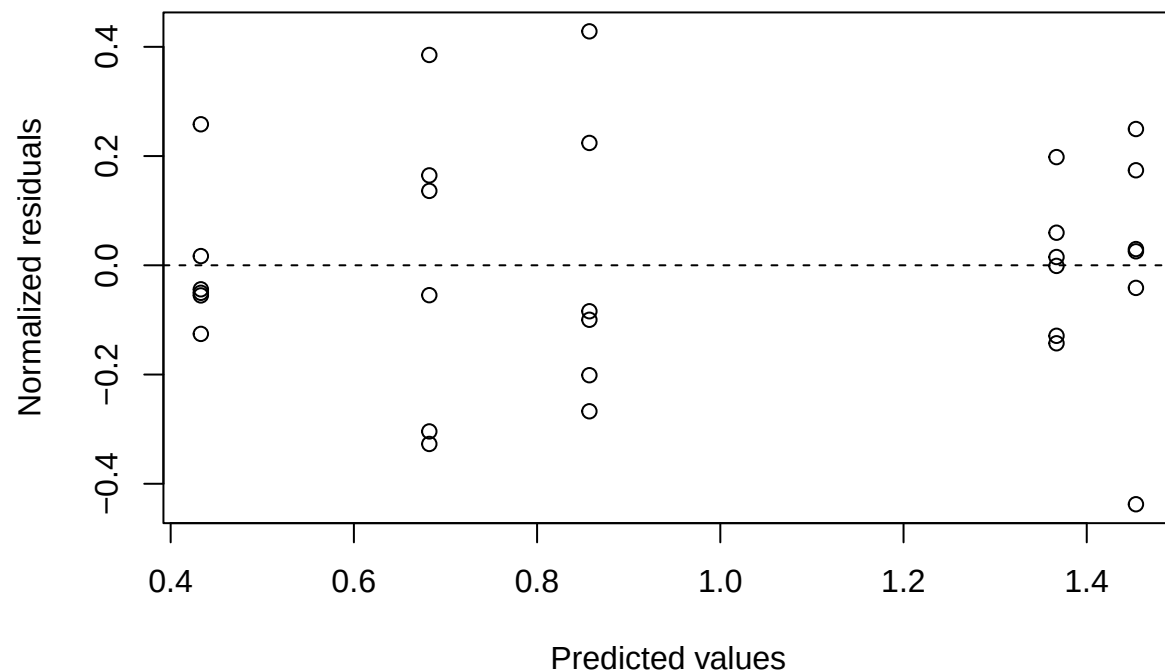
Pangasionodon hypophthalmus Validation 6dph

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décembre 15, 2021,08:20

Contents

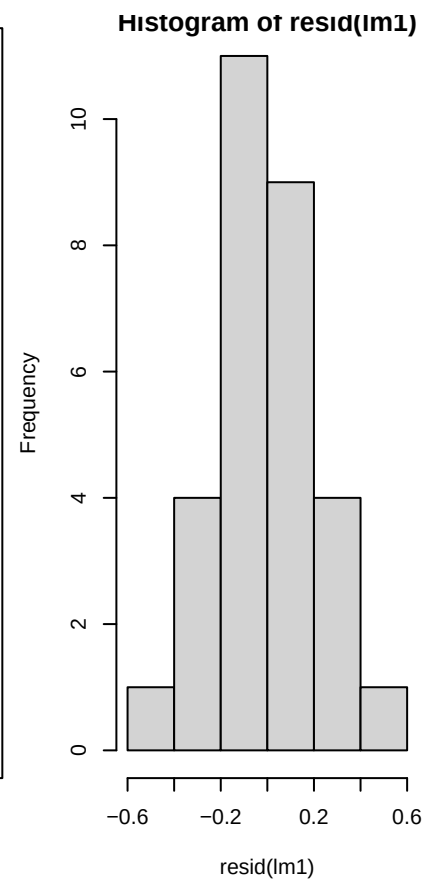
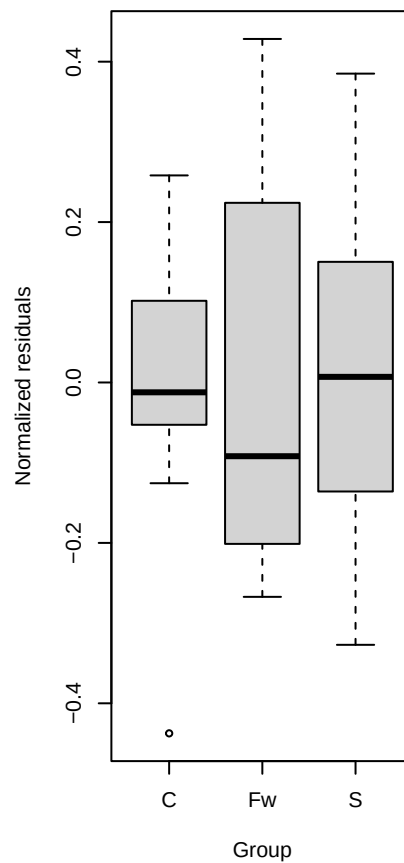
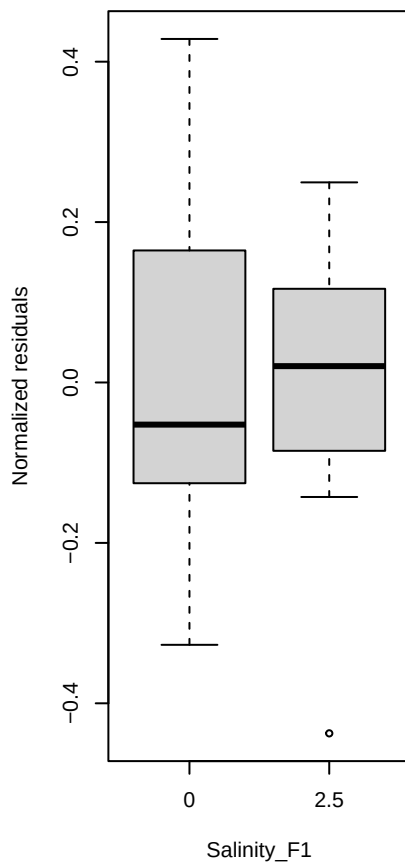
```
##
##  Shapiro-Wilk normality test
##
## data:  Gene$dnmt1
## W = 0.92346, p-value = 0.033
##
##  Bartlett test of homogeneity of variances
##
## data:  Gene$dnmt1 by Gene$Sample.Name
## Bartlett's K-squared = 4.8629, df = 4, p-value = 0.3017
## Levene's Test for Homogeneity of Variance (center = median)
##      Df F value Pr(>F)
## group  4  1.1379 0.3615
##      25
```

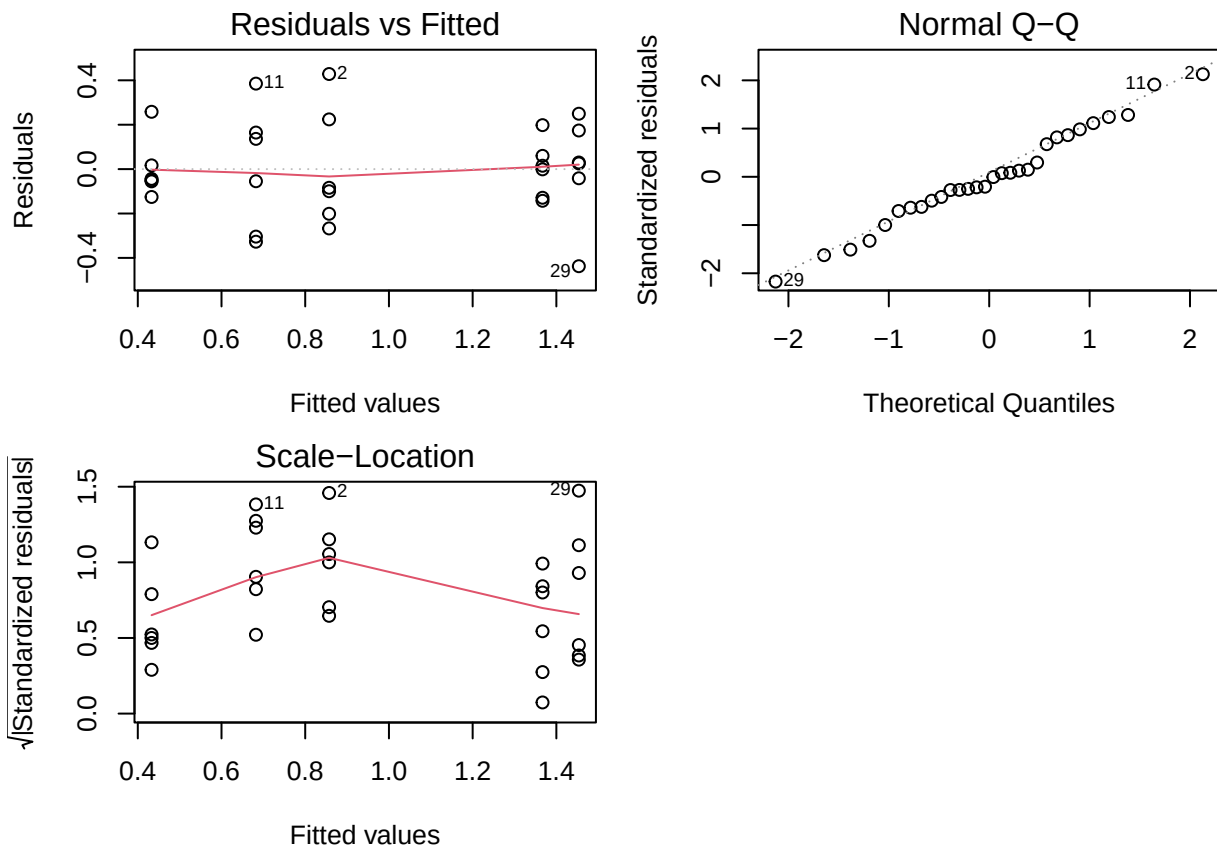


```
## integer(0)

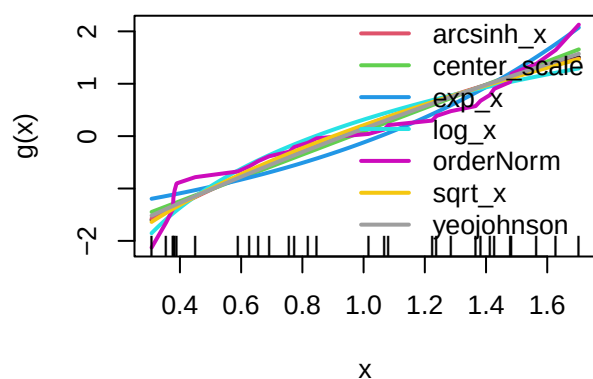
## $stats
##           [,1]      [,2]
## [1,] -0.32710432 -0.14276692
## [2,] -0.12559076 -0.08521499
## [3,] -0.05252898  0.02039178
## [4,]  0.16462015  0.11682755
## [5,]  0.42834340  0.24952428
##
## $n
## [1] 18 12
##
## $conf
##           [,1]      [,2]
## [1,] -0.16060630 -0.07176117
## [2,]  0.05554834  0.11254474
##
## $out
##           29
## -0.4374756
##
## $group
## [1] 2
##
## $names
## [1] "0"  "2.5"
```

```
## $stats
##           [,1]      [,2]      [,3]
## [1,] -0.12559076 -0.26727970 -0.327104316
## [2,] -0.05274695 -0.20123717 -0.135911381
## [3,] -0.01225525 -0.09192079  0.007033971
## [4,]  0.10185206  0.22401505  0.150424563
## [5,]  0.25820233  0.42834340  0.385105064
##
## $n
## [1] 12  6 12
##
## $conf
##           [,1]      [,2]      [,3]
## [1,] -0.0827689 -0.3662222 -0.1235658
## [2,]  0.0582584  0.1823806  0.1376337
##
## $out
##           29
## -0.4374756
##
## $group
## [1] 1
##
## $names
## [1] "C"  "Fw" "S"
```





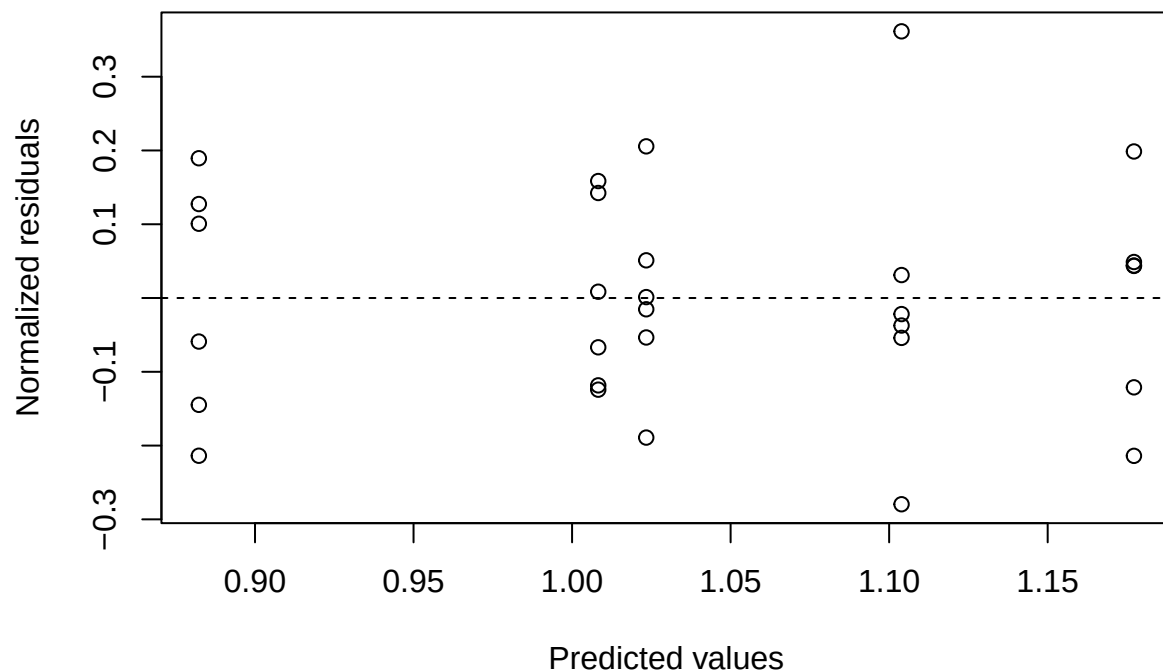
```
## Best Normalizing transformation with 30 Observations
## Estimated Normality Statistics (Pearson P / df, lower => more normal):
## - arcsinh(x): 1.7467
## - Box-Cox: 1.6933
## - Center+scale: 1.8
## - Exp(x): 1.8533
## - Log_b(x+a): 1.6933
## - orderNorm (ORQ): 1.8
## - sqrt(x + a): 1.6933
## - Yeo-Johnson: 1.8533
## Estimation method: Out-of-sample via CV with 10 folds and 5 repeats
##
## Based off these, bestNormalize chose:
## Standardized Box Cox Transformation with 30 nonmissing obs.:
## Estimated statistics:
## - lambda = 0.5944998
## - mean (before standardization) = -0.08838138
## - sd (before standardization) = 0.4747799
## [1] TRUE
```



```
##
##  Shapiro-Wilk normality test
##
## data:  Gene$dnmt3aa
## W = 0.98452, p-value = 0.9287

##
##  Bartlett test of homogeneity of variances
##
## data:  Gene$dnmt3aa by Gene$Sample.Name
## Bartlett's K-squared = 1.6186, df = 4, p-value = 0.8055

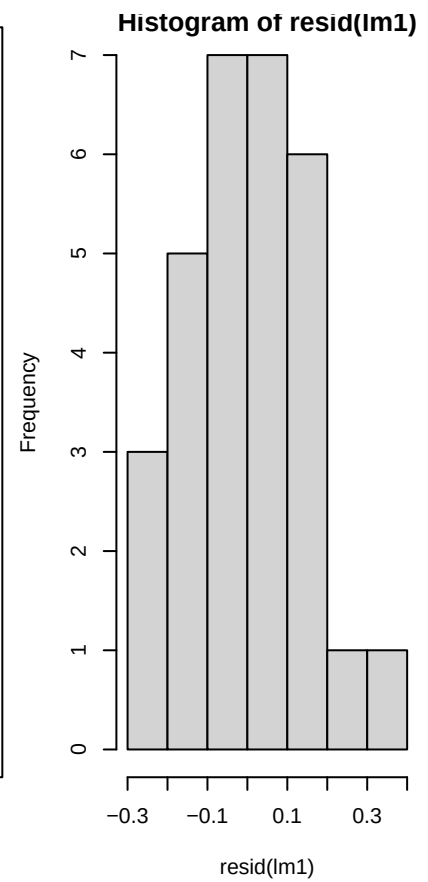
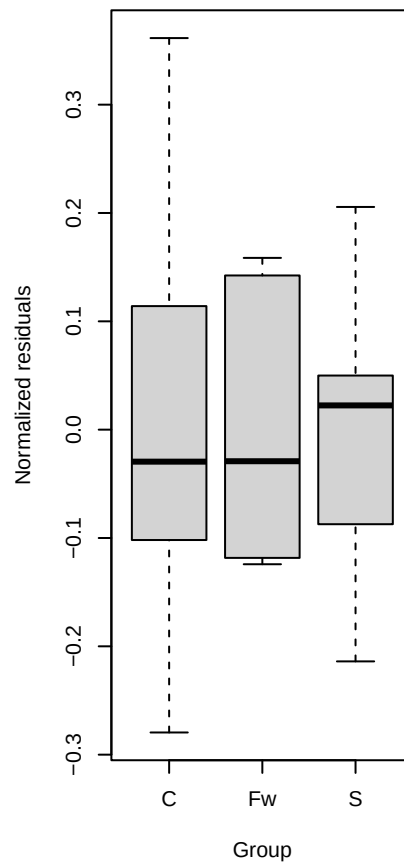
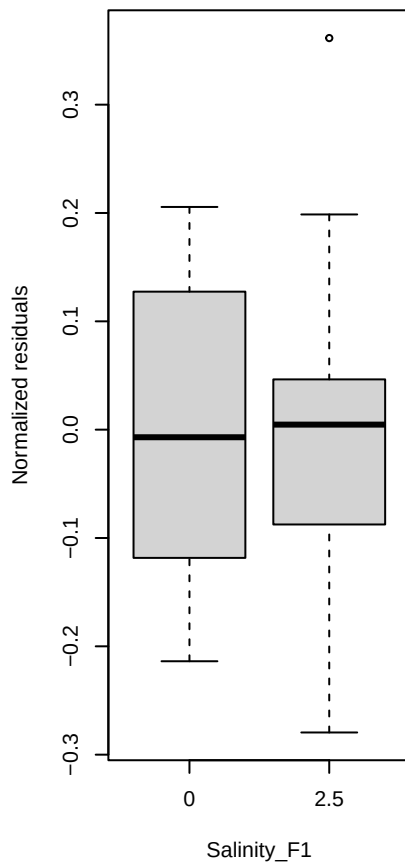
## Levene's Test for Homogeneity of Variance (center = median)
##      Df F value Pr(>F)
## group 4  0.2553 0.9037
##      25
```

