

Introduction: Language in the mind

HG 4015/7015
AY25-26 Sem 2

The instructional team



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Psycholinguistics

What is psycholinguistics?

Psycholinguistics

The study of the cognitive / psychological mechanisms that underlie language use and acquisition:

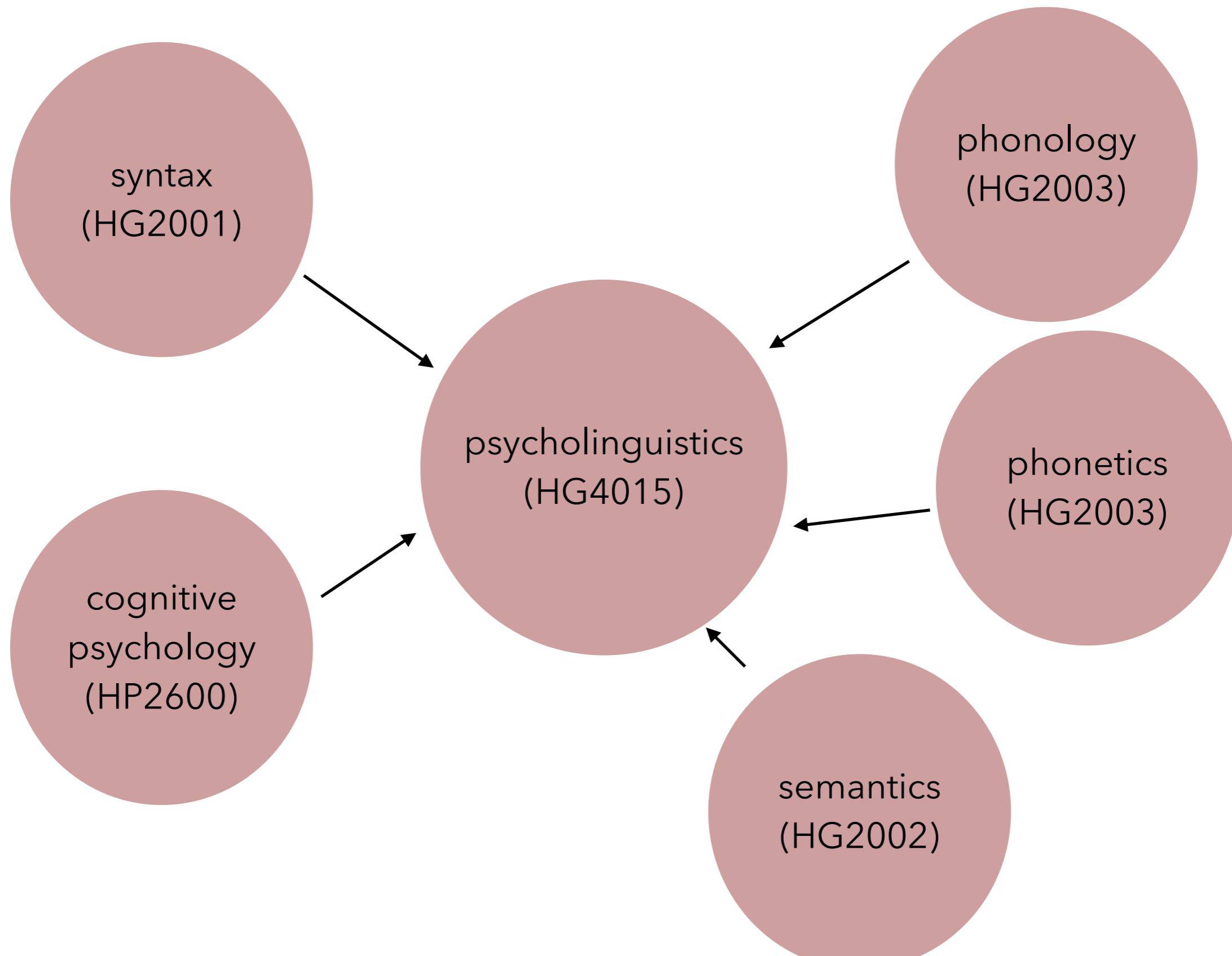
- **Language acquisition:** *how do adults and children learn language?*
- **Language production:** *how do you generate language in 'real-time'?*
- **Language comprehension:** *how do you understand language in 'real-time'?*
- **Neurolinguistics:** *what is the neural basis of language?*

