

Psycholinguistics (LING/PSYC 27010)
Autumn, 2016 // University of Chicago

HOMEWORK #3

(due thurs, oct20)

Part 1 — the language of experimentation

Instructions

The same set of facts can be described in very different ways, at different levels of abstraction. Understanding scientific research requires one to be able to translate between plain-English descriptions of studies (low level of abstraction) and more technical, jargon-ful descriptions (higher level of abstraction).

In class, we talked about some fundamental concepts in experimental science: factors, levels, types of variables, etc. For problem (i), translate the passage into a list in the format of (ii). For problem (ii), translate the list into plain-English prose in the format of the passage in (i). **Complete both problem (i) and problem (ii).**

Problem (i): list the variables, task, factors/levels, and effects of this study.

Researchers at the University of Chicago have uncovered a powerful new method for enhancing human intelligence. Surprisingly enough, watching basketball for six hours was found to be associated with greater increases in IQ score when compared to a blank-screen-watching control group. Subjects took an IQ test before spending six hours either watching basketball on TV or staring at a blank screen, either at home or in a public setting (at a bar). After the watching session, all participants then took the test again. While there was no significant difference in pre-post test scores in the staring-at-a-blank-screen group, the basketball group performed reliably better on the post-test than on the pre-test. Interestingly, the benefit of watching basketball was significantly greater for those who watched at home as opposed to at the bar.

extra credit if you explain why the results of this hypothetical experiment are likely to be misleading!

Problem (ii): describe this study in plain-English prose.

independent variables: morphological structure; syntactic category

dependent variables: reaction time; accuracy

task: A word appears on the screen. The subject must decide whether a word that appears on the screen is a noun, a verb, or an adjective, by pressing a 'noun', 'verb', or 'adjective' button.

factors and levels:

factor 1 — morphological structure

level: consists of a single morpheme (e.g. *dog, load, cool*)

level: consists of a suffix and a root (e.g. *dogs, loaded, coolest*)

factor 2 — syntactic category

level: noun

level: verb

level: adjective

effects:

- main effect of syntactic category on reaction time:
RTs longer (slower) for adjectives than other categories
- interaction between morphological structure and syntactic category on reaction time:
for nouns and verbs, RT is shorter (faster) when they appear with a suffix than without one; for adjectives, suffix/no-suffix makes no difference for RT

extra credit if you explain why the results of this hypothetical experiment are likely to be misleading!

don't forget part 2! (next page)

Part 2 — theory and evidence

Suppose you come to find that in lexical decision-based priming experiments,

- (A) words like *capped*, *captivate*, and *capital* prime the words *ship* and *jail*; and
- (B) certain pairs of words prime each other when auditorily presented but not when visually presented (such pairs include *go/row*, *blue/grew*, and *loud/bowed*).

Answer both of the following in no more than a couple of paragraphs apiece:

- Is (A) predicted by the Cohort Model of lexical access, or the TRACE Model?
Explain how the model you chose predicts the result in (A), and why the other doesn't.
- Is (B) predicted by the Cohort Model of lexical access, or the TRACE Model?
Explain how the model you chose predicts the result in (B), and why the other doesn't.

hint: have another look at the readings from this week (week 3)

hint: in (B), the word bowed is pronounced like the greeting, not the shape