

Class 1: Introduction, overview, SPE review

0. Icebreaker (see Kavanagh, Clark-Murphy & Wood 2011 for why we're doing this)

- Take an index card and write down 4-5 adjectives that describe you
 - PLUS, write one important thing you've learned in your linguistics/cognitive science studies so far
- I'll shuffle and redistribute them
- Find the author of the card you got, by asking people questions
 - To keep things interesting, **emphasize wh-questions** over yes/no questions
 - When you find the person, learn the correct pronunciation of their name and be ready to introduce them to the rest of the class
 - Also have them explain their "one important thing"

1. Write down one thing you know/remember about phonology on an index card for me

- It can be anything! A fact, a term, a concept, a phenomenon in a language, a rule...
- 1-2 lines is plenty

2. Phonology warm-up: Tongva

- UCLA is located on the traditional, ancestral, and unceded lands of the Tongva people
 - other terms used for the language and people include Gabrielino and Kizh¹
 - 'unceded' means that this land was never ceded to Europeans through treaty
 - The Gabrielino/Tongva people are the traditional land caretakers of Tovaangar (Los Angeles basin and Southern Channel Islands)
- The Tongva language is currently used as a language of daily life, but the Gabrielino-Tongva Language Committee (with assistance from our department's own Pam Munro) works to reawaken the language.
- Especially if you're new to L.A., I hope you'll take a few minutes this week to learn the very basics of Tongva culture, history, and politics, including the history behind why the language is no longer spoken, which includes enslavement and land theft under Spanish rule, and continued forced labor under U.S. rule:
 - Wikipedia: en.wikipedia.org/wiki/Tongva
 - Digital story-map about "Tongva placemaking, landscapes, and cultural history": www.arcgis.com/apps/MapJournal/index.html?appid=4942348fa8bd427fae02f7e020e98764 (explore the additional resources there)
 - UCLA Newsroom article about contemporary Tongva educators: newsroom.ucla.edu/stories/ucla-project-reveals-invisible-presence-of-the-tongva
 - Multimedia LA Times story about Tongva language, culture, geography, and history. Won LSA journalism award: www.latimes.com/projects/la-me-coll-tongva-language-native-american-tribe/

¹ All three names are used and combined, with different spellings. Four different organizations represent the Tongva people and use somewhat different names—I'm not intending to support any one organization over the others by the choice of how to write the language name!



Tongva education conference at Kuruvungna Springs in West L.A.: Theresa Stewart-Ambo, Craig Torres, Barbara Drake, Julia Bogany, Paulina Sahagun, Desiree Martinez, Kelly Stewart—photo from UCLA Newsroom

- Uto-Aztecan language—this family spans a large area of the Western U.S. and Mexico. Well-known family members include Shoshoni, Comanche, Hopi, and Nahuatl.
- Some local place names that come from the Tongva language (or a closely related language—it's not always possible to tell): Azusa, Cahuenga, Topanga, Tujunga, Pacoima, Cucamonga
 - *-nga* means 'place'
- In acknowledgement of this, let's learn something basic about the Tongva language: how to form plural nouns

Break into groups of 2-3. Your job:

- Some Tongva plurals are marked by “**reduplication**”—repeating the first consonant and vowel. Don’t worry about explaining the suffixes (what comes after the last hyphen in each word).
- Assume there’s rule in Tongva that puts **stress** on the second syllable of a word, and don’t worry about explaining the exceptions.
- In #1-#6, explain why (or describe how) the vowel of the copied first syllable is different from the vowel of the root. If you know how, you can write a rule.
- If you finish that, explain why some of the root vowels are also changing in #7-#15.
- If you finish that, speculate about what’s going on in #16-17.

You have 15 minutes; wave me over if you want any input.