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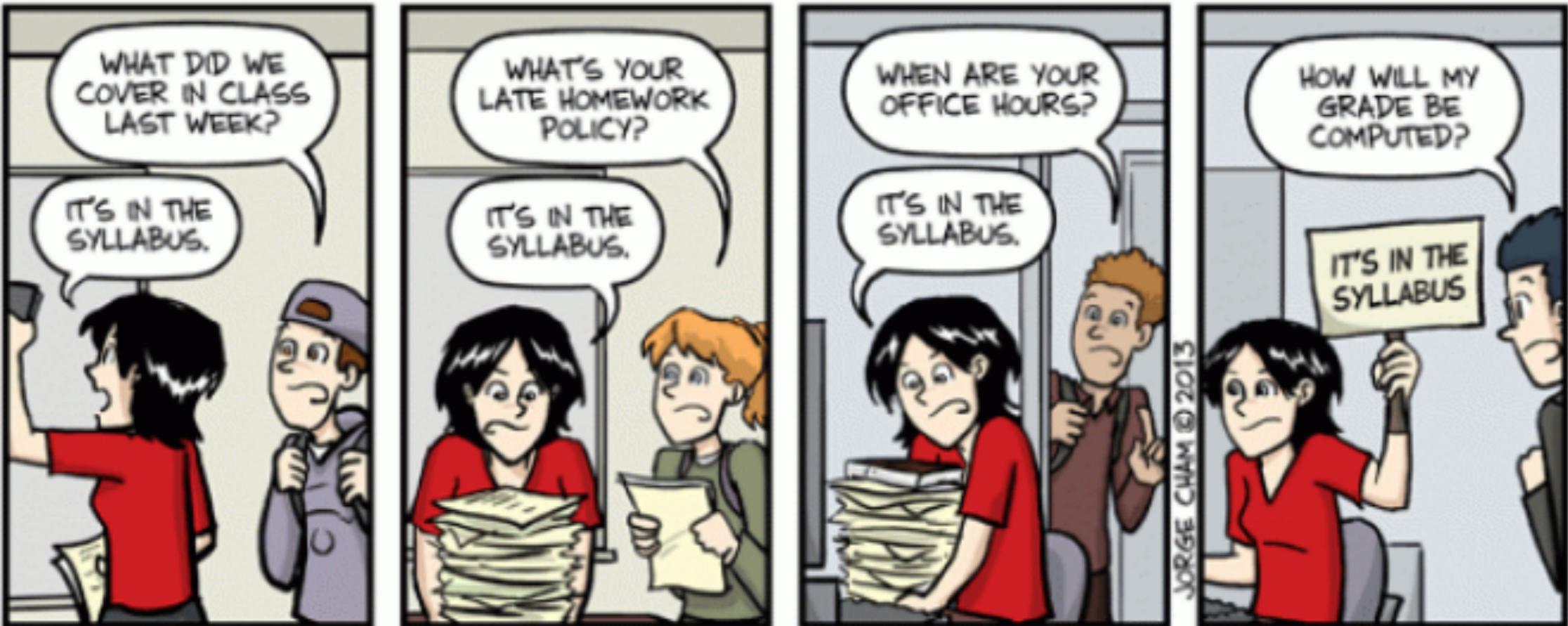
Interdisciplinary research



Course objectives

- Learn about the discipline of psycholinguistics.
- Learn foundational results in psycholinguistics.
- Learn to critically evaluate primary scientific literature.
- Learn the basics of experimental design and scientific reasoning.
- Learn basic data science skills for analyzing experimental data.

Course basics



IT'S IN THE SYLLABUS

This message brought to you by every instructor that ever lived.

WWW.PHDCOMICS.COM

Your job

- Come to class having done the reading for that day and reflected (**reading engagement** assignments).
- Participate!
- Come ready to ask questions, discuss, and figure things out together.
- Hands-on “written reports” (4x).
- Project presentations (details TBA)
- Final quiz...

Getting in touch

- Email: byungdoh.oh@ntu.edu.sg (M-F)
- Office hours: Come and discuss material, questions, with me (by appointment, at least for now)

Classroom environment

- We're here to work hard, do psycholinguistics, and have fun doing it. We will follow the NTU Student Code of Conduct.
- Success involves taking care of yourself and your physical and mental well-being. Make sure you know about the resources available at University Counseling Center, and the help NTU can offer if you and your family are in an unsafe or insecure situation.