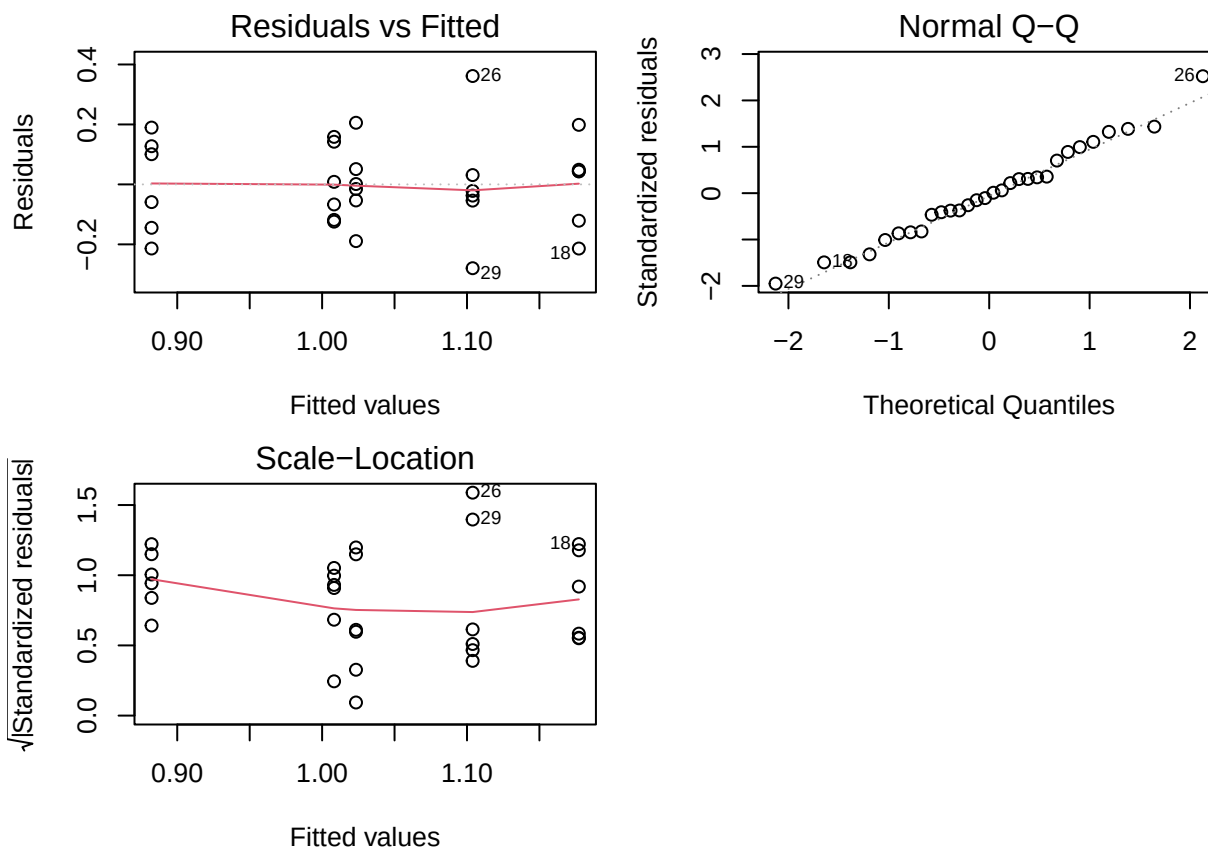


```
## integer(0)

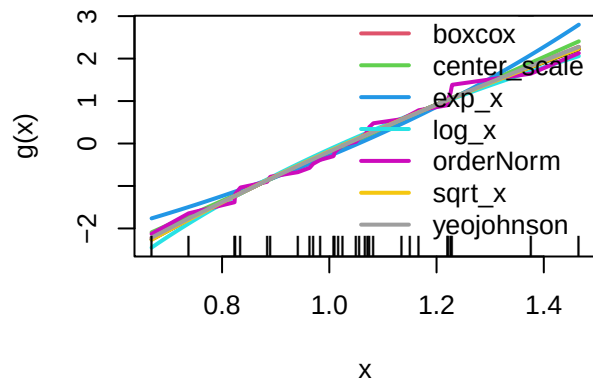
## $stats
##           [,1]      [,2]
## [1,] -0.213769077 -0.279524267
## [2,] -0.118381249 -0.087536430
## [3,] -0.007016375  0.004670258
## [4,]  0.127384806  0.046417080
## [5,]  0.205578951  0.198656105
##
## $n
## [1] 18 12
##
## $conf
##           [,1]      [,2]
## [1,] -0.09854201 -0.05642684
## [2,]  0.08450926  0.06576735
##
## $out
##      26
## 0.3614669
##
## $group
## [1] 2
##
## $names
## [1] "0"  "2.5"
```

```
## $stats
##           [,1]      [,2]      [,3]
## [1,] -0.27952427 -0.12423278 -0.21391550
## [2,] -0.10188500 -0.11838125 -0.08727111
## [3,] -0.02953026 -0.02914821  0.02236961
## [4,]  0.11404278  0.14234415  0.04995117
## [5,]  0.36146694  0.15856630  0.20557895
##
## $n
## [1] 12  6 12
##
## $conf
##           [,1]      [,2]      [,3]
## [1,] -0.12801637 -0.1973245 -0.04021840
## [2,]  0.06895584  0.1390281  0.08495762
##
## $out
## numeric(0)
##
## $group
## numeric(0)
##
## $names
## [1] "C"  "Fw" "S"
```





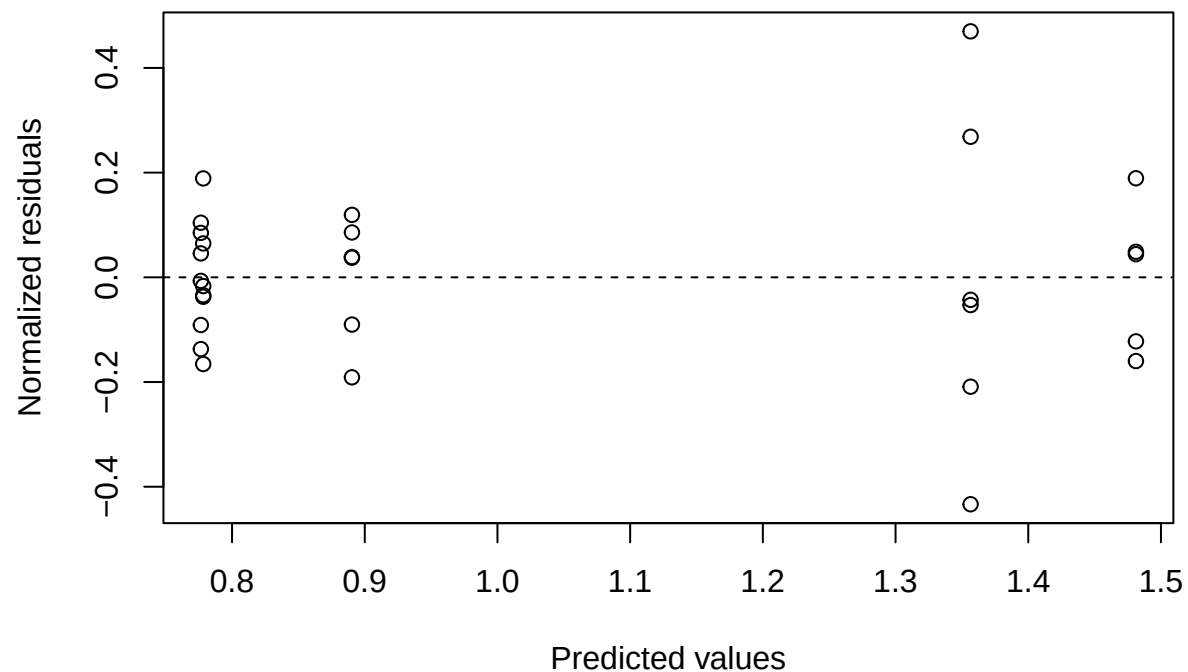
```
## Best Normalizing transformation with 30 Observations
## Estimated Normality Statistics (Pearson P / df, lower => more normal):
## - arcsinh(x): 1.5867
## - Box-Cox: 1.5867
## - Center+scale: 1.5867
## - Exp(x): 1.5867
## - Log_b(x+a): 1.5867
## - orderNorm (ORQ): 1.5867
## - sqrt(x + a): 1.5867
## - Yeo-Johnson: 1.5867
## Estimation method: Out-of-sample via CV with 10 folds and 5 repeats
##
## Based off these, bestNormalize chose:
## Standardized asinh(x) Transformation with 30 nonmissing obs.:
## Relevant statistics:
## - mean (before standardization) = 0.9034851
## - sd (before standardization) = 0.1226002
## [1] TRUE
```

```
##
##  Shapiro-Wilk normality test
##
## data:  Gene3ab$dnmt3ab
## W = 0.89573, p-value = 0.007755

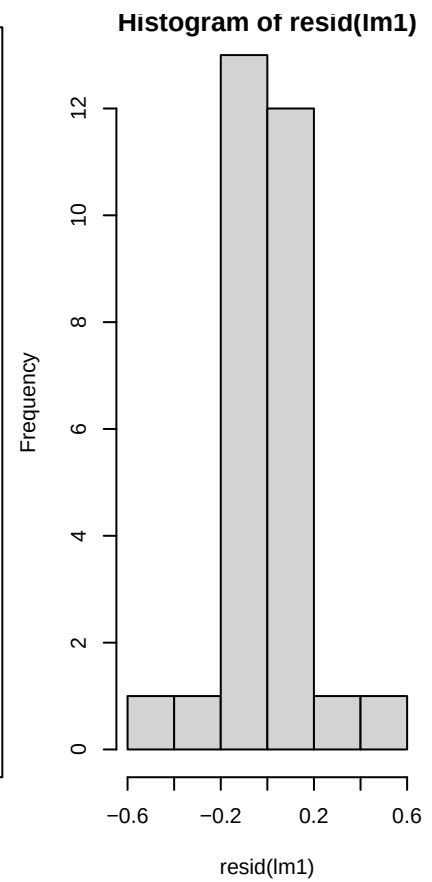
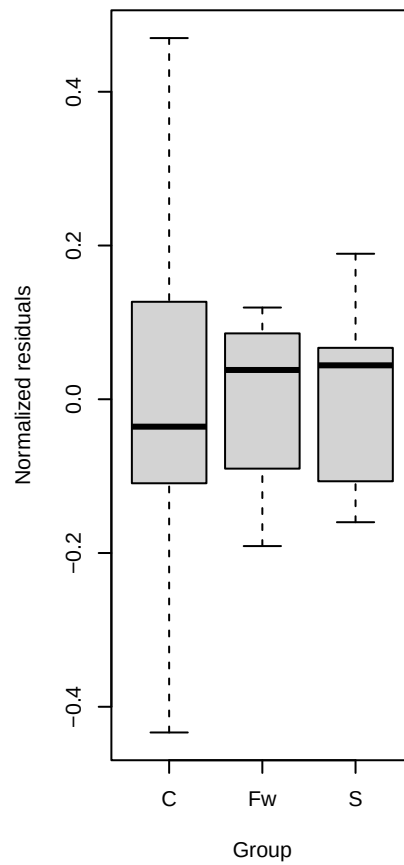
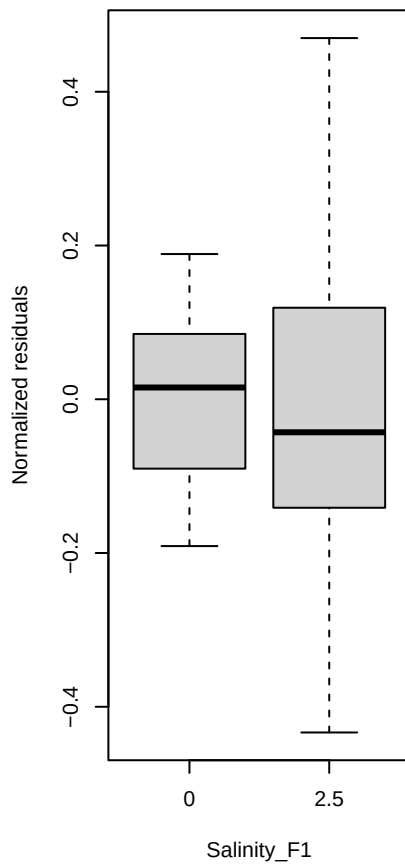
##
##  Bartlett test of homogeneity of variances
##
## data:  Gene3ab$dnmt3ab by Gene3ab$Sample.Name
## Bartlett's K-squared = 10.283, df = 4, p-value = 0.03593

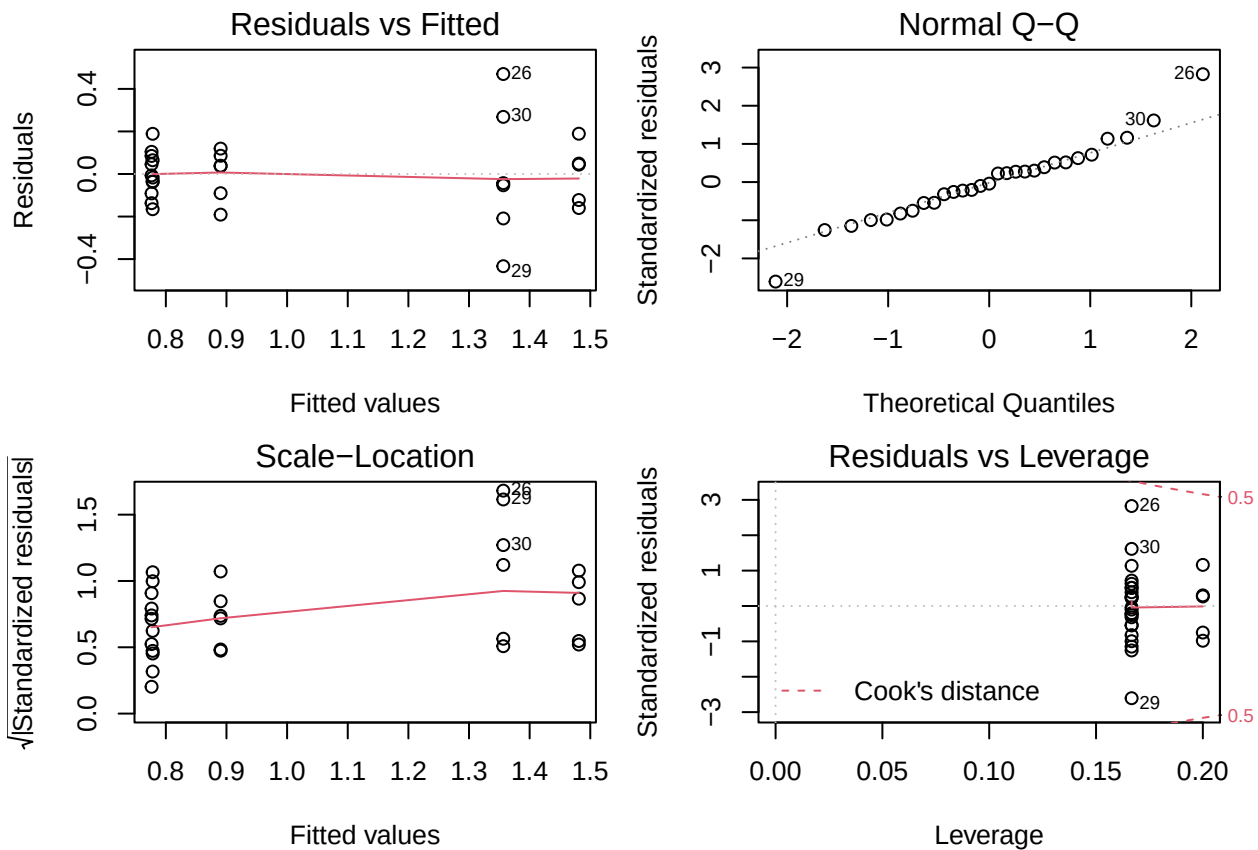
## Levene's Test for Homogeneity of Variance (center = median)
##      Df F value Pr(>F)
## group  4  1.8318 0.1556
##      24
```



