Linguistics 2PS3: Psycholinguistics
Test 1: 6 October 2017

Your job is to complete this test individually. You may consult your notes, your textbook, or any other resources, but you must not discuss your answers with your classmates until after the test has ended.

Write up your answers in a document, making sure to number each answer clearly. Save your document as a pdf file and submit it to the Takehome Test 1 (Individual) Submissions Folder by ***10:30 a.m. on Friday October 6****.*

1. Harris (1953) cut a tape into pieces corresponding to speech segments and rearranged those segments to form new words, but the words formed by rearranging segments were unintelligible. Does this mean that phonemes don't exist? Why or why not?
   (*2 points*)
2. Researchers who are investigating speech perception often mix the stimuli with white noise. Why do they do so?
   (*2 points*)
3. Researchers synthesized a vowel that was ambiguous between [ɪ] and [ʌ], and embedded it in two different contexts. When listeners heard the vowel in a [j__j] context, they were more likely to identify it as [ʌ], but when they heard it in a [w__w] context, they more often identified it as [ɪ]. Why do you think this is?
   (*3 points*)
4. Suppose you want to design a training program for learners of a second language to help them learn a pair of phonemes that are not contrastive in their L1. What kind of tasks will be more useful in your training program: identification tasks or discrimination tasks? Explain your reasoning.
   (*4 points*)
5. Researchers investigating spoken word recognition recorded native speakers of American English saying short, familiar English words. The researchers embedded these recorded words in white noise. Native speakers of American English listened to the recordings and had to identify the words by writing down each word they heard. Half the listeners heard a word list that was spoken by one single talker. The other half heard a word list that included 15 different talkers, arranged in random order so that each word was spoken by a talker who was different from the previous word's talker. Listeners in the single-talker condition identified the words significantly more accurately than listeners in the multiple-talker condition. Compare and contrast these results with the results we've discussed in class about the

effects of high-variability training on identification and comprehension tasks. Are the results consistent with each other or do they conflict? Explain your reasoning.
(*6 points*)

6. Researchers in Finland synthesized sine-waves to correspond to the nonsense words *onso* and *omso*. ("Nonsense words" means that *onso* and *omso*are not real words in Finnish.) They synchronized the audio recordings with a video of a man's face speaking the nonsense words. Half the participants were simply asked to categorize the sounds as 1 or 2. The other half were taught that the sine-wave signal was a kind of speech and were asked to categorize whether the sound before the [s] was [n] or [m]. In the condition when the video and audio did not match, 84% of the "type 1 or 2" participants correctly identified the sounds, but only 29% of the "[n] or [m]" participants correctly identified them. How would you interpret these results?
(*6 points*)

7. An important study investigating the real-world effects of various factors on speech perception was conducted in the often-noisy environment of a large hospital. The participants in this study were clinicians (physicians, pharmacists, nurses) and laypeople (people with no clinical training). The stimuli were spoken drug names recorded and played back against "a background of standard 20-speaker babble" (that is, the kind of background noise that would be common in a busy hospital). On each trial, a participant heard the drug name and had to repeat it back out loud.

   In this study, the dependent variable was the proportion of correct drug identifications by the listeners. The researchers compared several independent variables, including:

   - the signal-to-noise ratio (how loud the background babble was compared to the spoken drug name)
   - how frequently the drug is prescribed
   - the size of the similarity neighbourhood (how many other drugs have similar-sounding names)

Given what you know about spoken word recognition, make specific predictions for these variables: what effect will each independent variable have on the dependent variable? Explain your rationale for each prediction.
(*9 points*)

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Test 2: November 2017

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1. Anderson & Carlson (2010) compared how speakers produced two different kinds of sentences with temporary ambiguities, like the following:

    a. The jury believed the defendant without any hesitation.

    b. The jury believed the defendant had committed the crime.

    c. As Angela cleaned the floor the kitchen began to sparkle.

    d. As Angela cleaned the floor began to sparkle.

    A. Both of these pairs of sentences involve a decision about whether the second noun phrase (*the defendant/the floor*) is the object of the first verb (*believed/cleaned*). Once the temporary ambiguity is disambiguated, do the two pairs of sentences have the same structures? Using the correct terms for subcategories and grammatical roles, describe the syntactic structure of the temporary ambiguity in each pair of sentences. (**5 points**)

    B. The study found that speakers frequently placed a large prosodic boundary (a large pitch drop and a pause) after the verb (*cleaned*) in sentences like (d), but rarely in sentences like (a-c). Why do you think this is? (**4 points**)

    C. When speakers did place a large prosodic boundary after the verb (*believed/cleaned*), listeners were likely to interpret the following NP (*the defendant/the floor*) as the subject of the following clauase. Why do you think this is? (**4 points**)

2. Two sets of researchers investigated the effects of plausibility on the processing of sentences containing reduced relative clauses like the following:

    a. The teachers taught by the Berlitz method passed the course.

    b. The children taught by the Berlitz method passed the course.

    c. The defendant examined by the lawyer turned out to be unreliable.

    d. The evidence examined by the lawyer turned out to be unreliable.

Both studies manipulated the plausibility of the first NP as the agent of the first verb. For example, teachers are more likely to teach than to be taught, whereas children are more likely to be taught than to teach. Likewise, a defendant could examine something, but evidence could only be examined.

A. All four sentences have the same syntax. Pick one of the four sentences and identify which part of the sentence is the main clause and which part is the relative clause (**2 points**).

B. Crain & Steedman (1985) used a speeded grammaticality judgment and found that sentences like (a) and (c) were judged grammatical less often, whereas sentences like (b) and (d) were judged grammatical more often. Given that they were investigating the effect of plausibility on sentence processing, offer an interpretation of their results. (**4 points**)

C. Ferreira & Clifton (1986) used eye-tracking while reading, and found slow reading times in the disambiguating region for **all** types of sentences, specifically, slower reading times for "*passed the course*" and for "*turned out to be unreliable*", than in the comparable unambiguous control sentences like (e-f):

    e. The defendant who was examined by the lawyer turned out to be unreliable.

    f. The evidence that was examined by the lawyer turned out to be unreliable.

    The two sets of results seem to conflict with each other. Give a one or two sentence description of the conflicting results (not an interpretation, just a description of the contrasting pattern of results). (**2 points**)

D. How can we reconcile these sets of results. What might be the explanation for the difference? (**4 points**)