Stats

- ANOVA
- Multiple Regression
- Reliability

ANOVA

What it does: compares means across populations and/or experimental/treatment conditions

When to use it: data in a normal distribution on a linear scale (e.g., percentages, acoustic measures, but NOT frequency counts)

What you need to know:

- one-way vs. two-way: how many factors you have (1 vs. 2)
- repeated measures: within-subject factors (e.g., blocks of trials, recording sessions)

- t-tests are a special case of ANOVA with 1 two-level factor

- posthoc comparisons: Tukey, Bonferroni, Scheffé, Fisher, Newman-Keuls

Multiple Regression

What it does: quantifies strength of relationship between independent and dependent variables

When to use it: data include one dependent variable with many independent predictor variables

What you need to know:

- linear regression: continuous dependent variable
- logistic regression: categorical dependent variable
  - VARBRUL: binary logistic regression with categorical IVs
  - multinomial logistic regression

- enter: all independent variables forced into model
- stepwise: independent variables are entered/removed one at a time

ANOVA vs. Multiple Regression

These two models are both part of the Generalized Linear Model (GLM)

- categorical independent variables (factors): ANOVA
- continuous independent variables: regression

- ANOVA: compares means
- regression: shows relationship between variables

- Are male and female f0s different? ANOVA
- Is f0 related to the perception of gender? regression

Reliability

What it does: assesses reliability (replicability) of results

When to use it: data are susceptible to human error and power is small (e.g., few subjects, few items)

What you need to know:

- Remeasurement: within raters, across raters, split-halves

- Absolute differences: mean difference, range of differences
- Pearson correlation: test-retest reliability, split-halves reliability
- Cronbach's alpha: average inter-item reliability (mean of all possible split-halves analyses)