

Supplementary file 1: annotated R-script for lme-AIC/logLikelihood analysis for journal-level metrics

Jeff C. Clements, Rémi M. Daigle, Halley E. Froehlich

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If necessary, install the package nlme

```
install.packages("nlme")
```

Load the package:

```
library(nlme)
```

Upload data file for time since inception, number of papers per year

```
journals <- read.csv("Table S1_journal_level.csv", stringsAsFactors = FALSE)
names(journals)
```

```
## [1] "Journal"                "Non.Indexed"
## [3] "Reported.peer.review.type" "Year.established"
## [5] "Years.running"          "Total...of.papers"
## [7] "OA.APC..USD."           "Avg.papers.per.year"
```

Natural log transform Years running, OA APC, and Avg papers per year

```
journals$lnYearsRunning <- log(journals$Years.running)
journals$lnOA_APC <- log(journals$OA.APC..USD.)
journals$lnAvgPapersPerYear <- log(journals$Avg.papers.per.year)
```

lme and AIC/logLikelihood for effect of journal [random] and journal type [fixed] on time since inception.

```
j1.lme<-lme(lnYearsRunning~ Non.Indexed, random=~1|Journal, data=journals)
anova(j1.lme)
```

```
##           numDF denDF    F-value p-value
## (Intercept)      1    10 303.35249  <.0001
## Non.Indexed      1    10  26.60923  4e-04
```

```
j1.gls<-glS(lnYearsRunning~ Non.Indexed, data=journals)
anova(j1.lme, j1.gls)
```

```
##           Model df      AIC      BIC    logLik  Test L.Ratio p-value
## j1.lme        1  4 26.73085 27.94119 -9.365427
## j1.gls        2  3 24.73085 25.63861 -9.365427 1 vs 2      0      1
```

lme and AIC/logLikelihood for effect of journal [random] and journal type [fixed] on number of papers per year.

```
j2.lme<-lme(lnAvgPapersPerYear~ Non.Indexed, random=~1|Journal, data=journals)
anova(j2.lme)
```

```
##           numDF denDF    F-value p-value
## (Intercept)      1    10 282.76876  <.0001
## Non.Indexed      1    10   5.74374  0.0375
```

```
j2.gls<-glS(lnAvgPapersPerYear~ Non.Indexed,data=journals)
anova(j2.lme,j2.gls)
```

```
##          Model df          AIC          BIC    logLik    Test      L.Ratio p-value
## j2.lme      1  4 34.27439 35.48473 -13.1372
## j2.gls      2  3 32.27439 33.18215 -13.1372 1 vs 2 3.552714e-15      1
```

lme and AIC/LogLikelihood for effect of journal [random] and journal type [fixed] on open access APC

```
j3.lme<-lme(lnOA_APC~Non.Indexed,random=~1|Journal,data=journals,na.action = "na.omit")
anova(j3.lme)
```

```
##          numDF denDF  F-value p-value
## (Intercept)      1      8 3672.217 <.0001
## Non.Indexed      1      8  15.257  0.0045
```

```
j3.gls<-glS(lnOA_APC~Non.Indexed,data=journals,na.action = "na.omit")
anova(j3.lme,j3.gls)
```

```
##          Model df          AIC          BIC    logLik    Test      L.Ratio p-value
## j3.lme      1  4 18.86151 19.17928 -5.430756
## j3.gls      2  3 16.86151 17.09984 -5.430756 1 vs 2 1.421086e-14      1
```