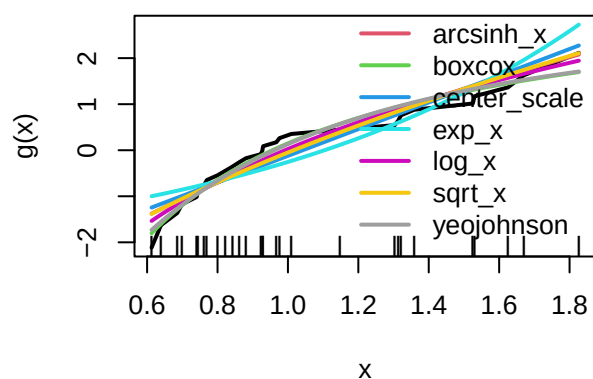
```
## integer(0)
## $stats
##           [,1]      [,2]
## [1,] -0.19098207 -0.4334444
## [2,] -0.09023874 -0.1411230
## [3,]  0.01530027 -0.0429513
## [4,]  0.08495330  0.1190525
## [5,]  0.18889569  0.4698457
##
## $n
## [1] 18 11
##
## $conf
##           [,1]      [,2]
## [1,] -0.04994293 -0.16689574
## [2,]  0.08054346  0.08099315
##
## $out
## numeric(0)
##
## $group
## numeric(0)
##
## $names
## [1] "0"  "2.5"
```

```
## $stats
##           [,1]      [,2]      [,3]
## [1,] -0.43344439 -0.19098207 -0.15994172
## [2,] -0.10929251 -0.09023874 -0.10669315
## [3,] -0.03564658  0.03811763  0.04414103
## [4,]  0.12680776  0.08568771  0.06689228
## [5,]  0.46984571  0.11929783  0.18927368
##
## $n
## [1] 12  6 11
##
## $conf
##           [,1]      [,2]      [,3]
## [1,] -0.14333350 -0.07536062 -0.03855297
## [2,]  0.07204033  0.15159588  0.12683503
##
## $out
## numeric(0)
##
## $group
## numeric(0)
##
## $names
## [1] "C"  "Fw" "S"
```





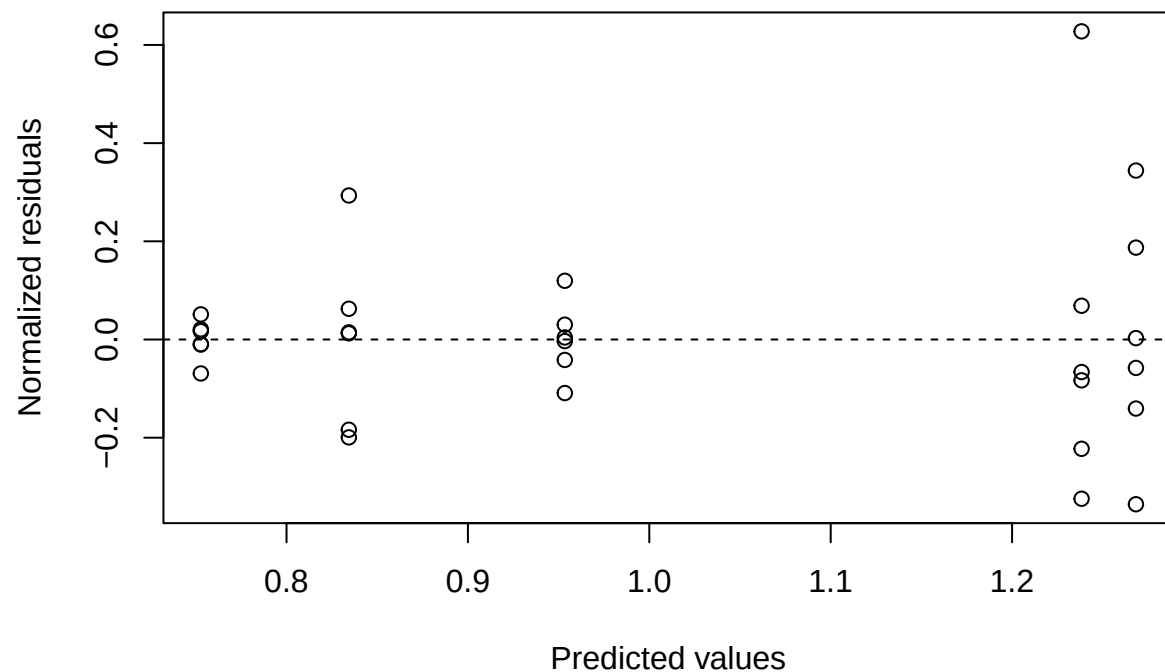
```
## Best Normalizing transformation with 29 Observations
## Estimated Normality Statistics (Pearson P / df, lower => more normal):
## - arcsinh(x): 2.3103
## - Box-Cox: 0.5448
## - Center+scale: 2.6414
## - Exp(x): 4.4069
## - Log_b(x+a): 1.2069
## - orderNorm (ORQ): 0.2138
## - sqrt(x + a): 2.3103
## - Yeo-Johnson: 0.5448
## Estimation method: Out-of-sample via leave-one-out CV
##
## Based off these, bestNormalize chose:
## orderNorm Transformation with 29 nonmissing obs and no ties
## - Original quantiles:
##   0%   25%   50%   75%  100%
## 0.613 0.770 0.928 1.314 1.826
## [1] TRUE
```



```
##
##  Shapiro-Wilk normality test
##
## data:  Gene$dnmt3ab3
## W = 0.9115, p-value = 0.01623

##
##  Bartlett test of homogeneity of variances
##
## data:  Gene$dnmt3ab3 by Gene$Sample.Name
## Bartlett's K-squared = 19.34, df = 4, p-value = 0.0006737

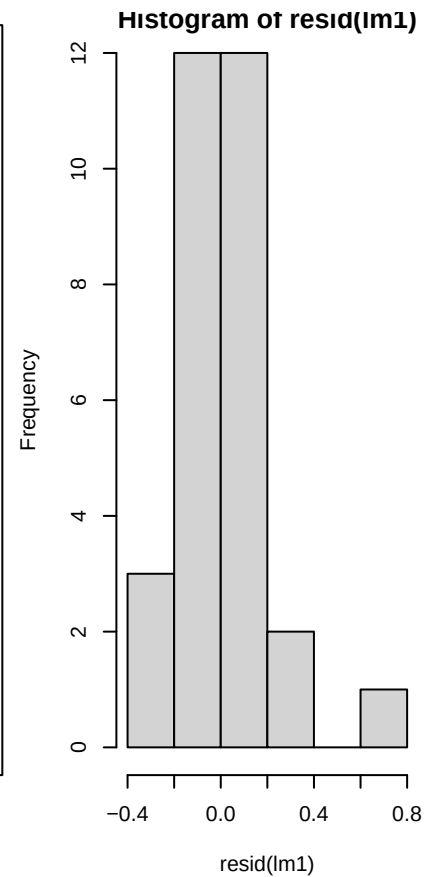
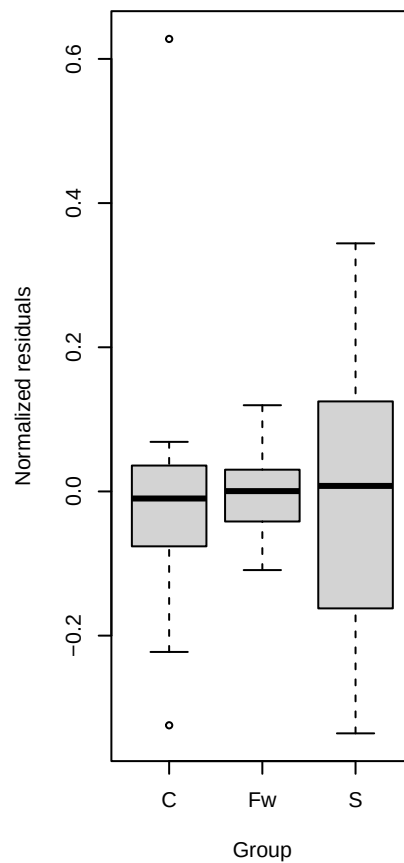
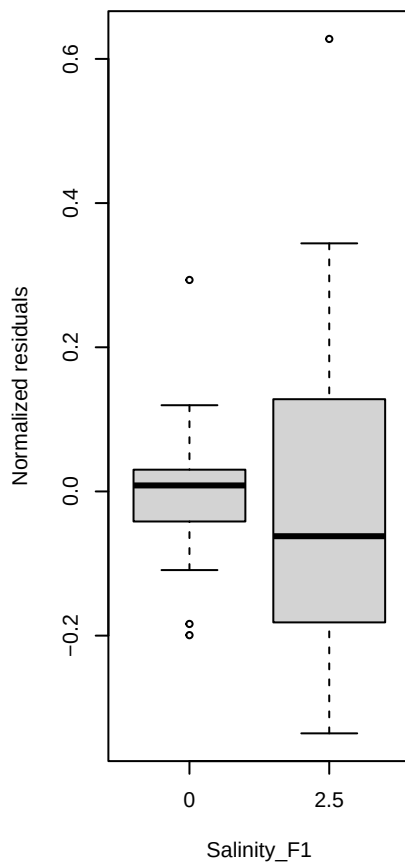
## Levene's Test for Homogeneity of Variance (center = median)
##      Df F value Pr(>F)
## group 4  1.7352 0.1738
##      25
```

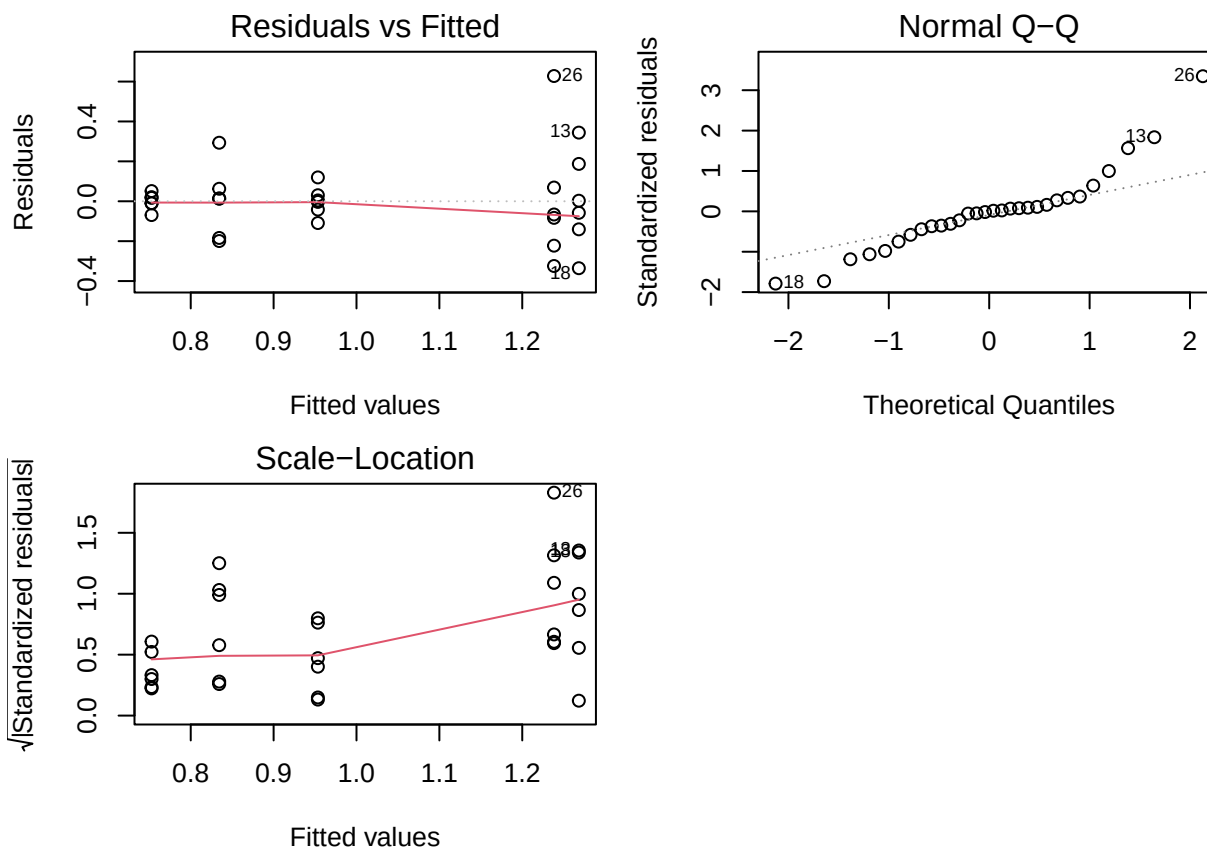


```
## integer(0)

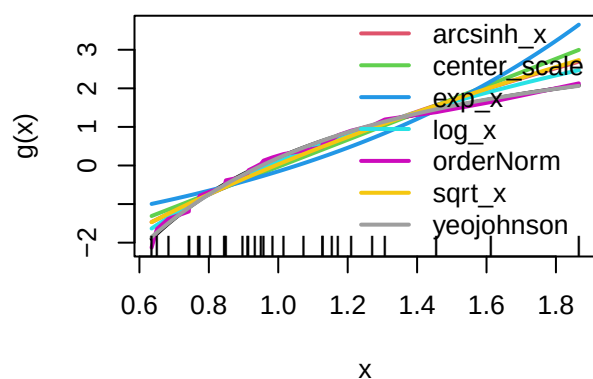
## $stats
##           [,1]      [,2]
## [1,] -0.109068267 -0.33556005
## [2,] -0.041661449 -0.18163838
## [3,]  0.008356064 -0.06210021
## [4,]  0.030213288  0.12797198
## [5,]  0.119592484  0.34415958
##
## $n
## [1] 18 12
##
## $conf
##           [,1]      [,2]
## [1,] -0.01841078 -0.20331557
## [2,]  0.03512290  0.07911516
##
## $out
##           8          9          10          26
##  0.2933666 -0.1993281 -0.1838180  0.6276900
##
## $group
## [1] 1 1 1 2
##
## $names
## [1] "0"  "2.5"
```

```
## $stats
##           [,1]      [,2]      [,3]
## [1,] -0.222627190 -0.1090682675 -0.33556005
## [2,] -0.076155057 -0.0416614485 -0.16223378
## [3,] -0.009803885  0.0004619715  0.00768267
## [4,]  0.035925439  0.0302132885  0.12489475
## [5,]  0.068772746  0.1195924845  0.34415958
##
## $n
## [1] 12  6 12
##
## $conf
##           [,1]      [,2]      [,3]
## [1,] -0.06092455 -0.04589956 -0.1232786
## [2,]  0.04131678  0.04682350  0.1386439
##
## $out
##           26          29
## 0.6276900 -0.3243819
##
## $group
## [1] 1 1
##
## $names
## [1] "C"  "Fw" "S"
```

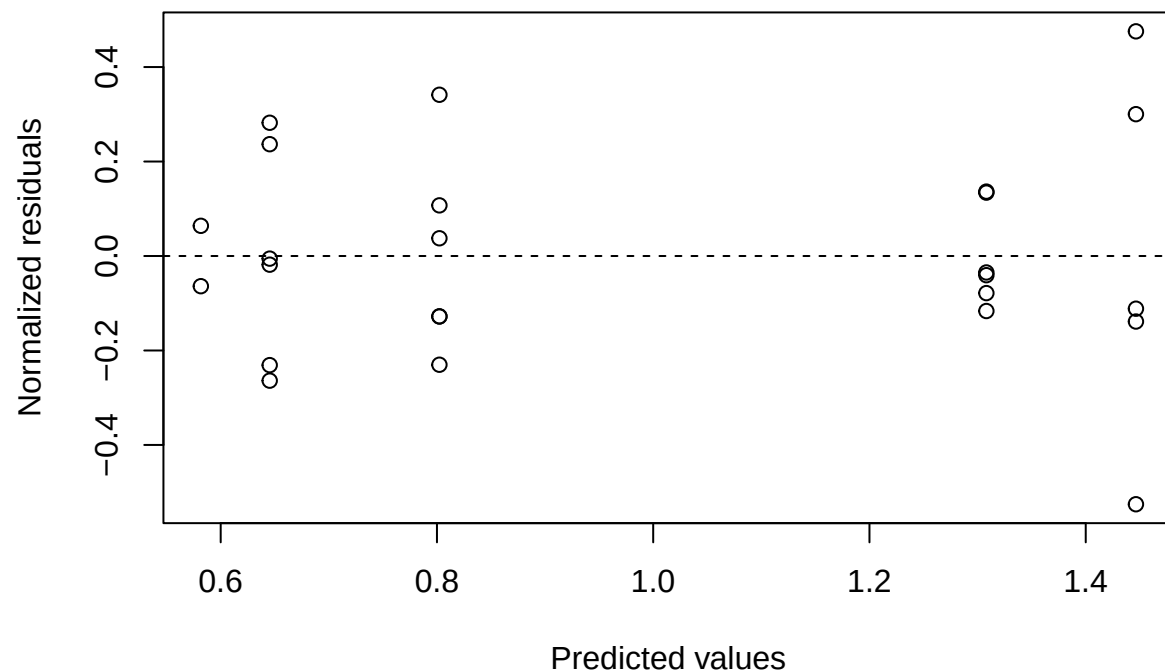




```
## Best Normalizing transformation with 30 Observations
## Estimated Normality Statistics (Pearson P / df, lower => more normal):
## - arcsinh(x): 1.5333
## - Box-Cox: 1.48
## - Center+scale: 1.48
## - Exp(x): 1.48
## - Log_b(x+a): 1.5333
## - orderNorm (ORQ): 1.9067
## - sqrt(x + a): 1.5333
## - Yeo-Johnson: 1.48
## Estimation method: Out-of-sample via CV with 10 folds and 5 repeats
##
## Based off these, bestNormalize chose:
## Standardized Box Cox Transformation with 30 nonmissing obs.:
## Estimated statistics:
## - lambda = -0.8102814
## - mean (before standardization) = -0.05250811
## - sd (before standardization) = 0.2611019
## [1] TRUE
```