Cultivating scientific skepticism



Cultivating scientific skepticism



The journey begins...



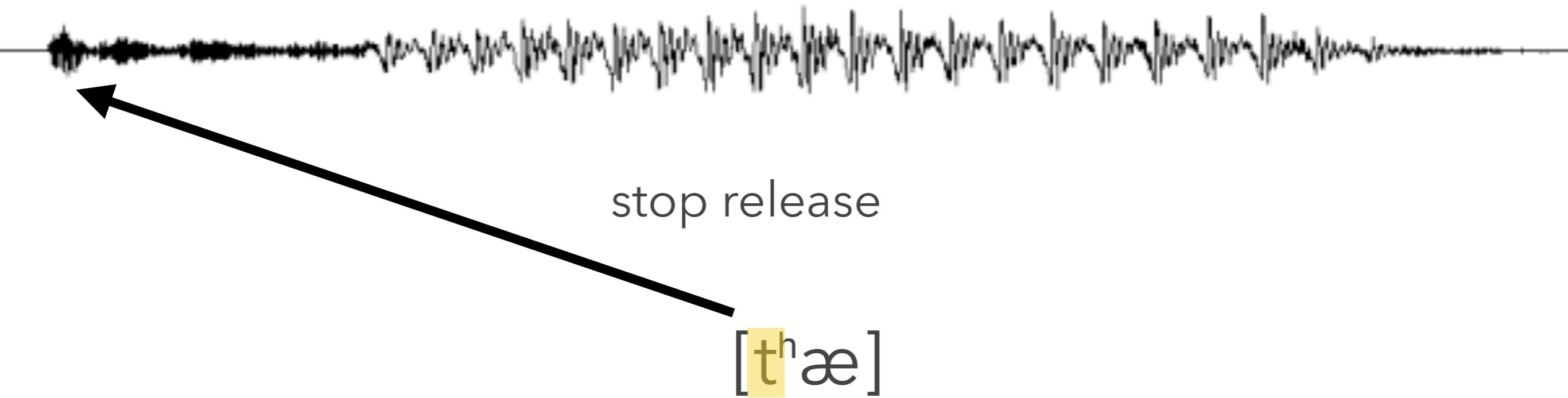
[t^hæ]

The journey begins...