	<i>singular</i>	<i>plural</i>		<i>IPA tips</i>
1.	'kii-j	kε-'kii-j	'house'	j is the sound in English <i>y<u>e</u>s</i> ε is the sound in English <i>y<u>e</u>s</i> ' means the syllable <i>after</i> the mark is stressed r is the sound in American English <i>ci<u>t</u>y</i> ʔ is the sound in English <i>uh_<u>o</u>h</i> ʃ is the sound in English <i><u>sh</u>ip</i>
2.	'naavo-t	na-'naavo-t	'tuna cactus'	
3.	'piino-r	pε-'piino-ram	'hummingbird'	
4.	'maane-t	ma-'maane-tam	'toloache'	
5.	'ʔiita-r	ʔε-'ʔiita-rom	'coyote'	
6.	'ʃoo-t	ʃo-'ʃoo-tom	'rattlesnake'	
7.	ʃa'xaa-t	ʃa-'ʃaaxa-t	'willow'	x is the sound in Spanish <i>jalape<u>ñ</u>o</i> (voiceless velar fricative) tʃ is the sound in English <i><u>ch</u>ip</i>
8.	to'koo-r	to-'tooko-m	'woman'	
9.	ʃo'ʔii-t	ʃo-'ʃooʔε-tam	'jackrabbit'	
10.	ʃa'ŋaa-r	ʃa-'ʃaana-rom	'yellow jacket'	
11.	ka'vaajoʔ	ka-'kaavajoʔ-am	'horse'	
12.	tʃε'veeve ʔ	tʃε-'tʃeeveveʔ-am	'spotted'	
13.	tʃa'mee-r	tʃa-'tʃaame-ram	'owl'	
14.	ho'ŋii-t	ho-'hoonε-tam	'squirrel'	
15.	no'voo-r	no-'noovo-r	'tray basket'	
16.	ʃo'kaa-t	ʃo-'ʃuuka-t	'deer'	
17.	pε'k ^w aa-r	pε-'piik ^w a-r	'greedy eater, wolf'	



from Munro 1983

Intro & big picture: what are we trying to do?

3. What is our job as phonologists? There are various answers out there...

- To describe phonologies (bullets from Goldsmith 1995):
 - What are the legal/possible words of the language?
 - phone inventory (set of basic units—sounds in spoken languages, gestures in sign languages)
 - phonotactics (set of legal sequences of units)
 - What alternations occur (changes that units undergo when placed in different contexts)?
 - Which phonetic differences are contrastive?
- To explain why phonologies are the way they are by constructing...
 - a theory of what people's knowledge of linguistic sound/gesture patterns is and how they learn, store, and use that knowledge
- plus a theory of how linguistic sound/gesture patterns change over time, which ought to follow from the above

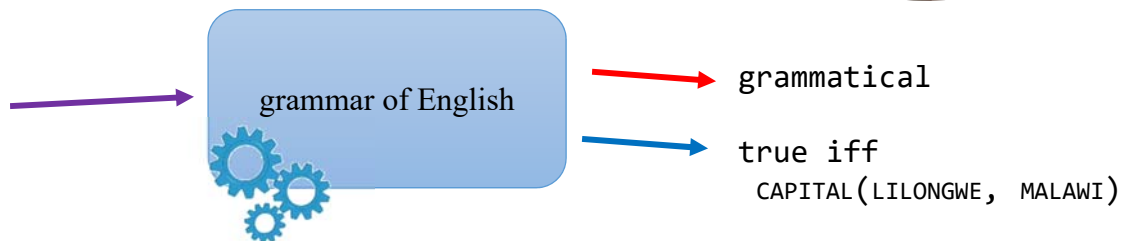
This will be our focus

4. Chomskyan basics²

- Let a **grammar** consist of (at least)³
 - a function that labels any utterance as **grammatical** or **ungrammatical**.
 - a function that assigns truth conditions to any utterance
 - might be implemented as a lexicon and list of rules, or a set of constraints, or something else