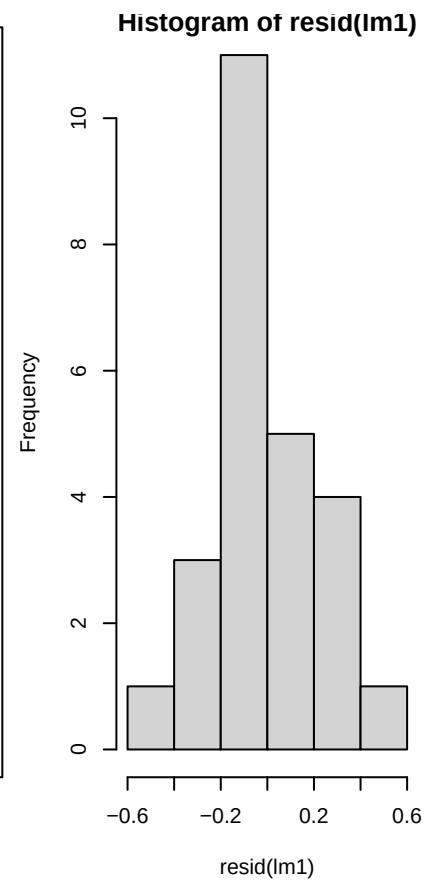
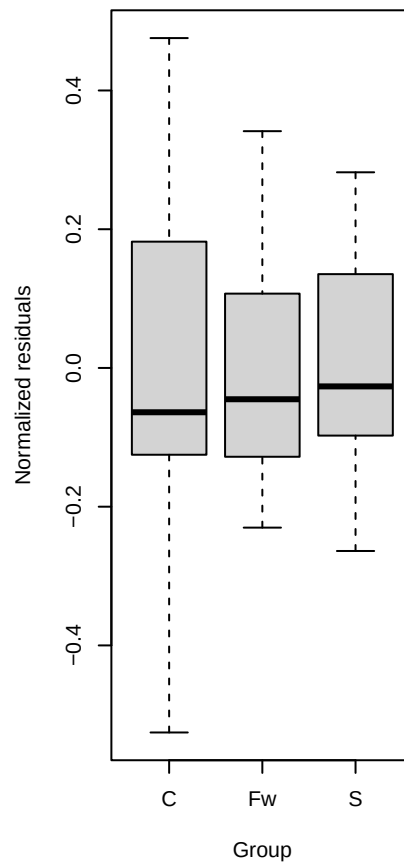
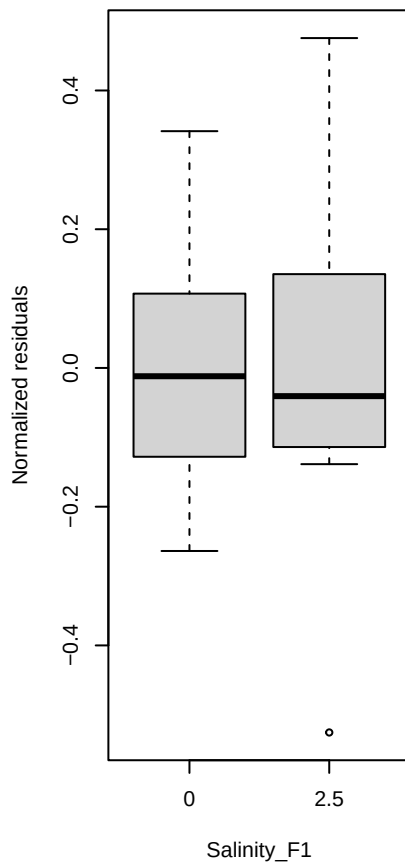
```
##
##  Shapiro-Wilk normality test
##
## data:  Gene3ba4$dnmt3ba4
## W = 0.95432, p-value = 0.313
##
##  Bartlett test of homogeneity of variances
##
## data:  Gene3ba4$dnmt3ba4 by Gene3ba4$Sample.Name
## Bartlett's K-squared = 7.0463, df = 4, p-value = 0.1335
## Levene's Test for Homogeneity of Variance (center = median)
##      Df F value Pr(>F)
## group  4  1.5434 0.2279
##      20
```

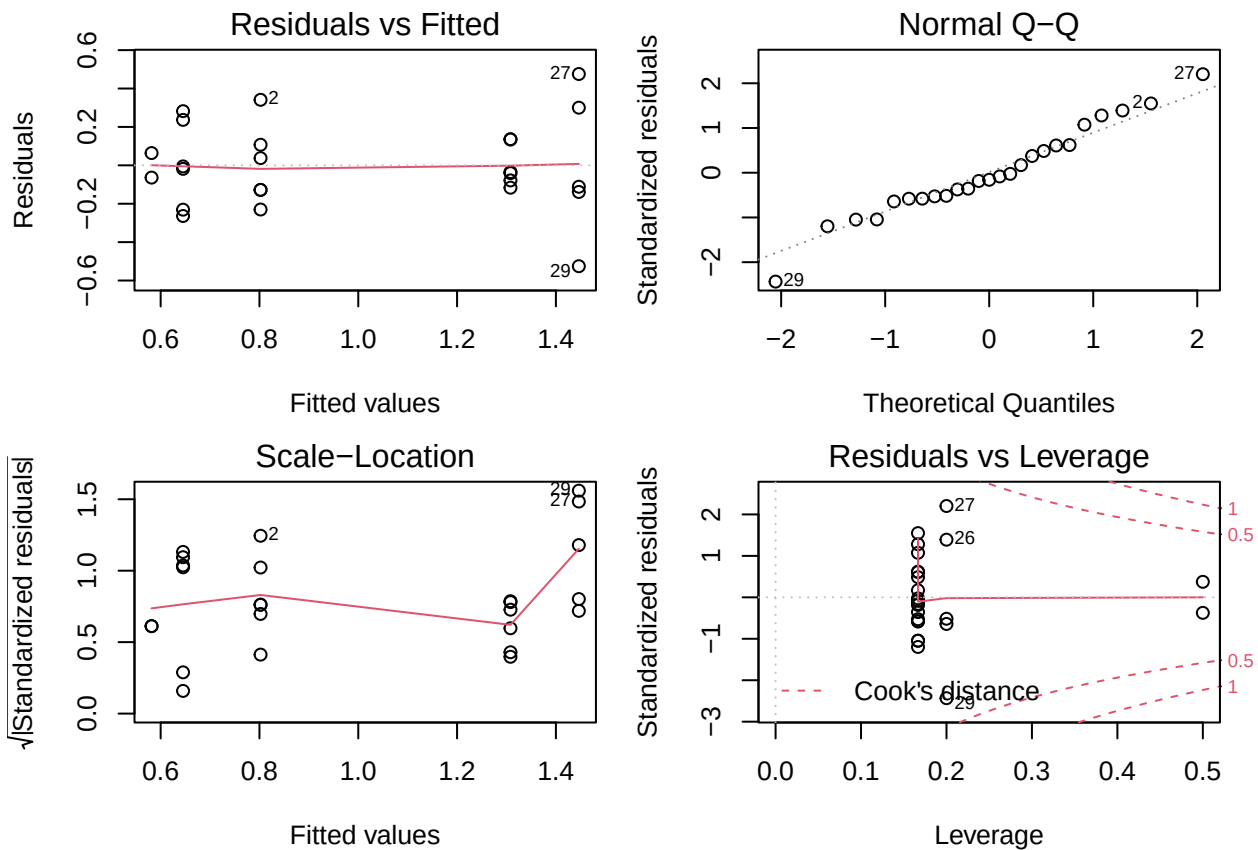


```
## integer(0)

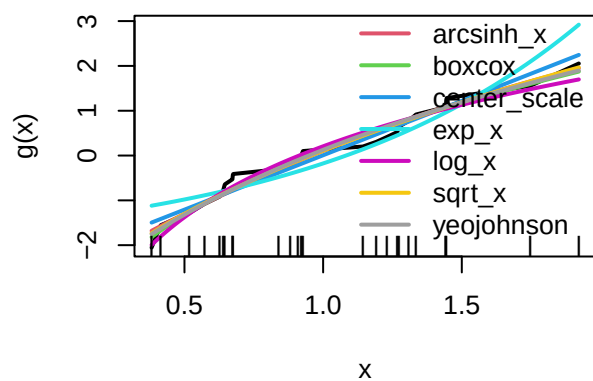
## $stats
##           [,1]      [,2]
## [1,] -0.26386975 -0.13869778
## [2,] -0.12804122 -0.11402786
## [3,] -0.01195276 -0.04063169
## [4,]  0.10715332  0.13524238
## [5,]  0.34132278  0.47554894
##
## $n
## [1] 14 11
##
## $conf
##           [,1]      [,2]
## [1,] -0.11126901 -0.15938102
## [2,]  0.08736349  0.07811764
##
## $out
##           29
## -0.5255011
##
## $group
## [1] 2
##
## $names
## [1] "0"  "2.5"
```

```
## $stats
##           [,1]      [,2]      [,3]
## [1,] -0.52550114 -0.23019865 -0.26386975
## [2,] -0.12514176 -0.12804122 -0.09751199
## [3,] -0.06390341 -0.04511811 -0.02659291
## [4,]  0.18206957  0.10715332  0.13524238
## [5,]  0.47554894  0.34132278  0.28207162
##
## $n
## [1]  7  6 12
##
## $conf
##           [,1]      [,2]      [,3]
## [1,] -0.2473651 -0.1968262 -0.13275374
## [2,]  0.1195582  0.1065900  0.07956792
##
## $out
## numeric(0)
##
## $group
## numeric(0)
##
## $names
## [1] "C"  "Fw" "S"
```





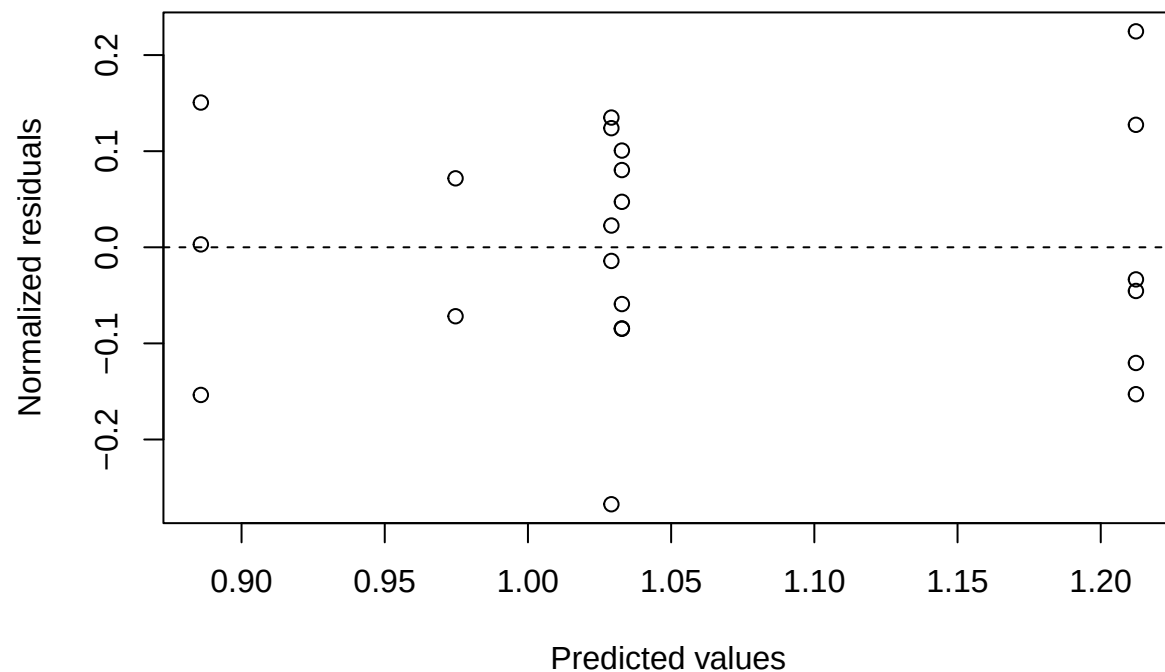
```
## Best Normalizing transformation with 25 Observations
## Estimated Normality Statistics (Pearson P / df, lower => more normal):
## - arcsinh(x): 2.616
## - Box-Cox: 2.616
## - Center+scale: 2.36
## - Exp(x): 3.384
## - Log_b(x+a): 0.824
## - orderNorm (ORQ): 0.184
## - sqrt(x + a): 2.616
## - Yeo-Johnson: 2.616
## Estimation method: Out-of-sample via leave-one-out CV
##
## Based off these, bestNormalize chose:
## orderNorm Transformation with 25 nonmissing obs and no ties
## - Original quantiles:
##   0%   25%   50%   75%  100%
## 0.381 0.646 0.921 1.273 1.922
## [1] TRUE
```



```
##
##  Shapiro-Wilk normality test
##
## data:  Genemecp2$mecp2
## W = 0.96841, p-value = 0.6743

##
##  Bartlett test of homogeneity of variances
##
## data:  Genemecp2$mecp2 by Genemecp2$Sample.Name
## Bartlett's K-squared = 1.8338, df = 4, p-value = 0.7663

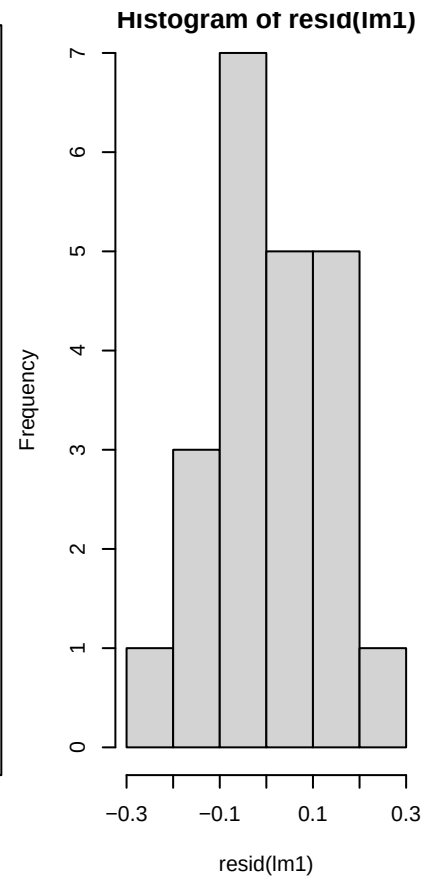
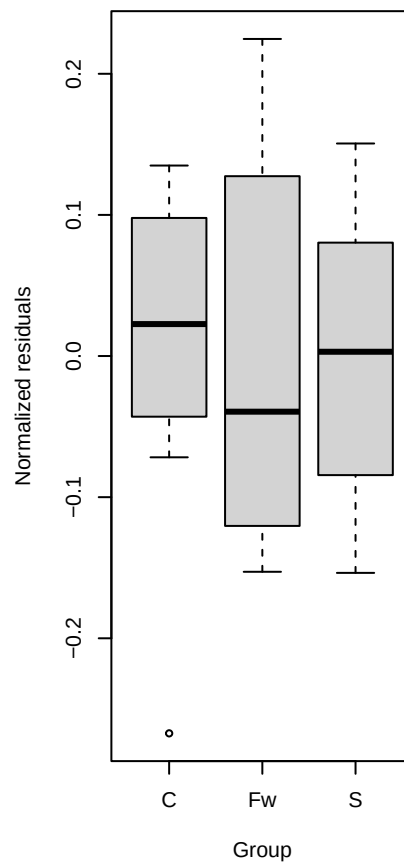
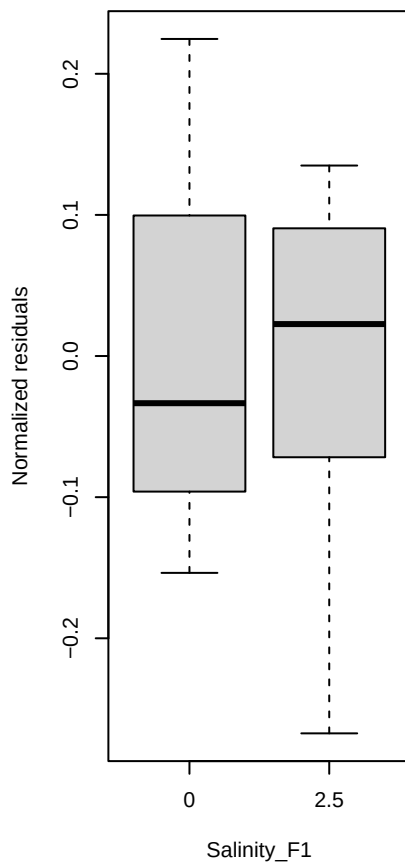
## Levene's Test for Homogeneity of Variance (center = median)
##      Df F value Pr(>F)
## group  4  0.1804 0.9454
##      17
```

