16-Martinez

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Contents

Reference

Martinez, Q., Lebrun, R., Achmadi, A. S., Esselstyn, J. A., Evans, A. R., Heaney, L. R., Miguez, R. P., Rowe, K. C., & Fabre, P.-H. (2018). Convergent evolution of an extreme dietary specialisation, the olfactory system of worm-eating rodents. Scientific Reports, 8(1), 17806. https://doi.org/10.1038/s41598-018-35827-0

Notes from reading methods section

This study scanned (X-ray) N=55 skulls from rodent species borrowed from various national history museums.

- Dependant variable: resPGLS (Phylogenetic generalised least squares; a measure of how close different species are based on the DNA)
- Independent variable:
  - Vermi
  - Crani
  - Omni
- Covariate: ?

Authors wrote in email

What we named Phylogenetic ANCOVA is a model fitting where we contrasted three models: a model without dietary categories (H0), a model with omnivorous and carnivorous dietary categories (Carni), and a model

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with omnivorous, carnivorous, and vermivorous dietary categories (Vermi). Models were compared using the Akaike information criterion (AIC) and the Likelihood-ratio test (LRT).

By changing the directory of the folder, you should be able to run the whole R script (from the attached R script « Phylogenetic_ANCOVA_Martinez_et_al_2018.R ») and get exactly the same values as in Table S6. (from the attached pdf « Martinez_et_al_2018_sup_mat.pdf »).

Reading data

Data is loaded, reshaped if necessary, and factors are specified.

```
PATH = file.path(path.expand("~"), "Data", "ancova")
data = read.csv(file.path(PATH, "dataPrimaryStudies", "16-Martinez", "testancova.csv"))
data$DIET = as.factor(data$DIET)
```

Notes

- The authors did not perform any ANCOVAs using one more more covariates. Instead they fitted some linear models (with GLS) and compared model fits
- Therefore, we did not run any ANOCVA or test any assumptions of ANCOVA
- We could reproduce their regression fit and model comparison results (Table S6)
- Authors provided R code
- Raw data was included in the PDF of the supplementary material, but not as data file

Data was analyzed according to recommendations by Field, Miles, & Field (2012).