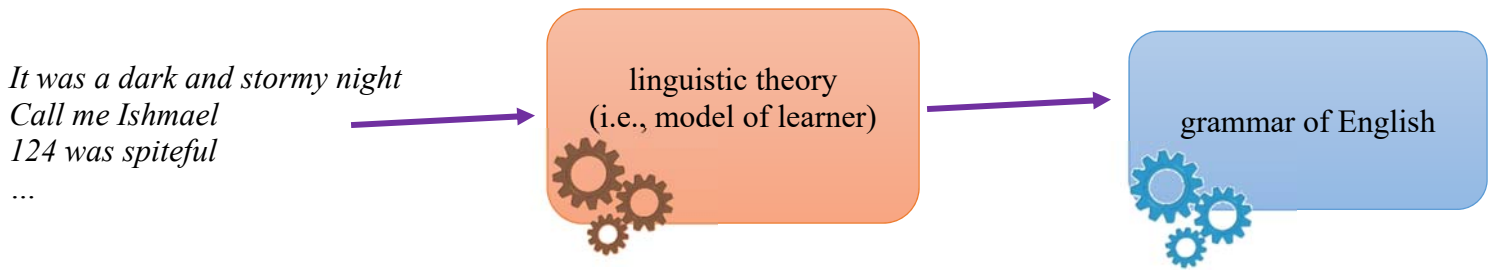
Lilongwe is the capital of Malawi



² Chomsky 1965 pp. 25-27, Chomsky 1964 p. 29, and Chomsky 1995 p. 3, simplified, and filtered, I admit, through my own views.

³ We probably want the grammar to do much more! (Chomsky also requires a grammar to assign a structural description to an utterance, but I wonder if this is begging the question: the structural description can be used to explain more-observable properties of a sentence like its truth-conditions, but do we know *a priori* that it's necessary?)

- Let a **linguistic theory** be a function that, given a (finite) set of utterances (the **learning data**), produces a grammar.⁴



5. Adequacy of grammars and theories

- a descriptively adequate grammar captures the significant, psychologically real generalizations—this is a lot!
- the real prize, an explanatorily adequate theory (i.e., learner), will, given typical learning data, return a descriptively adequate grammar

? How do these definitions compare to definitions or uses of ‘adequacy’ that you’ve seen elsewhere in linguistics?

But how do we even know what the significant/psychologically real generalizations are?????

6. Case study: English noun plurals

<i>cat</i>	k ^h æt	k ^h æts	<i>pea</i>	p ^h i	p ^h iz
<i>sack</i>	sæk	sæks	<i>cow</i>	k ^h ao	k ^h aoz
<i>dog</i>	dag	dagz	<i>man</i>	mæn	mɛn
<i>grub</i>	gɪʌb	gɪʌbz	<i>foot</i>	fot	fit
<i>dish</i>	dɪʃ	dɪʃɪz	<i>wife</i>	waɪf	waɪvz
<i>fudge</i>	fʌdʒ	fʌdʒɪz	<i>whiff</i>	wɪf	wɪfs
			...		

⁴ Chomsky sometimes breaks this into a **linguistic theory**, which defines the set of possible grammars, and a **strategy** for selecting a grammar out of that set, given the learning data.

We're going to do a “gallery walk” now

- I'm putting you into 5 groups. Each group is designated to be the **advocate** of one of the five grammars for English below
- First 5 minutes: Discuss and understand your group's grammar. Think of at least one advantage that your group's grammar has, and write that on your group's sheet
- Next 5 minutes: Shuffle sheets, discuss and understand the other group's grammar, and reply to what's been written on the next sheet from a pro-your-grammar standpoint
- Next 5 minutes: Repeat step ©
- Last 5 minutes: Circle back to your original sheet, read the replies, and see if you have any refutation to make

You have 20 minutes.