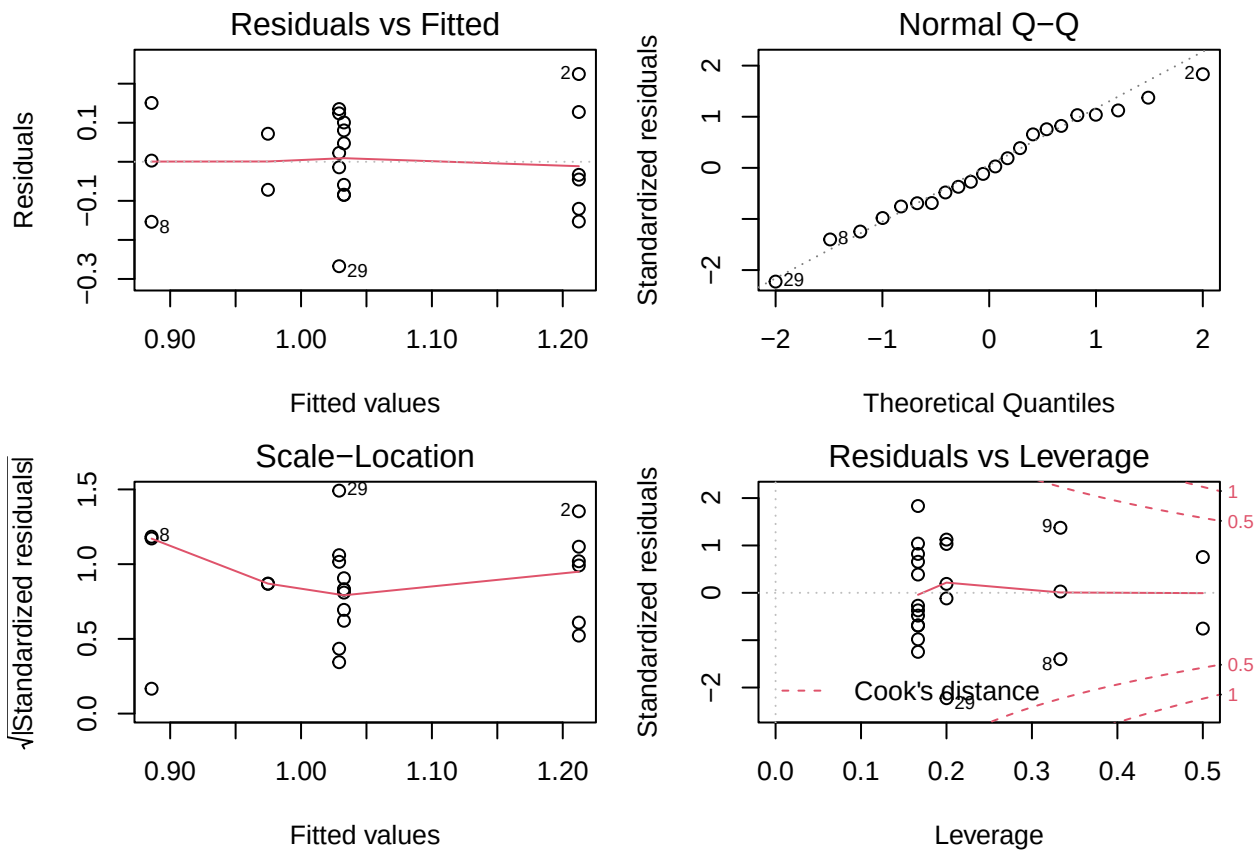


```
## integer(0)

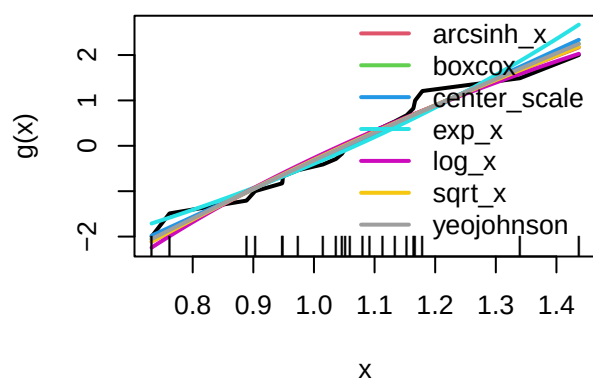
## $stats
##           [,1]      [,2]
## [1,] -0.15363508 -0.26734949
## [2,] -0.09606093 -0.07171905
## [3,] -0.03341054  0.02263827
## [4,]  0.09958978  0.09049315
## [5,]  0.22467336  0.13498344
##
## $n
## [1] 11 11
##
## $conf
##           [,1]      [,2]
## [1,] -0.12661618 -0.05463767
## [2,]  0.05979509  0.09991420
##
## $out
## numeric(0)
##
## $group
## numeric(0)
##
## $names
## [1] "0"  "2.5"
```

```
## $stats
##           [,1]      [,2]      [,3]
## [1,] -0.07174780 -0.15286472 -0.153635076
## [2,] -0.04297719 -0.12037406 -0.084372876
## [3,]  0.02263827 -0.03943317  0.003035404
## [4,]  0.09784108  0.12743176  0.080348855
## [5,]  0.13498344  0.22467336  0.150599671
##
## $n
## [1] 7 6 9
##
## $conf
##           [,1]      [,2]      [,3]
## [1,] -0.06145613 -0.1992759 -0.08371804
## [2,]  0.10673267  0.1204096  0.08978885
##
## $out
##           29
## -0.2673495
##
## $group
## [1] 1
##
## $names
## [1] "C" "Fw" "S"
```





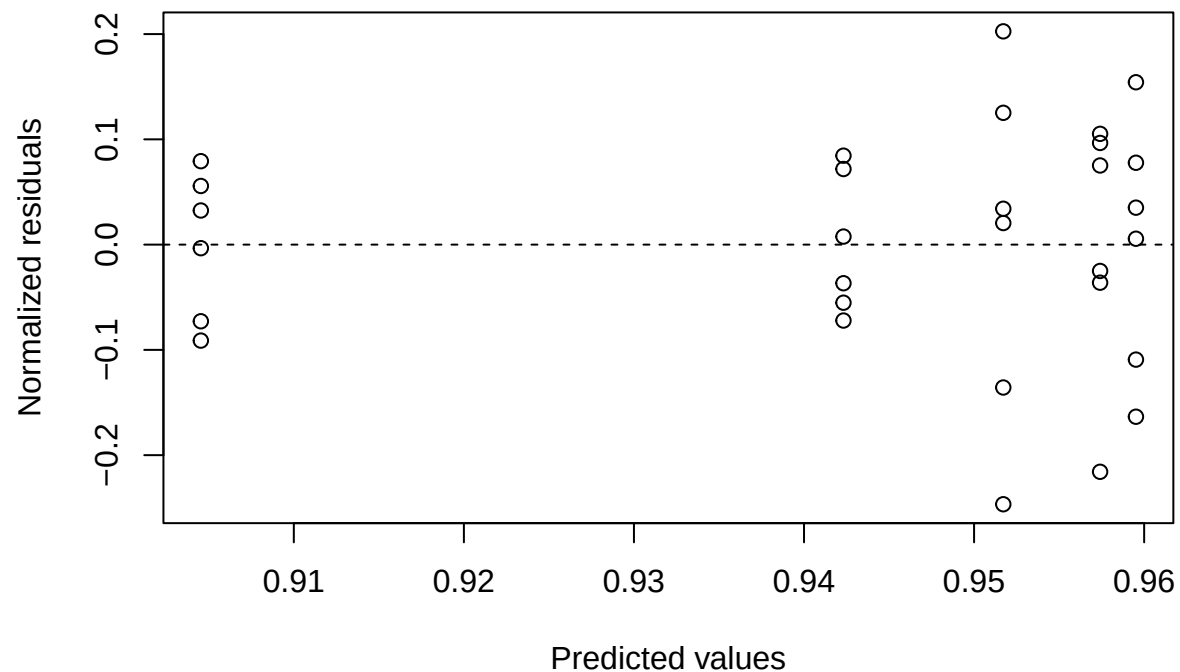
```
## Best Normalizing transformation with 22 Observations
## Estimated Normality Statistics (Pearson P / df, lower => more normal):
## - arcsinh(x): 0.7045
## - Box-Cox: 0.7045
## - Center+scale: 0.7045
## - Exp(x): 1.1818
## - Log_b(x+a): 0.7045
## - orderNorm (ORQ): 0.2273
## - sqrt(x + a): 0.7045
## - Yeo-Johnson: 1.0227
## Estimation method: Out-of-sample via leave-one-out CV
##
## Based off these, bestNormalize chose:
## orderNorm Transformation with 22 nonmissing obs and no ties
## - Original quantiles:
##   0%   25%   50%   75%  100%
## 0.732 0.955 1.056 1.148 1.437
## [1] TRUE
```

```
##
##  Shapiro-Wilk normality test
##
## data:  Gene$tet3
## W = 0.98895, p-value = 0.9848

##
##  Bartlett test of homogeneity of variances
##
## data:  Gene$tet3 by Gene$Sample.Name
## Bartlett's K-squared = 5.3984, df = 4, p-value = 0.2488

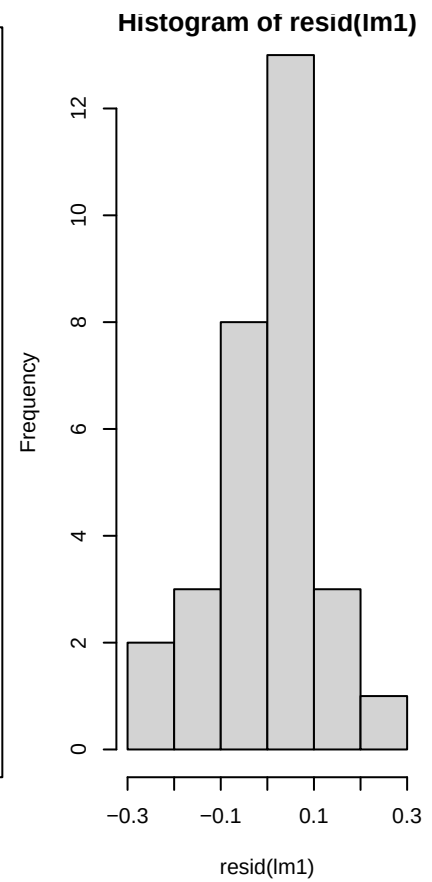
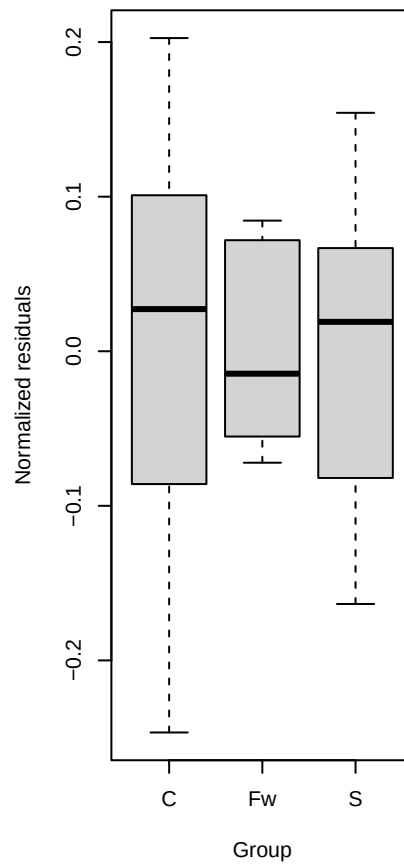
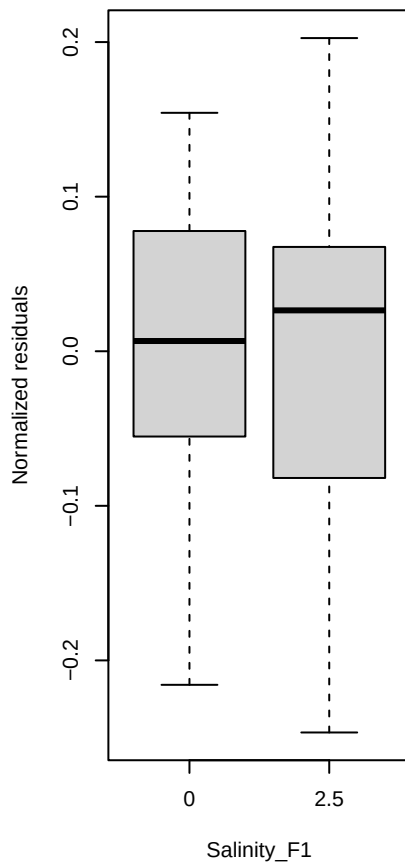
## Levene's Test for Homogeneity of Variance (center = median)
##      Df F value Pr(>F)
## group 4  0.9751 0.4388
##      25
```

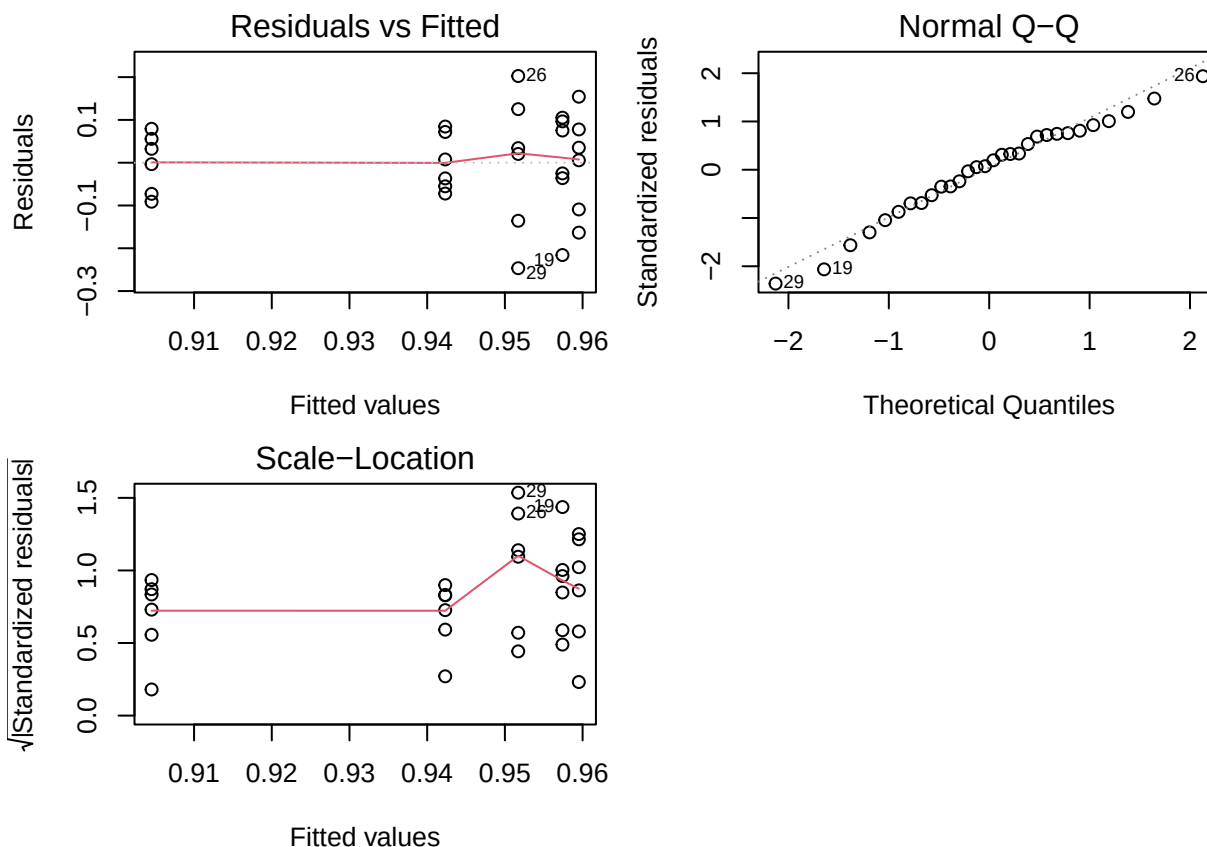


```
## integer(0)

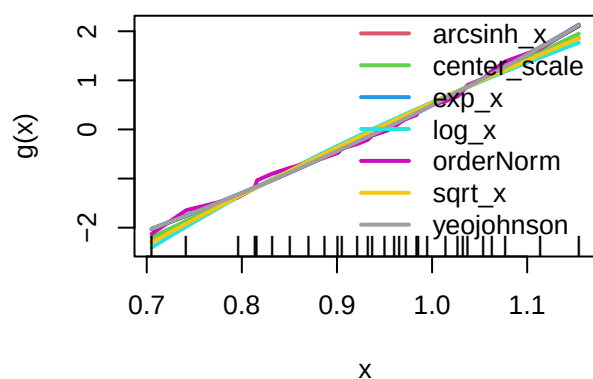
## $stats
##           [,1]      [,2]
## [1,] -0.215799155 -0.24662703
## [2,] -0.055182267 -0.08199403
## [3,]  0.006622922  0.02644328
## [4,]  0.077775750  0.06748442
## [5,]  0.154237898  0.20259232
##
## $n
## [1] 18 12
##
## $conf
##           [,1]      [,2]
## [1,] -0.04289192 -0.04173484
## [2,]  0.05613776  0.09462140
##
## $out
## numeric(0)
##
## $group
## numeric(0)
##
## $names
## [1] "0"  "2.5"
```

```
## $stats
##           [,1]      [,2]      [,3]
## [1,] -0.24662703 -0.07211148 -0.16349401
## [2,] -0.08594327 -0.05518227 -0.08199403
## [3,]  0.02727114 -0.01451334  0.01899978
## [4,]  0.10090571  0.07182210  0.06673995
## [5,]  0.20259232  0.08449833  0.15423790
##
## $n
## [1] 12  6 12
##
## $conf
##           [,1]      [,2]      [,3]
## [1,] -0.05795194 -0.09643526 -0.04883878
## [2,]  0.11249421  0.06740857  0.08683835
##
## $out
## numeric(0)
##
## $group
## numeric(0)
##
## $names
## [1] "C"  "Fw" "S"
```





