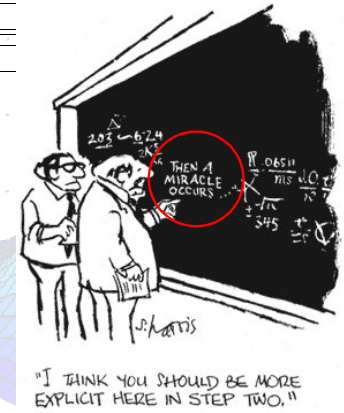


Distance Based Redundancy Analysis (dbRDA)

Eden McPeak and Jessica Hudson

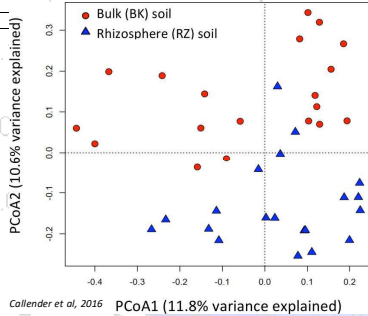
Based on work from Andreas Hamann, Erica Graham and Varina Crisfield

Multivariate statistics in a nutshell....



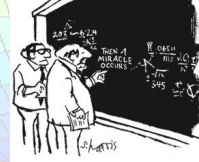
PCoA

RDA



Variable	$F_{1,26}$	P
Trout	0.58	0.69
Subsidy	0.70	0.58
Trout:subsidy	0.63	0.66

Klemmer and Richardson, 2013



What is dbRDA?

1. Create distance matrix of choice
2. Perform PCoA (principle coordinate analysis)
3. Perform RDA (redundancy analysis) on eigenvalues from PCoA

Why would you use it?

- RDA with non-Euclidean distance
- Pseudo F-value
- ANOVA Interaction terms

Considerations:

1. Only possible if dependent variable responses are linear to changes in predictor variables
 2. May need to correct for negative eigenvalues (or may not... depends on who you talk to)
- For:** Legendre and Anderson, 1999.
Against: McArdle and Anderson, 2001.

Literature Cited:

Bray, J. Roger, and J T Curtis. 1957. "An Ordination of the Upland Forest Communities of Southern Wisconsin." *Ecological Monographs* 27 (4): 325-49.

Legendre, Pierre, and Marti J. Andersson. 1999. "Distance-Based Redundancy Analysis: Testing Multispecies Responses in Multifactorial Ecological Experiments." *Ecological Monographs* 69 (1): 1-24.

McArdle B.H., and M.J. Anderson. 2001. "Fitting Multivariate Models to Community Data: A Comment on Distance-Based Redundancy Analysis" *Ecology* 82 (1): 290-97.

Thank you!!
Questions?

Time for the lab...