A. **No rules.** Just list every word you know, as though everything were an exception

k ^h æt	k ^h æts	p ^h i	p ^h iz
sæk	sæks	k ^h au	k ^h auz
dag	dagz	mæn	mɛn
gɪɒb	gɪɒbz	fɒt	fɪt
dɪʃ	dɪʃz	waɪf	waɪvz
fɒdʒ	fɒdʒz	wɪf	wɪfs

- How does this work as a grammar?
 - E.g., to determine if *I like cats* is true, grammar looks up the singular of *cats*. It's *cat*, so the sentence is true iff I like members of the set CAT: $\forall x x \in \text{CAT} \rightarrow \text{LIKE}(I, x)$
 - The sentence's truth has nothing to do with whether I like members of the set DOG.

B. **Add -s** to everything, except for these exceptions:

dag	dagz	k ^h au	k ^h auz
gɪɒb	gɪɒbz	mæn	mɛn
dɪʃ	dɪʃz	fɒt	fɪt
fɒdʒ	fɒdʒz	waɪf	waɪvz
p ^h i	p ^h iz

C. **Add -z** to everything, except for these exceptions:

k ^h æt	k ^h æts	mæn	mɛn
sæk	sæks	fɒt	fɪt
dɪʃ	dɪʃz	waɪf	waɪvz
fɒdʒ	fɒdʒz	wɪf	wɪfs
	

D1. **Add -iz** after “sibilant” sounds, **-s** after non-sibilant [–voice] sounds, and **-z** otherwise, except for these exceptions:

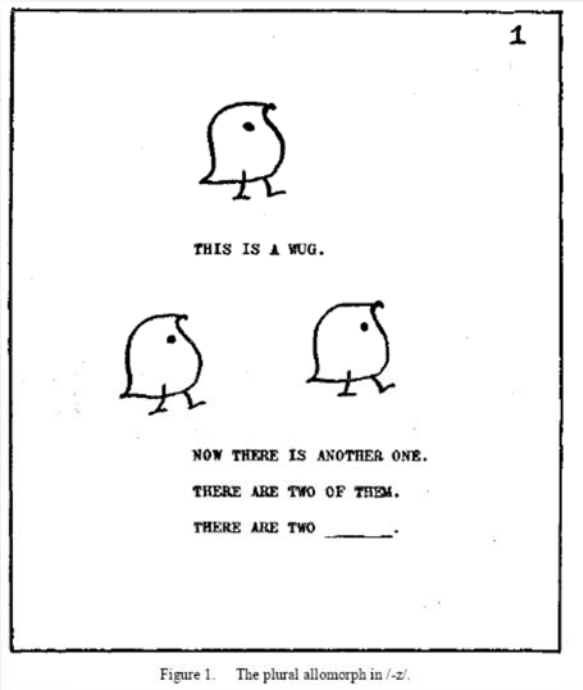
mæn	mɛn
fɒt	fɪt
waɪf	waɪvz

phonetics tip: “sibilants” are the fricatives and affricates made extra-noisy by shooting the already-turbulent airstream against the back of the front teeth

D2. **Change final /f/ to [v]**, and then add **-iz** after sibilants, **-s** after non-sibilant [–voice] sounds, and **-z** otherwise, except for these exceptions:

mæn	mɛn
fɒt	fɪt		
wɪf	wɪfs		

Which generalizations are real? How about a wug test.



(Berko 1958, p. 154)

- Berko found that English-speaking adults (all highly educated, in her sample, FWIW) consistently give the following plurals when presented with invented words (pp. 155-158):

wʌg	wʌgz	lʌn	lʌnz
gʌtʃ	gʌtʃɪz	nɪz	nɪzɪz
kæz	kæzɪz	kɪə	kɪəz
tɔɪ	tɔɪz	tæs	tæsɪz

? For each of the grammars above, would anyone like to make the case for its descriptively adequacy, given these data?

? The adults disagreed about this word—what might we conclude?

hɪf	hɪfs, hɪvz
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7. Why is it hard to develop a descriptively adequate grammar in phonology?