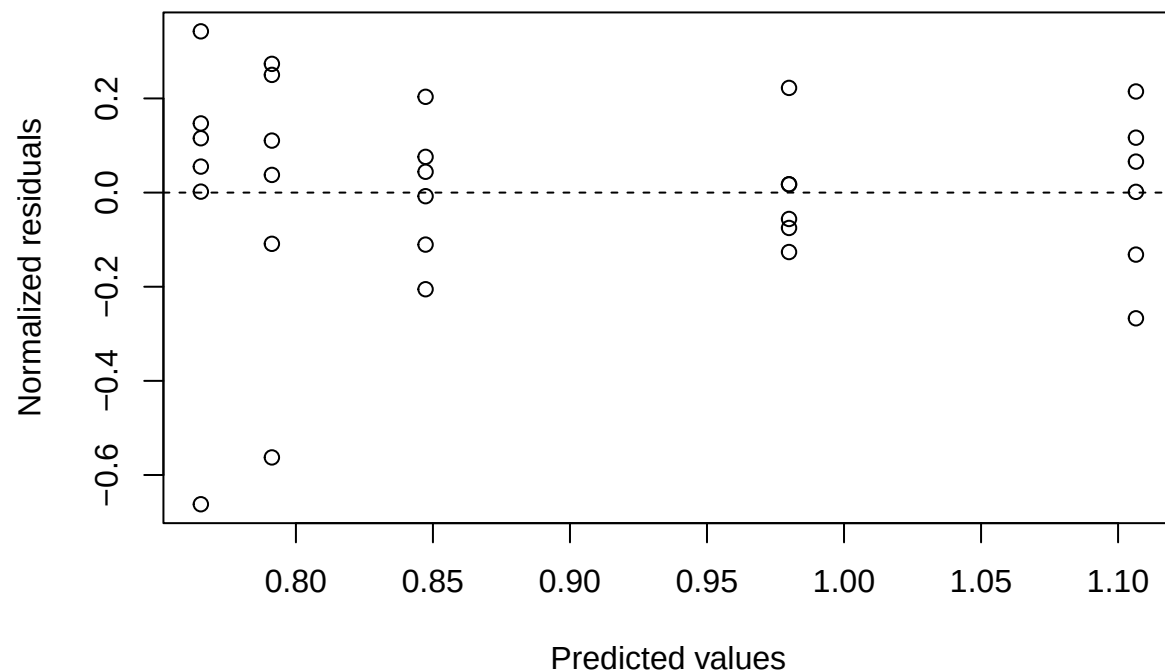
```
## Best Normalizing transformation with 30 Observations
## Estimated Normality Statistics (Pearson P / df, lower => more normal):
## - arcsinh(x): 1.32
## - Box-Cox: 1.2667
## - Center+scale: 1.2667
## - Exp(x): 1.2667
## - Log_b(x+a): 1.32
## - orderNorm (ORQ): 1.5333
## - sqrt(x + a): 1.32
## - Yeo-Johnson: 1.2667
## Estimation method: Out-of-sample via CV with 10 folds and 5 repeats
##
## Based off these, bestNormalize chose:
## Standardized Box Cox Transformation with 30 nonmissing obs.:
## Estimated statistics:
## - lambda = 1.845802
## - mean (before standardization) = -0.05068
## - sd (before standardization) = 0.1019012
## [1] TRUE
```



```
##
##  Shapiro-Wilk normality test
##
## data:  Gene$nkala
## W = 0.88197, p-value = 0.00313

##
##  Bartlett test of homogeneity of variances
##
## data:  Gene$nkala by Gene$Sample.Name
## Bartlett's K-squared = 7.6202, df = 4, p-value = 0.1065

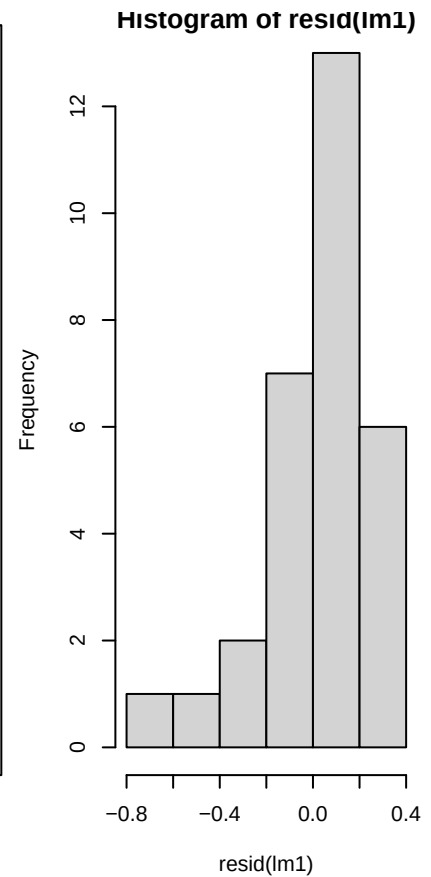
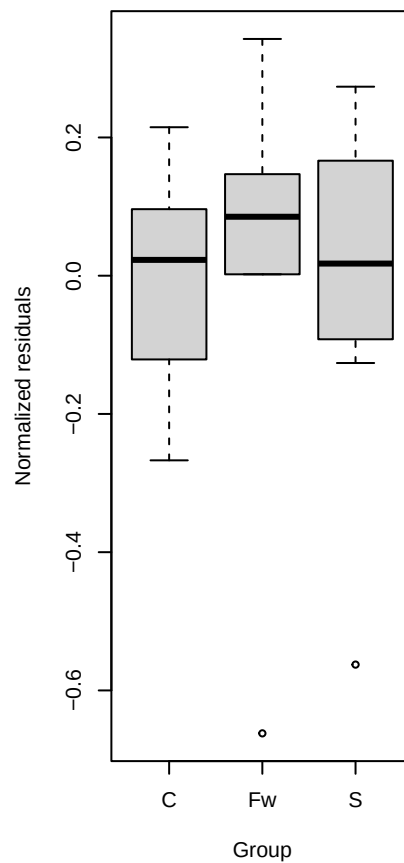
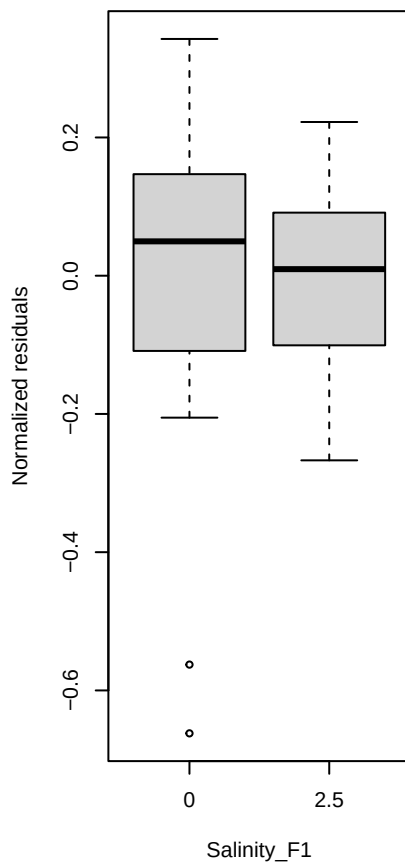
## Levene's Test for Homogeneity of Variance (center = median)
##      Df F value Pr(>F)
## group  4  0.6213 0.6515
##      25
```

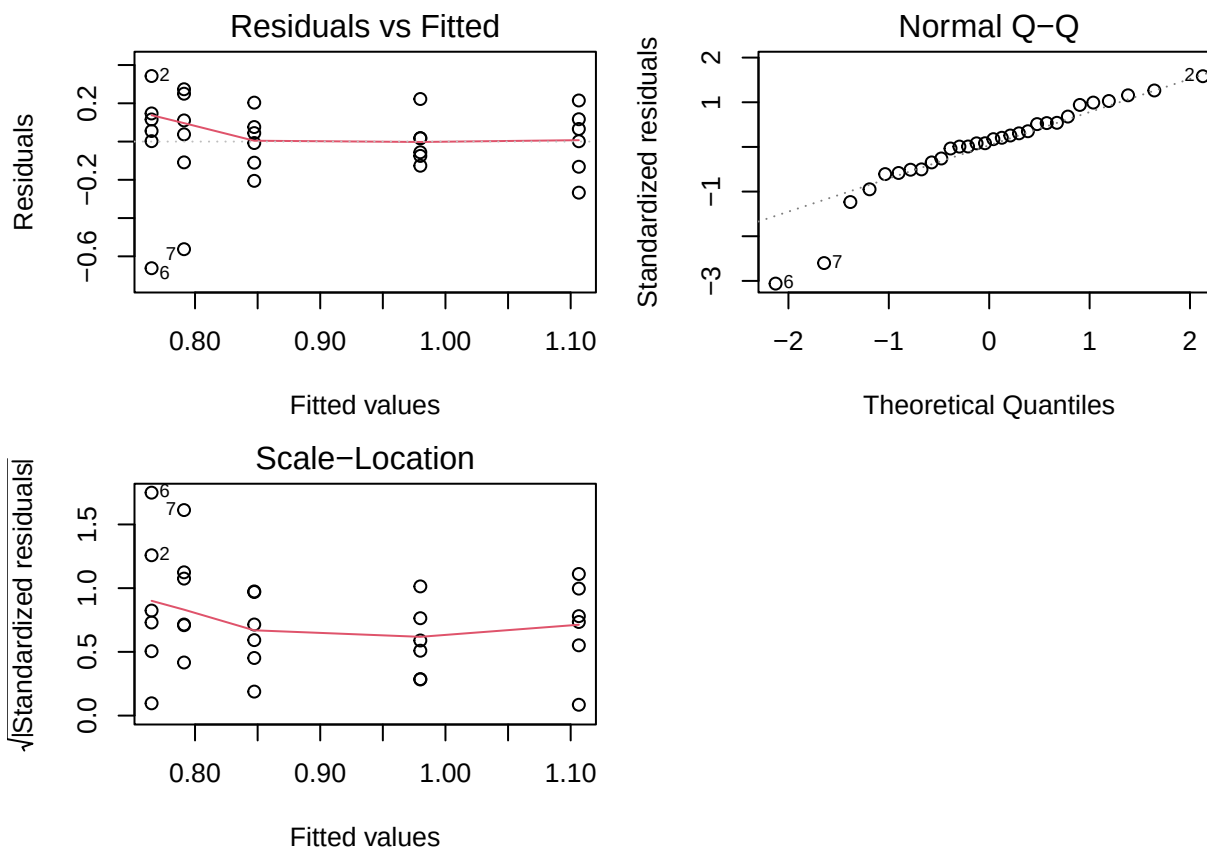


```
## integer(0)

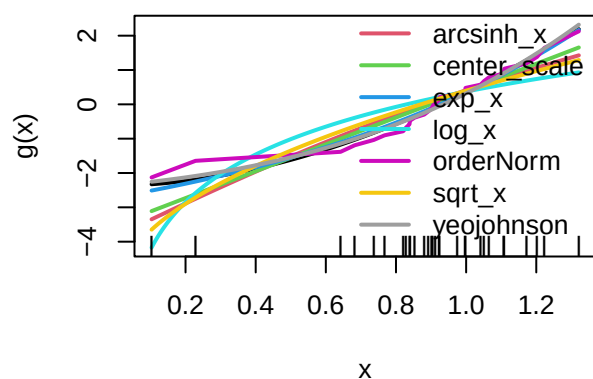
## $stats
##           [,1]      [,2]
## [1,] -0.2053480 -0.267115187
## [2,] -0.1088398 -0.100719920
## [3,]  0.0497137  0.009479487
## [4,]  0.1469267  0.091247339
## [5,]  0.3425392  0.222384407
##
## $n
## [1] 18 12
##
## $conf
##           [,1]      [,2]
## [1,] -0.04553616 -0.07807807
## [2,]  0.14496357  0.09703704
##
## $out
##           6          7
## -0.6621204 -0.5626483
##
## $group
## [1] 1 1
##
## $names
## [1] "0"  "2.5"
```

```
## $stats
##           [,1]      [,2]      [,3]
## [1,] -0.26711519 0.002007786 -0.12630090
## [2,] -0.12113058 0.002007786 -0.09198936
## [3,]  0.02288399 0.085323409  0.01756257
## [4,]  0.09627907 0.146926662  0.16642303
## [5,]  0.21481044 0.342539178  0.27345538
##
## $n
## [1] 12  6 12
##
## $conf
##           [,1]      [,2]      [,3]
## [1,] -0.07627801 -0.008153947 -0.1003011
## [2,]  0.12204599  0.178800765  0.1354262
##
## $out
##           6           7
## -0.6621204 -0.5626483
##
## $group
## [1] 2 3
##
## $names
## [1] "C" "Fw" "S"
```





