Final project: Information and guidelines

For the final project, your partner group will investigate the **acoustics** of one or more talkers' **language production** in order to answer a **well-motivated question** about human language.
Other project types (perception experiments?) may be possible in some cases; please confer with me ASAP.

The final project involves the following steps. Several of these are separate assignments and/or supported by "lab" days in class. I am also available to consult with your group at any stage in the process, but please bring something concrete for us to discuss.

(a) Identify **research questions** (a **big-picture RQ** and a **measurable RQ**) to investigate; **justify** them with reference to at least one citation from the research literature
(b) Acquire an appropriate body of **acoustic data** to analyze, with explicitly structured **comparison sets** (for example: different conditions in stimuli that you record; different subsets of data that you select from a corpus), in order to address your research questions
(c) Use Praat to **measure acoustic properties** that are relevant for your research questions
(d) **Analyze your results** to determine how they answer your research questions
(e) Produce **slides** and an **oral presentation** to report on your project, similar in structure to phonetics research articles you have read or we have all discussed
- ***Relate your findings*** *to course topics or issues in the research literature whenever possible.*

I. The research questions to investigate

Where can you get ideas for a research question for your final project? You can do an experiment that is a variation on something you have seen discussed in a phonetics paper or in class. You can also choose to pursue some aspect of an interesting big-picture question about a language you speak or have studied. Or, you can browse phonetics journals (see the Article Reports handout) and look for interesting ideas that you could adapt. Look through our course textbooks and the books on e-reserve for this course for additional ideas about topics and phenomena.

Your research question must have some kind of **phonetically, typologically, or phonologically relevant motivation, justification, or hypothesis** behind it—it is not enough to measure and compare things if you have no particular reason for wondering whether they are different. For example, you might find a motivation for your research question from one of the following:

(a) Results reported in a phonetics paper—does a past experiment give you motivation for trying an extension or a follow-up, perhaps in a different language?
(b) Predictions made by some phonetic model or physical phenomenon: tube model, aerodynamics, nonlinearity of pitch perception, etc.
(c) A typological asymmetry, found on WALS Online or elsewhere—if sound type A is more rare than sound type B, can we hypothesize and test for a phonetic reason?
(d) A prediction made by some phonological theory you have read about or studied
(e) Previous descriptions of how people think Language X works; you might be able to test for phonetic evidence of a proposed phonological rule, for example

Ideally, your project will be a **novel contribution** (especially if you are a graduate-student partner group), but a replication of a previous study may also be acceptable in some cases.

II. Collecting acoustic data

A. General considerations: Answering research questions with data

- What phonetic contexts should you examine to answer your specific question?
- What are good words/sentences/materials to use for testing those contexts?
- What factors, phonetic or other, should you control for in planning your data collection?
- How can you collect the data you need? Record speakers? Use pre-existing data?

B. Option 1: Record your own data

- How many participants will you have? How will you find them? How will you get high-quality recordings of their speech? (no MP3s!)
- How many tokens will you record for each stimulus item?
- Should the stimulus items be embedded in a frame sentence or context?
- Do you think the results are likely to change if participants are aware of the purpose of the experiment? If so, will including distractor items (which you won't actually analyze) in your materials help disguise the purpose?

C. Option 2: Use pre-existing acoustic data

- Where will you find data? Archives of speech recordings / spoken-language corpora? Non-linguistics-specific recordings on the internet? (beware MP3s—use with care!)
- How many tokens of each relevant category will you need to collect?
- What other factors might you need to control for in choosing items for analysis?

D. Guidelines for the scope of the project

Set up your project design so that:

- You are making at least **100 measurements for each person** in your partner group
- You collect **multiple repetitions** (at least 3, maybe more) of the same test item/test sentence, so that you can work with averages of your measurements [if working with existing recordings, you will have to plan for what counts as 'multiple repetitions'; may not be identical]
- Consequence: There is a trade-off between number of speakers or speaker groups, and number of words or phonetic contexts
- Note: If you have a reason (thesis project, past experience, connection to current work in another class, etc.) to propose something other than a *production* experiment involving *acoustic analysis*, I am willing to consider specific requests.
- Optional enhancements to consider for a (potentially) conference-quality project:
  (a) Apply to the IRB for **human-subjects approval**—please indicate in your project proposal if you plan to do this so I can meet with you about it ASAP
  (b) Consider making an appointment with the **Odum Institute** (statistical support for social sciences and humanities) if you would like advice about the specifics of your experimental design, with an eye toward future statistical analysis—again, let me know ASAP if you're interested in doing this, and I can give you more information

III. Measuring acoustic data

You will use Praat to make measurements from the data that you have collected. What you need to measure depends on what question you are examining. Decide on specific **criteria** for your measurement (on what basis will you decide where and how to take measurements?) and **include**

a description of those criteria in your slides.

- Using Praat scripts for measurement is absolutely fine, but is not required.

IV. The slides and presentation

Your project slides and presentation should be similar in structure to the phonetics papers you have read. Be sure to explain what research question you are investigating, what motivates that question or makes it interesting, and how your stimuli and measurement techniques are relevant for that question. Include data graphics, plus any other diagrams, sample spectrograms, vowel formant charts, or additional information you feel is necessary to explain your project and report your results. Relate your results and analysis back to your RQs: do you have answers? Apply concepts from our course whenever relevant. (You will also turn in your raw data, organized systematically, in an Appendix.)

V. Requirements and deadlines: Overview

- See **information** and **grading-criteria** handouts for each piece of the project for more details
- See also the **article summary assignment**—this is part of project planning

Project proposals are due M Nov 7

The proposal should include:

- **Research questions** and/or **hypotheses**, both big-picture and specific, with **justification**
- A description of your proposed **experiment**:
  - Your stimulus set: What materials will let you test your hypothesis?
  - Your experimental design:
    - (A) How many talkers, and what will they be asked to do? —*or*—
    - (B) How will you locate pre-existing recordings and search them for relevant data?
  - Your methodology: What landmarks will you use? What quantity will you measure?
- **References** used in developing your justification and (if relevant) used in planning your project (i.e., an article whose experiment you plan to use as a model for your own project)

Analysis plans are due F Nov 11 by 11pm

- This is a (near-)final version of your experiment design, measurement, and analysis plan

Partnership work plans are due once your analysis plan has been finalized

- This is a breakdown of how your group plans to distribute the work for the project

Projects will be presented M Nov 21–W Nov 30

- Slides will be uploaded and available to the audience before they are presented
- Data appendix is due along with slides

Revised slides (optional) are due Th Dec 8 by 11pm

- Optional: Revise slides to incorporate feedback from your presentation
- If revised slides are not submitted, the grade from the first-round slides will be applied