Course summary

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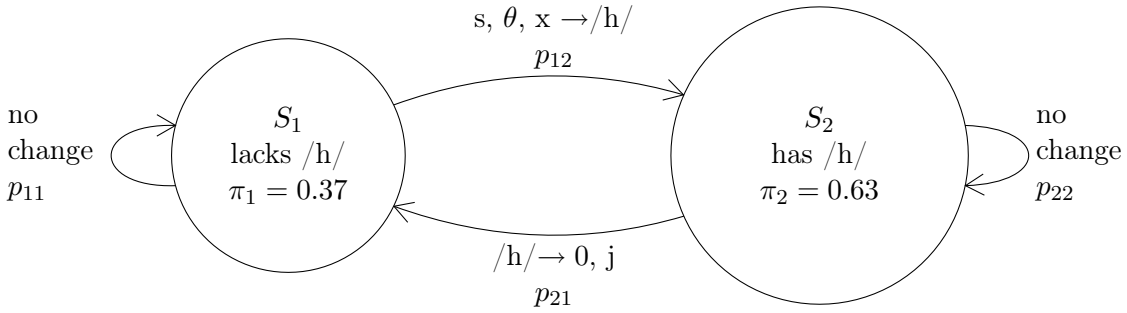
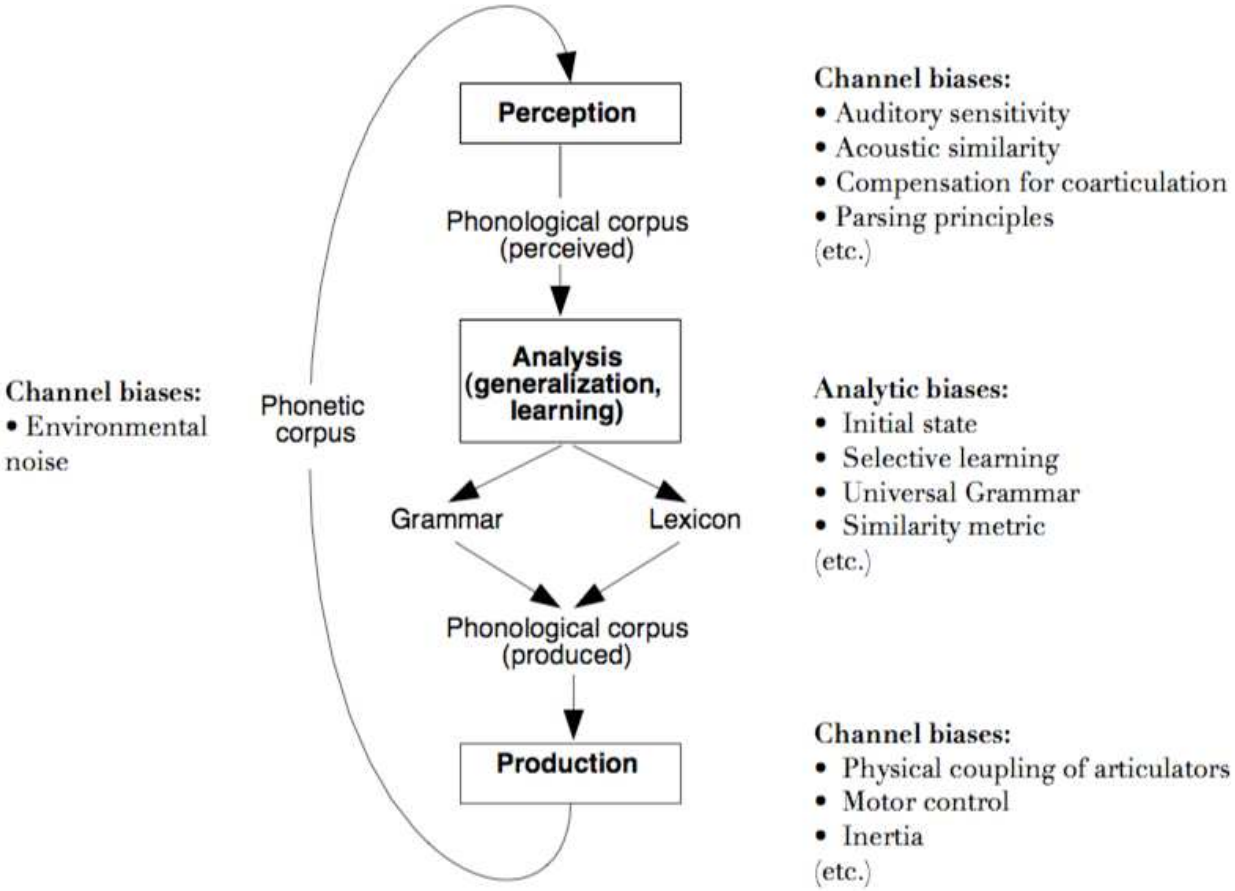
(1) Asymmetries in phonological typology emerge from asymmetries in phonological change . . .



