

February 16, 2010

WEEK 5: METHODOLOGICAL PRELIMINARIES

HYPOTHESES & ERRORS

Every experiment begins with two hypotheses:

- ❶ *experimental hypothesis* (H_1) children's grammatical competence includes relevant UG principle(s)
- ❷ *null hypothesis* (H_0) children lack knowledge of relevant UG principle(s) investigated
- H_0 describes the expected outcome of an experiment if H_1 is not confirmed
- *null hypothesis* \neq *Null Hypothesis*: working assumptions that follow from specific model (e.g. equivalence: adults' and children's cognitive mechanisms / memory are similar)

Example: *He thinks the Joker has the best smile.* (Principle C)

H_1 : <sentence, {meaning₁, *meaning₂}> (*he* = somebody else, **the Joker*)

H_0 : <sentence, {meaning₁, meaning₂}> (*he* = somebody else or *the Joker*)

Design of experiment: Guard against concluding that H_1 is correct when H_0 is correct.

- *Type I errors*: get predicted results for reasons that have nothing to do with the theory
- *Type II errors*: fail to get predicted results even if the theory is correct

The experimental design must constitute a conservative test of H_1 . Bear in mind:

- TVJ Task: create contexts in which unavailable interpretation would be felicitous
- NB: subjects (i.e. children) have a bias towards "Yes" — so H_1 should be "No"
- alternative: associate final event in context with meaning ruled out by constraint

EXPERIMENTAL TASKS

Make sure:

- experiments are not too long (around 20–30 minutes per session)
- be prepared (rehearse storylines, have props organized, clean set-up, etc.)
- turn testing into a "game" and involve child as much as possible (also between)
- ideally, audiotape sessions (not necessary for very simple / straightforward tests)
- have score sheet prepared before (and clean it up right after, set up database)

References

McDaniel, Dana, Cecile McKee & Helen Smith Cairns (eds.). 1996. *Methods for Assessing Children's Syntax*. Cambridge, MA: MIT Press. [NB: very useful overviews, relevant sources, and practical tips for all kinds of experimental tasks]