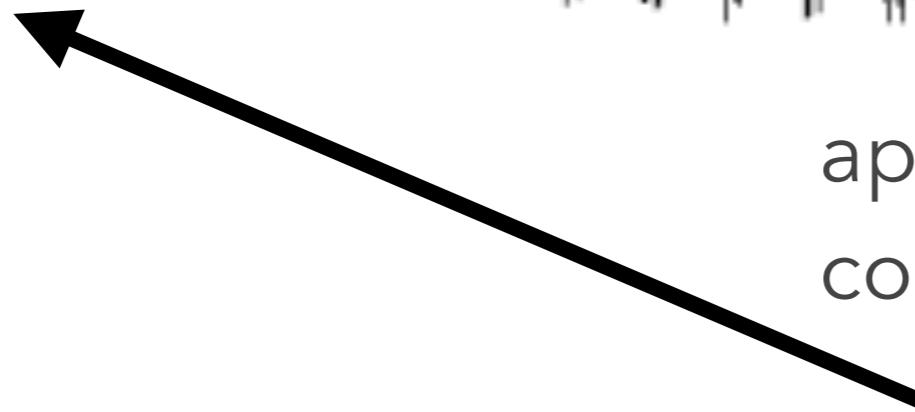


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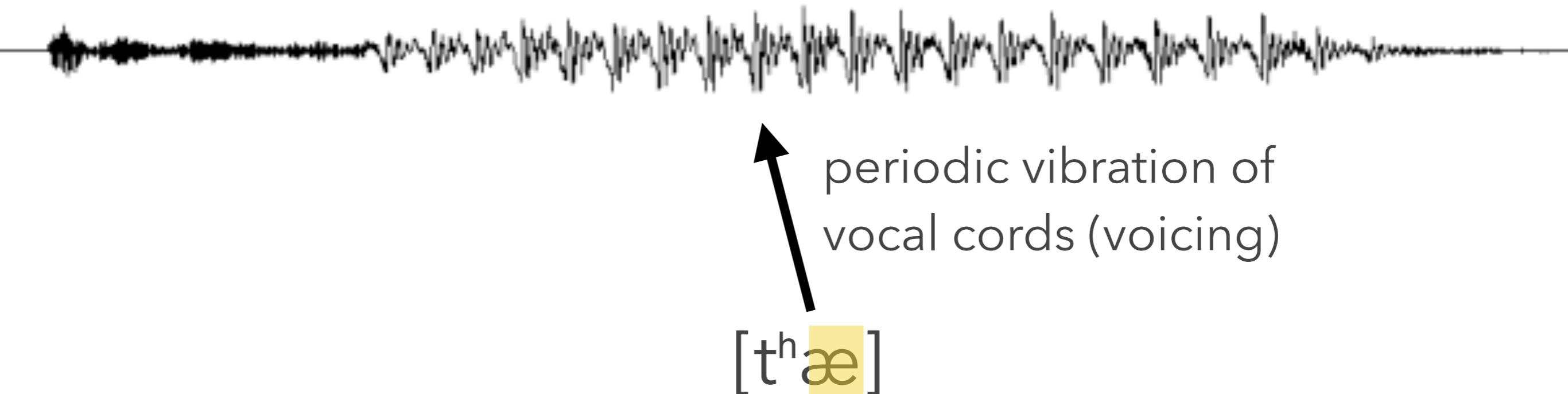
The journey begins...



aperiodic noise (vocal
cords not vibrating)

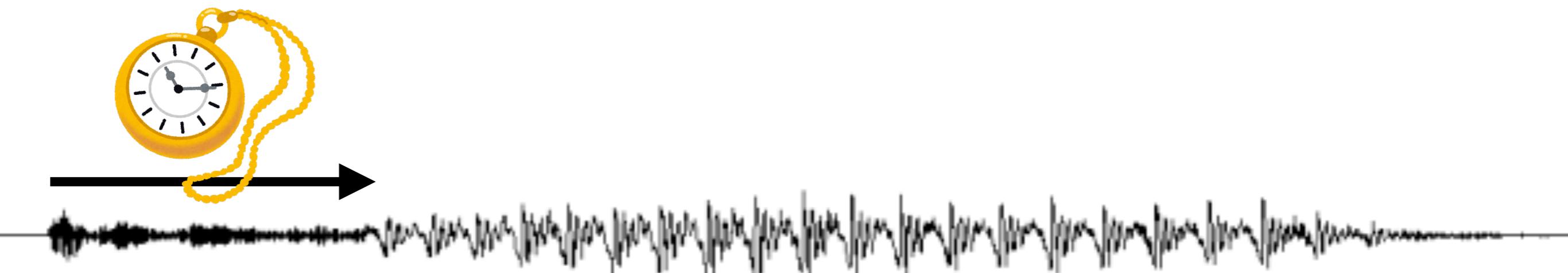
[t^hæ]

The journey begins...



The journey begins...

VOT (voice onset time)



60ms*

[t^hæ]

*1ms = 1/1000 second

The journey begins...