- If a speaker already knows a word, it's uninformative to us!
 - Known words don't tell us anything about what generalizations the speaker has learned—they may have simply memorized those words
- Constructing novel phonological situations to put speakers in is a challenge.
 - Contrast this with syntax, where it's easier to construct sentences that—presumably—the speaker has not encountered before.
- We often can't be sure that these novel situations really test what we want them to test.
- In 200A, we'll mostly ignore this problem and proceed as though generalizations that we notice in the data are real to speakers.
 - In 201A there will probably be a more emphasis on methods for determining which generalizations are real.

8. Why is it hard to develop an explanatorily adequate theory?

- Suppose we could magically achieve description adequacy for all real languages.
 - That only tells us which generalizations people have extracted for existing sets of data
 - We don't know what people *would do* if faced with a language with different generalizations
- In the English example...
 - Suppose we're convinced by the wug test that English speakers' grammar includes the rule "use the [ɪz] form of the plural after sibilants".
 - Exposed to the English data, learners choose a grammar with that rule
 - But we still know nothing about the learnability of "use the [ɪz] form of the plural after **non-sibilants**".
 - If the data had somehow reflected this rule instead, would children be able to learn it just as well?
- To build our linguistic theory, we need to know which generalizations people can extract or tend to extract from all kinds of learning data, not just attested learning data.
 - Are some generalizations preferred to others?
 - Are there hard limits on learnability?
- Again, this won't be our focus this quarter, but some interesting things you could read:
 - Becker, Ketrez & Nevins 2011 and Becker, Nevins & Levine 2012 tackle this problem in a very interesting way, by comparing potential generalizations that exist within the same language—Turkish and English, here.



- Bowers 2012 argues that a sudden, one-generation change in Odawa happened because the data changed into something that children couldn't learn.



9. Wrapping up

- Let's look at the syllabus, BruinLearn, and Perusall
- What we did today
 - Situate the enterprise of phonological theory: we're working on a model of how to get from language experience to a plausible mental grammar
- What's next
 - We will go into excruciating detail about how one model, "SPE" works
 - Our goal is to understand precisely the predictions of that theory, so that we can compare it to other theories ("OT", in particular)
- The course overall
 - Starting from a very explicit base of how the two theories, and some of their variants, work, we'll look for conflicting predictions to help us decide
 - Preview: there mostly hasn't been enough work done on the crucial cases! So there is plenty for new phonologists to work on—the squib will give you some practice

10. One last thing: now's a good time to make your "basic week" schedule

- Increasing emphasis in graduate education on "professionalization" and revealing the "hidden curriculum"
 - Explicitly teaching abstract-writing, project planning, conference-going ...
 - Mazak's podcast often talks about how faculty need to "pull back the curtain" by showing how we manage our own work
- So, here's something you should do now: plan out your basic week, which will then get adjusted every actual week
 - I'll show what this looks like for me in Excel and Google Calendar
- The point is not to turn yourself into a joyless productivity robot! Rather, the point is to...
 - make sure you have enough time for all your commitments
 - if not, drop some!
 - feel calm when not doing schoolwork, knowing that it has its scheduled time
- Pro tips to take your schedule to the next level
 - Pick a special location for each activity: YRL for your syntax reading, Powell for your phonology assignment, etc.
 - Helps your mind get in gear faster
 - Schedule thirty minutes of **free time after each meeting**—especially advising meetings with faculty—to process the notes you made during the meeting on things you need to do or follow up on
 - Schedule a **back-up slot** for anything important to you that tends to get pushed off your schedule by the unexpected
 - If possible, leave the **half-hour after a class free-ish**: have lunch, exercise, socialize
 - The research is still basic, but your brain *may* consolidate the preceding class's material better, compared to if you went straight to another class or homework (Tambini, Ketz & Davachi 2010; Dudai, Karni & Born 2015)

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