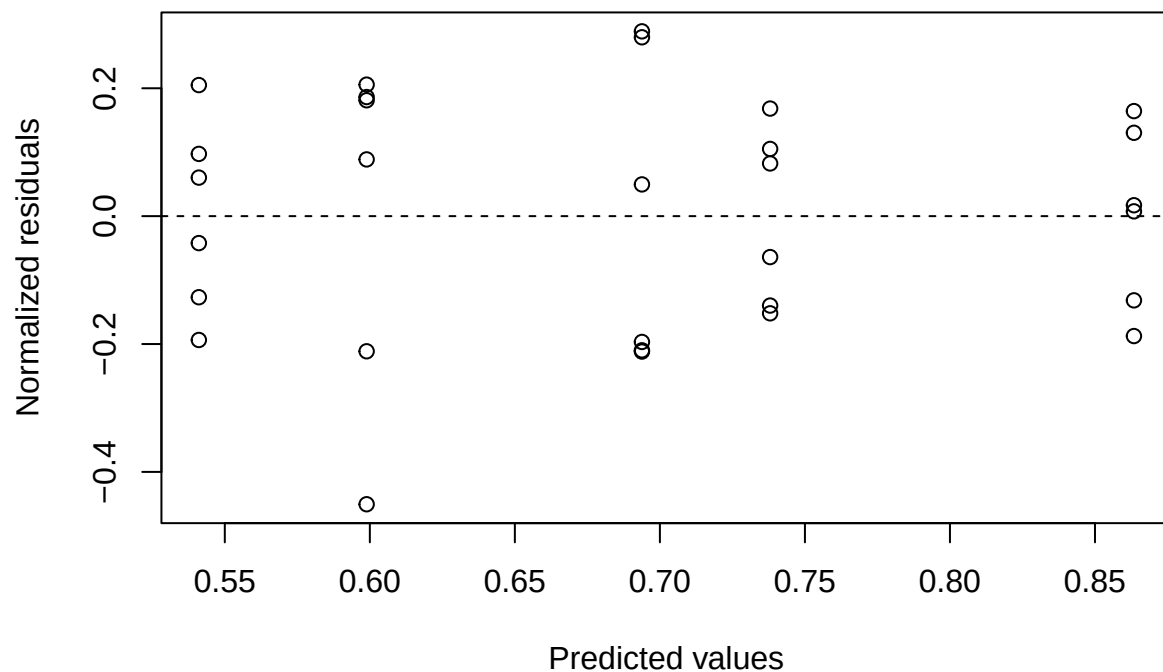
```
## Best Normalizing transformation with 30 Observations
## Estimated Normality Statistics (Pearson P / df, lower => more normal):
## - arcsinh(x): 1.2667
## - Box-Cox: 1.16
## - Center+scale: 1.2667
## - Exp(x): 1.2667
## - Log_b(x+a): 1.3733
## - orderNorm (ORQ): 1.5333
## - sqrt(x + a): 1.2667
## - Yeo-Johnson: 1.16
## Estimation method: Out-of-sample via CV with 10 folds and 5 repeats
##
## Based off these, bestNormalize chose:
## Standardized Box Cox Transformation with 30 nonmissing obs.:
## Estimated statistics:
## - lambda = 1.856003
## - mean (before standardization) = -0.06924488
## - sd (before standardization) = 0.1983818
## [1] TRUE
```

```
##
##  Shapiro-Wilk normality test
##
## data:  Gene$slc12a1
## W = 0.97285, p-value = 0.6197

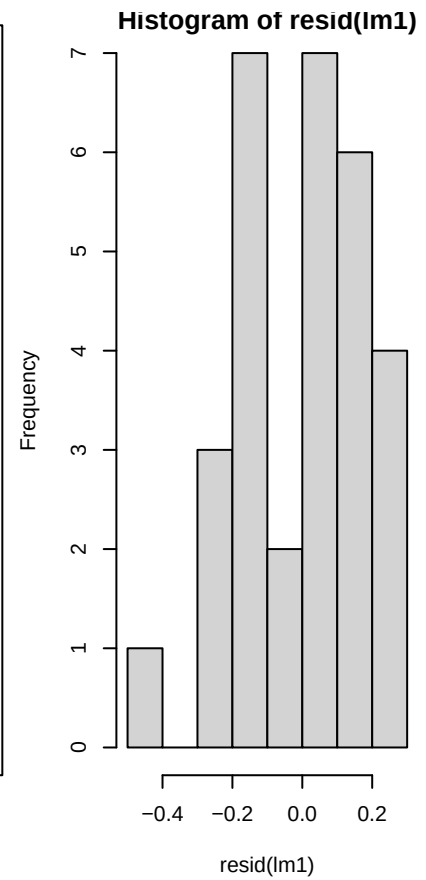
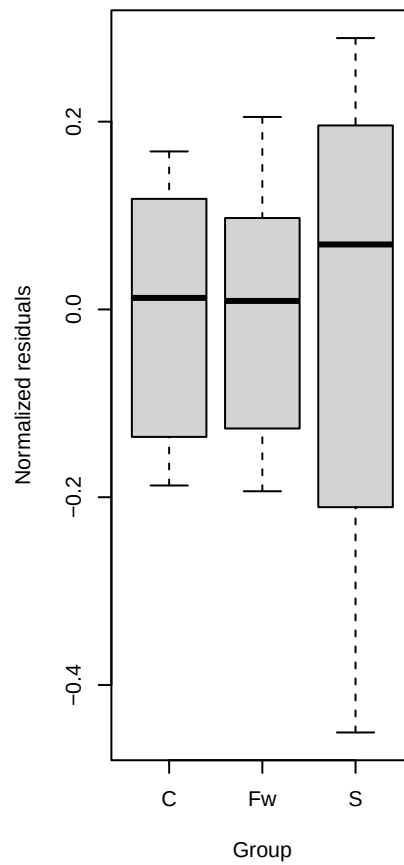
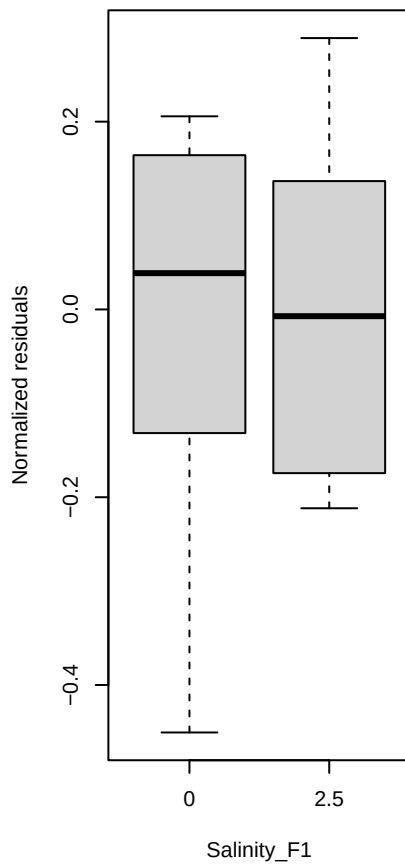
##
##  Bartlett test of homogeneity of variances
##
## data:  Gene$slc12a1 by Gene$Sample.Name
## Bartlett's K-squared = 4.1089, df = 4, p-value = 0.3915

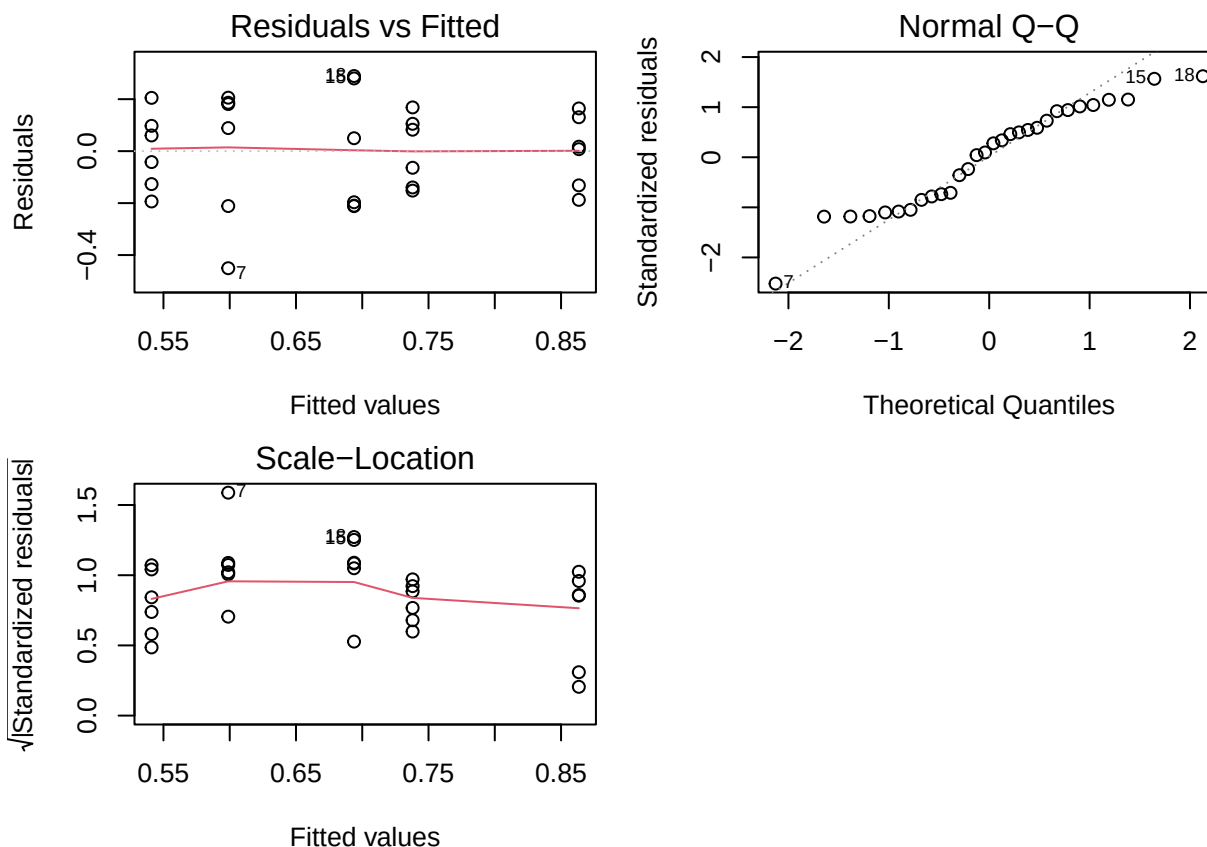
## Levene's Test for Homogeneity of Variance (center = median)
##      Df F value Pr(>F)
## group 4  0.8432  0.511
##      25
```



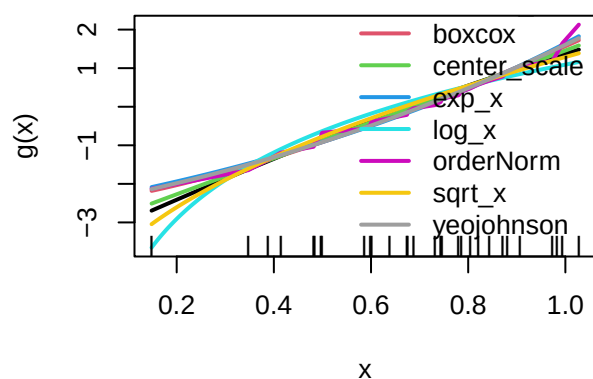
```
## integer(0)
## $stats
##      [,1]      [,2]
## [1,] -0.4505707 -0.211776378
## [2,] -0.1317053 -0.174372544
## [3,]  0.0386664 -0.007185941
## [4,]  0.1643004  0.136700107
## [5,]  0.2056943  0.289026404
##
## $n
## [1] 18 12
##
## $conf
##      [,1]      [,2]
## [1,] -0.07156896 -0.1490683
## [2,]  0.14890177  0.1346964
##
## $out
## numeric(0)
##
## $group
## numeric(0)
##
## $names
## [1] "0"  "2.5"
```

```
## $stats
##           [,1]      [,2]      [,3]
## [1,] -0.18752156 -0.193653031 -0.45057071
## [2,] -0.13577052 -0.126828078 -0.21060743
## [3,]  0.01227916  0.009066628  0.06917885
## [4,]  0.11774686  0.097352696  0.19598058
## [5,]  0.16827467  0.204995157  0.28902640
##
## $n
## [1] 12  6 12
##
## $conf
##           [,1]      [,2]      [,3]
## [1,] -0.1033518 -0.1355372 -0.1162687
## [2,]  0.1279101  0.1536705  0.2546264
##
## $out
## numeric(0)
##
## $group
## numeric(0)
##
## $names
## [1] "C"  "Fw" "S"
```





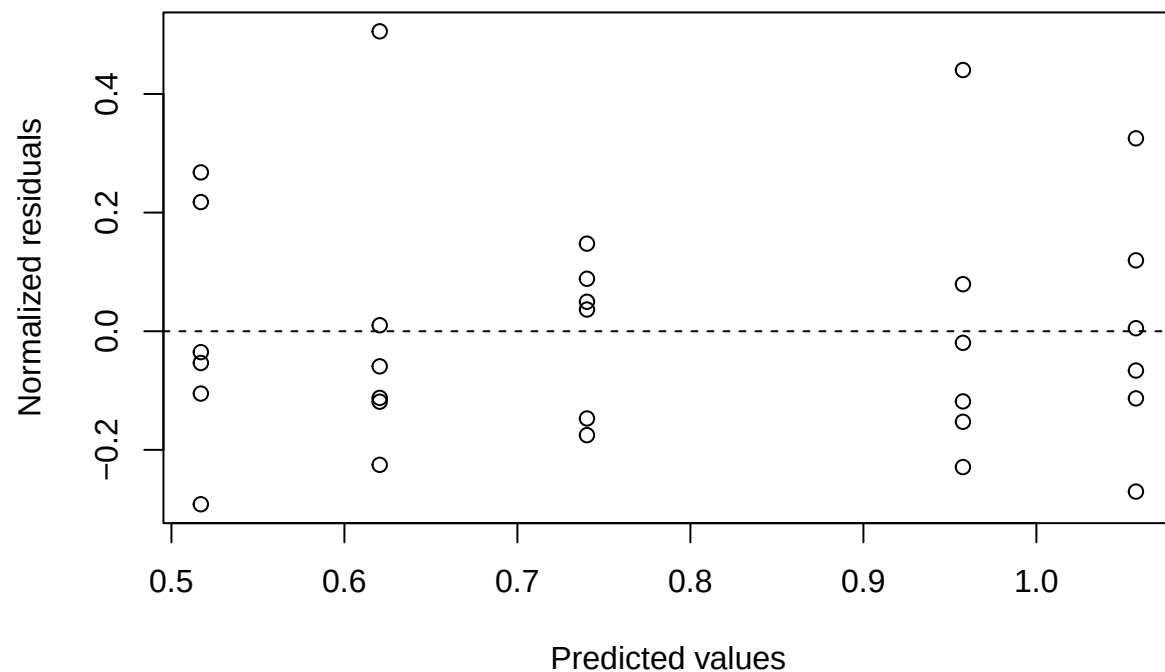
```
## Best Normalizing transformation with 30 Observations
## Estimated Normality Statistics (Pearson P / df, lower => more normal):
## - arcsinh(x): 1.32
## - Box-Cox: 1.3733
## - Center+scale: 1.32
## - Exp(x): 1.3733
## - Log_b(x+a): 1.3733
## - orderNorm (ORQ): 1.48
## - sqrt(x + a): 1.32
## - Yeo-Johnson: 1.3733
## Estimation method: Out-of-sample via CV with 10 folds and 5 repeats
##
## Based off these, bestNormalize chose:
## Standardized asinh(x) Transformation with 30 nonmissing obs.:
## Relevant statistics:
## - mean (before standardization) = 0.6337561
## - sd (before standardization) = 0.1803791
## [1] TRUE
```



```
##
##  Shapiro-Wilk normality test
##
## data:  Gene$igf1
## W = 0.9766, p-value = 0.7298

##
##  Bartlett test of homogeneity of variances
##
## data:  Gene$igf1 by Gene$Sample.Name
## Bartlett's K-squared = 2.2059, df = 4, p-value = 0.6979

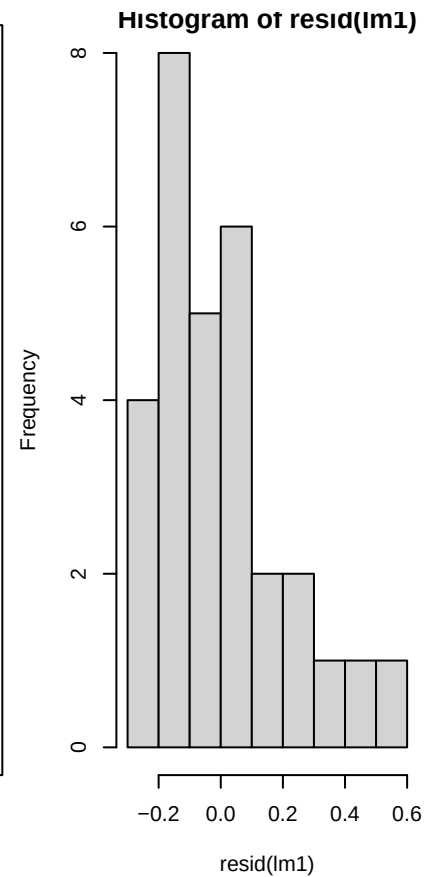
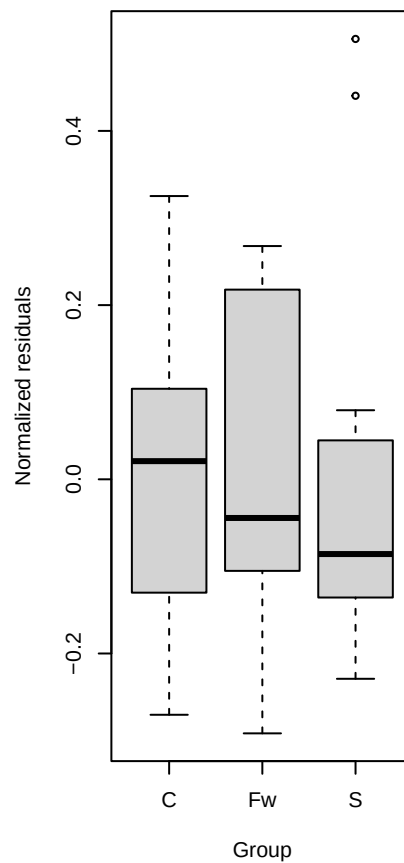
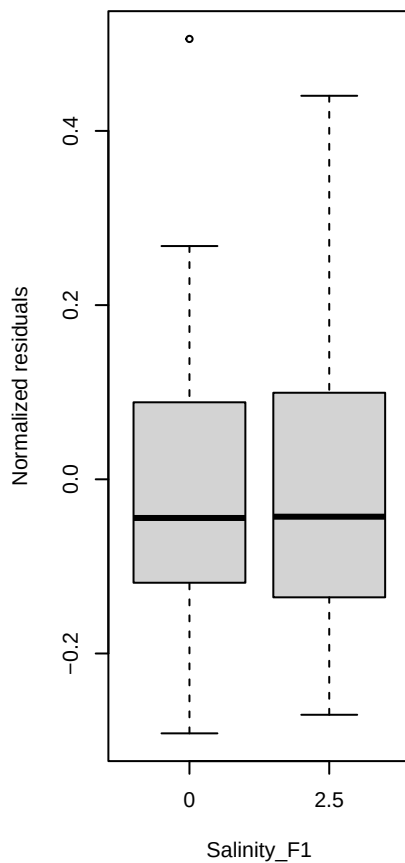
## Levene's Test for Homogeneity of Variance (center = median)
##      Df F value Pr(>F)
## group  4  0.1847 0.9441
##      25
```