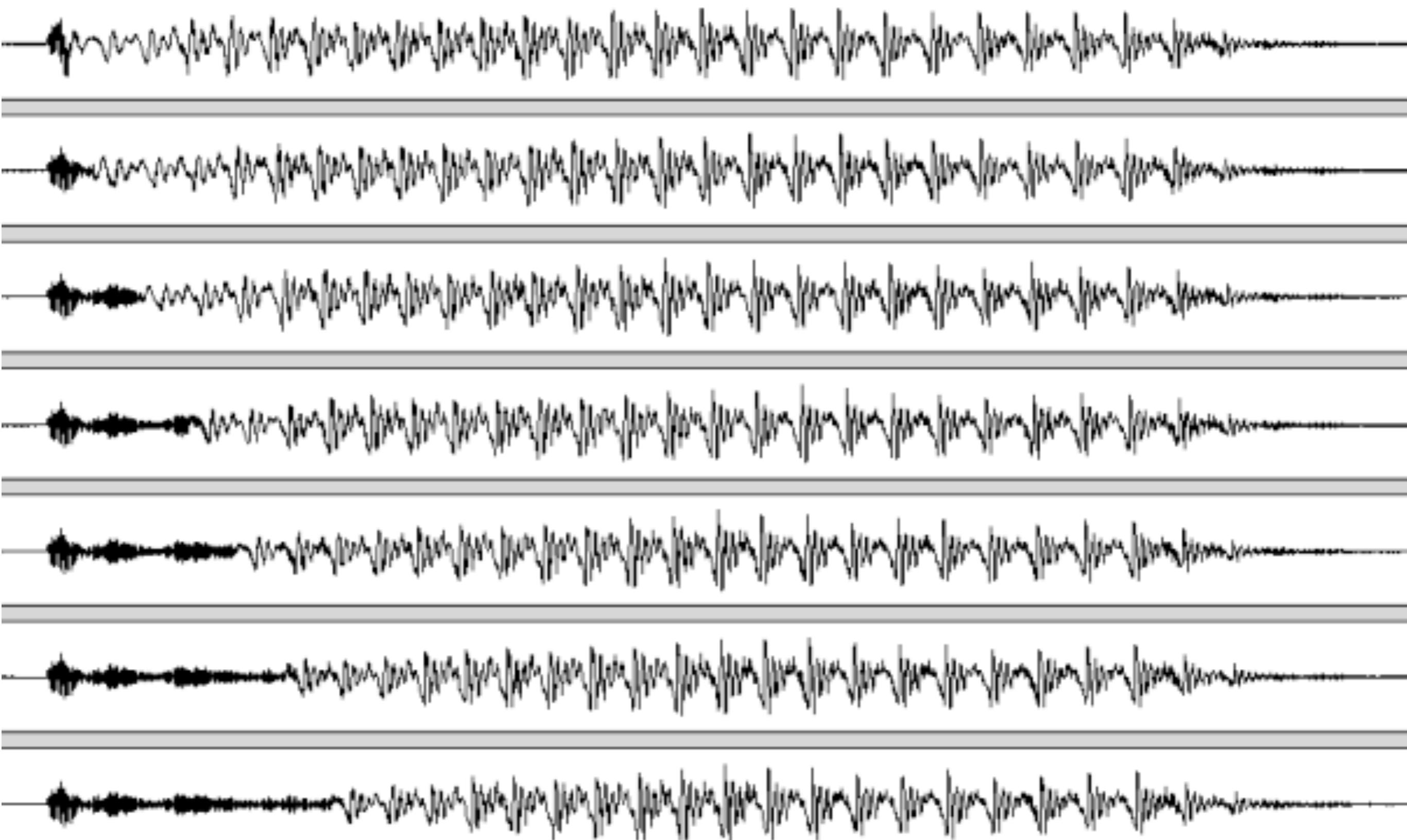
Psychophysics: the study of how physical stimuli (e.g. VOT) correspond to percepts / mental events (e.g. experience of /t^h/)



[t^hæ]

*1ms = 1/1000 second

The journey begins...



Experimental science

Lab 1 is posted and assigned. Lab 1 involves doing an **experimental study** on perceiving speech sounds.

- **EXPERIMENTAL STUDY:** In an experimental study, we try to draw conclusions about cause and effect by systematically manipulating factors of interest, and assessing their impact on an outcome.
- **OBSERVATIONAL STUDY:** In an observational study, we try to draw scientific inferences on the basis of data we observe without exercising experimental control. Lack of control is typically due to logistical or ethical constraints. Because you cannot control the context of your observations, it can be hard to establish what causes what.

Experimental science

Hypothesis: Voice onset time is a cue that determines whether we hear a voiced stop (e.g. /d/) or a voiceless stop (e.g. /t/).

Prediction: Stimuli with longer VOTs should be more likely to be categorized as a voiced coronal stop /d/.

→ **EXPERIMENTAL TEST:** Create stimuli that are identical except for VOT duration, systematically removing portions of aperiodic noise (e.g. aspiration). Present in a (masked) random order, to remove the potential of confounding stimulus category with order of presentation. Have participant record whether they hear /t/ or /d/. Evaluate predictions against the result.

In **Lab 1** you will run this experiment, to see if the results line up with the predictions of our hypothesis.

For next time

- Download Lab 1, read the section on **Running the Experiments** and try to run yourself in the **Sound identification task**.
- ...If I can get NTULearn up and running.

For right now

- Please take about 10 minutes to complete this initial survey:
<https://forms.gle/U9Prmo3BtP6Kqgho6>
- It will help me understand how smart you are.
- It will also count toward your "participation grade."