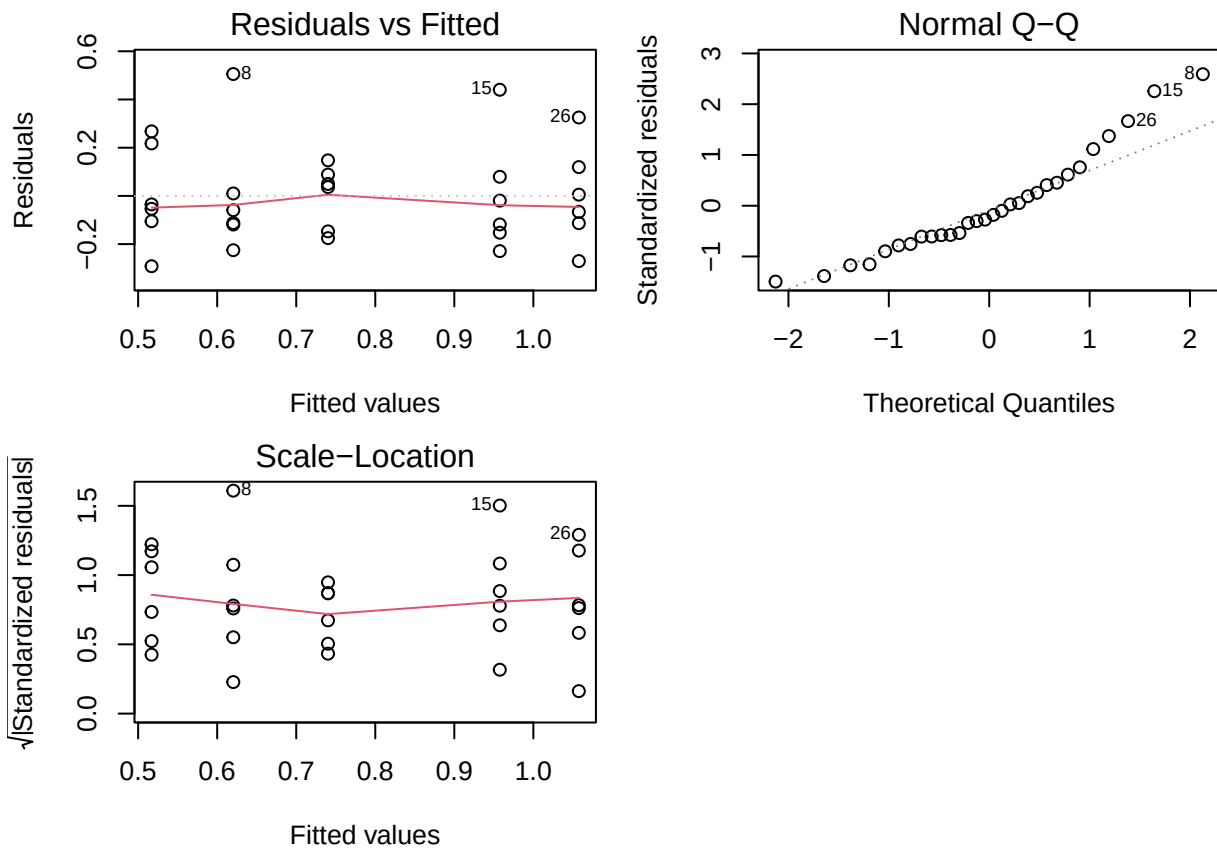


```
## integer(0)

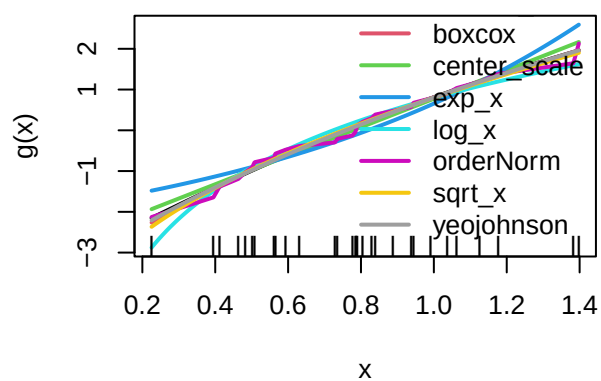
## $stats
##           [,1]      [,2]
## [1,] -0.29168478 -0.27035286
## [2,] -0.11876784 -0.13550749
## [3,] -0.04438339 -0.04292194
## [4,]  0.08840552  0.09939407
## [5,]  0.26780503  0.44033928
##
## $n
## [1] 18 12
##
## $conf
##           [,1]      [,2]
## [1,] -0.12153673 -0.15006212
## [2,]  0.03276996  0.06421824
##
## $out
##           8
## 0.5055839
##
## $group
## [1] 1
##
## $names
## [1] "0"  "2.5"
```

```
## $stats
##           [,1]      [,2]      [,3]
## [1,] -0.27035286 -0.29168478 -0.22904376
## [2,] -0.13015178 -0.10512784 -0.13572293
## [3,]  0.02083966 -0.04438339 -0.08583063
## [4,]  0.10394926  0.21777436  0.04470159
## [5,]  0.32522190  0.26780503  0.07929515
##
## $n
## [1] 12  6 12
##
## $conf
##           [,1]      [,2]      [,3]
## [1,] -0.08593539 -0.2526657 -0.168123468
## [2,]  0.12761472  0.1638990 -0.003537793
##
## $out
##           8          15
## 0.5055839 0.4403393
##
## $group
## [1] 3 3
##
## $names
## [1] "C"  "Fw" "S"
```





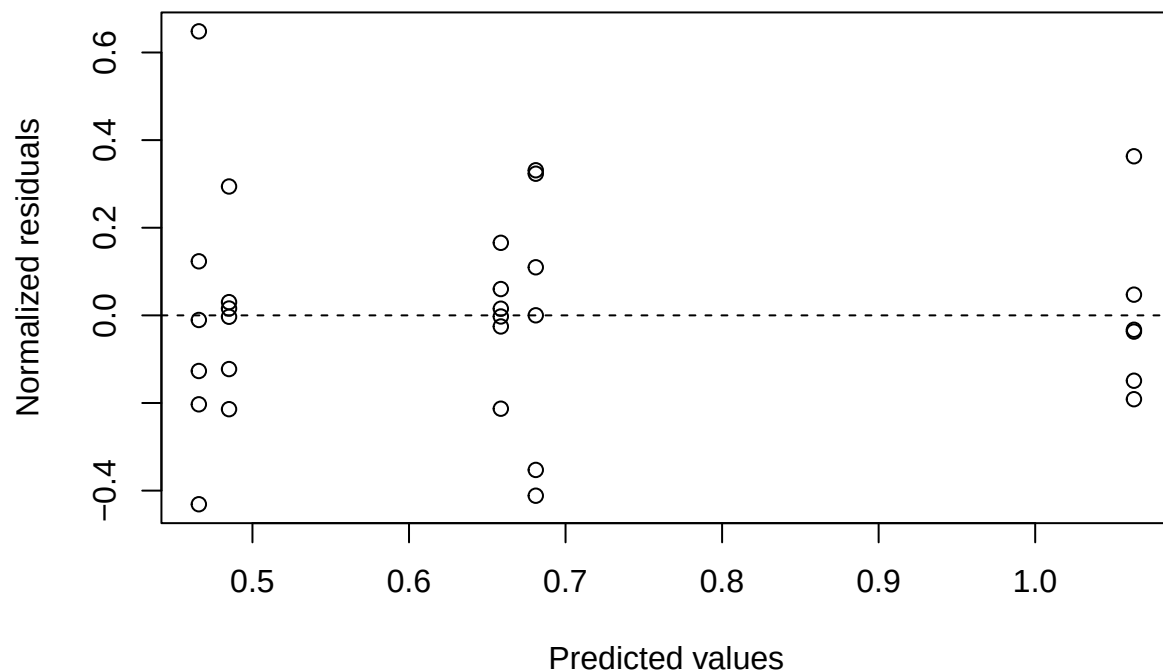
```
## Best Normalizing transformation with 30 Observations
## Estimated Normality Statistics (Pearson P / df, lower => more normal):
## - arcsinh(x): 1.2667
## - Box-Cox: 1.32
## - Center+scale: 1.32
## - Exp(x): 1.3733
## - Log_b(x+a): 1.48
## - orderNorm (ORQ): 1.64
## - sqrt(x + a): 1.32
## - Yeo-Johnson: 1.3733
## Estimation method: Out-of-sample via CV with 10 folds and 5 repeats
##
## Based off these, bestNormalize chose:
## Standardized asinh(x) Transformation with 30 nonmissing obs.:
## Relevant statistics:
## - mean (before standardization) = 0.7012811
## - sd (before standardization) = 0.222005
## [1] TRUE
```

```
##
##  Shapiro-Wilk normality test
##
## data:  Gene$gh2
## W = 0.98059, p-value = 0.8411

##
##  Bartlett test of homogeneity of variances
##
## data:  Gene$gh2 by Gene$Sample.Name
## Bartlett's K-squared = 6.9733, df = 4, p-value = 0.1373

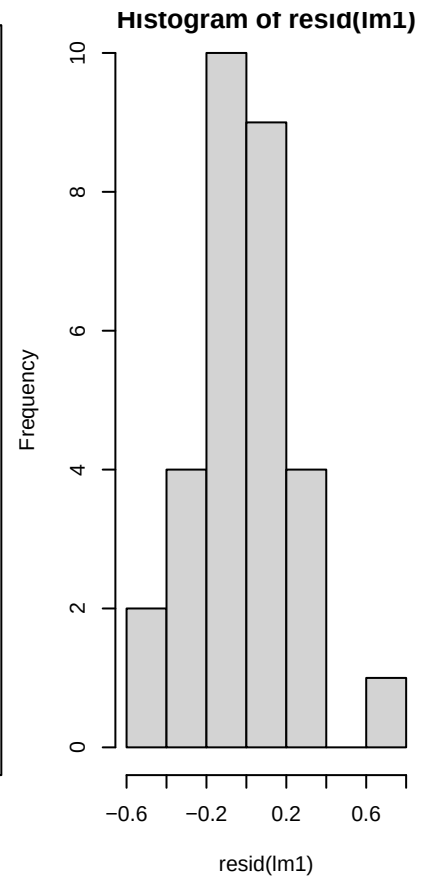
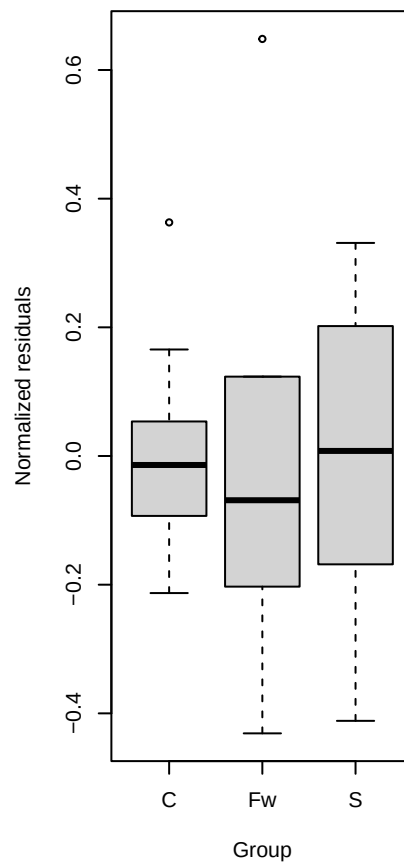
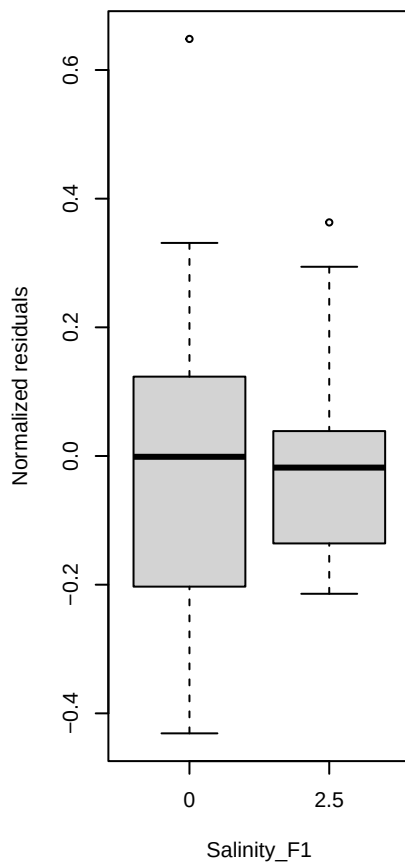
## Levene's Test for Homogeneity of Variance (center = median)
##      Df F value Pr(>F)
## group 4  1.4879 0.2359
##      25
```

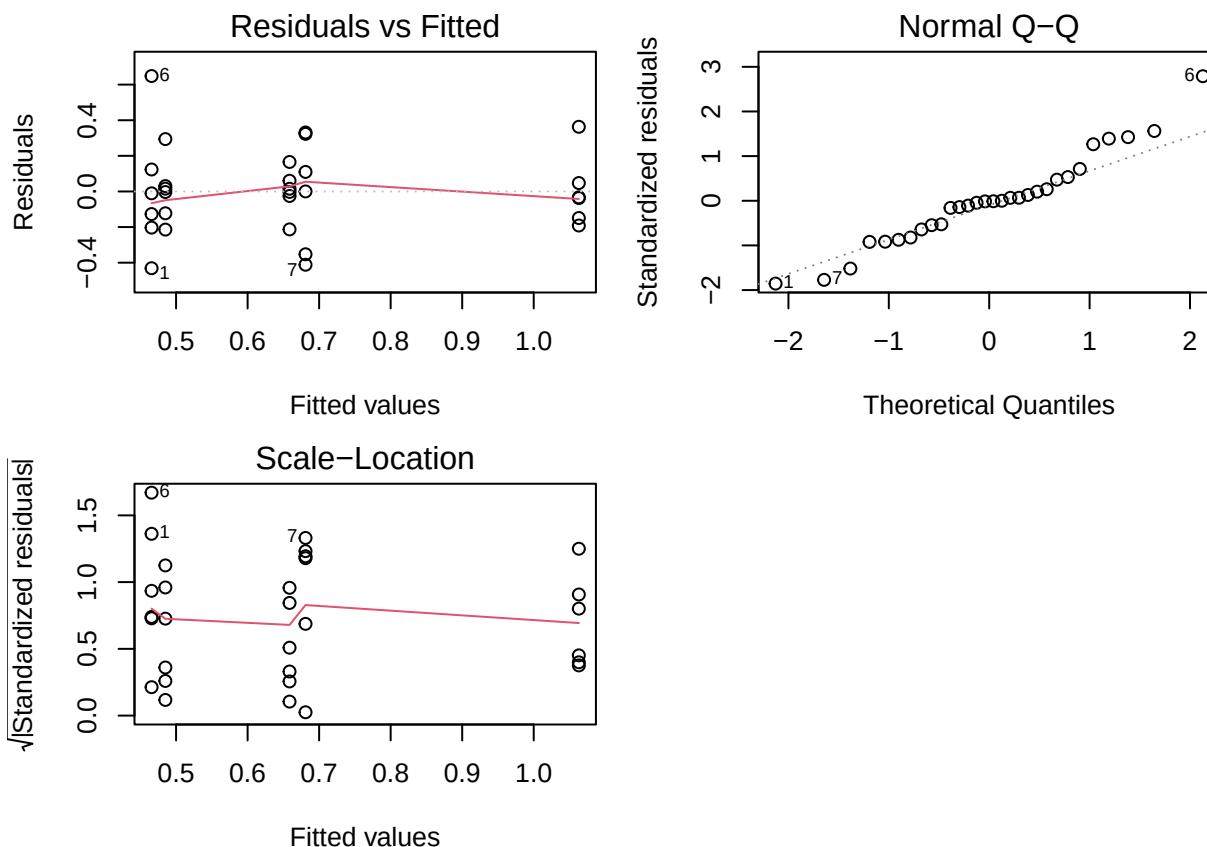


```
## integer(0)

## $stats
##           [,1]      [,2]
## [1,] -0.431079377 -0.21413983
## [2,] -0.203048471 -0.13589423
## [3,] -0.001203599 -0.01801373
## [4,]  0.123391490  0.03874078
## [5,]  0.331181810  0.29413693
##
## $n
## [1] 18 12
##
## $conf
##           [,1]      [,2]
## [1,] -0.1227730 -0.09766593
## [2,]  0.1203658  0.06163847
##
## $out
##           6          27
## 0.6482442 0.3630993
##
## $group
## [1] 1 2
##
## $names
## [1] "0"  "2.5"
```

```
## $stats
##           [,1]      [,2]      [,3]
## [1,] -0.21300947 -0.43107938 -0.411627862
## [2,] -0.09311749 -0.20304847 -0.168374039
## [3,] -0.01394444 -0.06875391  0.007892985
## [4,]  0.05371138  0.12339149  0.201942934
## [5,]  0.16558367  0.12339149  0.331181810
##
## $n
## [1] 12  6 12
##
## $conf
##           [,1]      [,2]      [,3]
## [1,] -0.08091407 -0.2793182 -0.1610111
## [2,]  0.05302519  0.1418104  0.1767970
##
## $out
##           27           6
## 0.3630993 0.6482442
##
## $group
## [1] 1 2
##
## $names
## [1] "C"  "Fw" "S"
```





```
## Best Normalizing transformation with 30 Observations
## Estimated Normality Statistics (Pearson P / df, lower => more normal):
## - arcsinh(x): 1.4267
## - Box-Cox: 1.48
## - Center+scale: 1.48
## - Exp(x): 1.5333
## - Log_b(x+a): 1.5867
## - orderNorm (ORQ): 1.7467
## - sqrt(x + a): 1.4267
## - Yeo-Johnson: 1.48
## Estimation method: Out-of-sample via CV with 10 folds and 5 repeats
##
## Based off these, bestNormalize chose:
## Standardized asinh(x) Transformation with 30 nonmissing obs.:
## Relevant statistics:
## - mean (before standardization) = 0.6103013
## - sd (before standardization) = 0.2634703
## [1] TRUE
```