Innovations and extinctions are equally important in determining typological frequency, though the supply side is usually easier to study.

(2) . . . which in turn emerge from biases in the production–perception–analysis loop:



a. Channel bias: Systematic errors in the production–perception channel that introduce systematic differences between the phonological representations generated by other speakers and those received by the learner

b. Analytic bias: Systematic differences in learning response to data instantiating different patterns with equal statistical quality. Includes, but is not limited to, Universal Grammar.

(3) The existence of both kinds of bias is not in doubt; rather, it is their nature (what are they specifically?) and their typological effectiveness (what, if anything, do they contribute to typology?) that we have to worry about.

⇒ Neither type of bias can be safely ignored. It isn't enough to exhibit a channel bias, or an analytic bias, that looks like the typological asymmetry, and stop there.

(4) Analytic bias and channel bias can be measured in the lab. Extrapolating from the lab measurements to relative magnitudes in nature requires making some assumptions about the learner.

The crudest, but most credible, is that the direction of bias is the same in nature and the lab: If analytic bias favors Pattern X over Pattern Y in the lab, then it will also favor it in nature.

⇒ The most convenient way to dissociate channel from analytic bias in typology is to find cases where they oppose each other ("underphonologization").

(5) Summary of lab studies of analytic bias:

a. Paradigmatic simplicity bias:

   (i) It is easier to learn to distinguish two stimulus classes when the distinction is phonetically systematic ("featural") than when it is phonetically arbitrary.

   (ii) Evidence for existence is pretty strong (lots of studies, lots of different classes, tasks, native languages, ages, etc.)

   (iii) Evidence for typological effectiveness is weak (confounded with channel bias).

b. Syntagmatic simplicity bias:

   (i) It is easier to learn to distinguish two stimulus classes when the distinction depends on two instances of the same feature within the stimulus than when it depends on instances of two different features.

   (ii) Evidence for existence is decent, but scanty; only L1 English speakers, only adults.

   (iii) Evidence for typological effectiveness is better than for paradigmatic s.b., but limited to a single case, and there are objections to that.

c. Substantive analytic bias:

   (i) Bias in which the real-world interpretation of the pattern matters; you wouldn't get the same result if you permuted the features. (E.g., final-obstruent devoicing vs. final-obstruent voicing.)

   (ii) Very important because of relevance to

      i. domain-specificity of phonological acquisition

ii. interpretation of typological data

(iii) Evidence is shaky — few experiments, and many of them open to alternative interpretations.

I don't know of any study which found the *reverse* of any of these bias types.

(6) How confident can we be that lab tasks engage same mechanisms as are used by natural-language learners (of L1, L2, D2, etc.)? There are conspicuous differences between what happens in the lab and what happens in nature:

a. "Easy come, easy go" — People in the lab can acquire phonological patterns that are more restrictive than their L1 in minutes, and can be trained out of them just as quickly. Some other kinds of more-naturalistic learning can also happen quickly (dialect or accent adaptation), but they seem to resist loss.

   Persistence may just be a consequence of amount of training or motivation.

b. Perceptual effects: L1 is so hard to overcome that it can cause outright misperception of stimuli that violate its phonotactics. No evidence that lab-learned phonotactics can have this effect, but also none that naturalistic non-L1 learning can either.

c. Content of biases: Paradigmatic simplicity bias looks a lot like the kind of bias you see in non-linguistic category learning, so doesn't confirm that the lab task is accessing natural-language learning. Syntagmatic simplicity bias seems not to have been studied in non-linguistic category learning. Substantive bias would be strong evidence, but not altogether certain in linguistic learning.

(7) Outstanding issues:

a. Existence of substantive analytic bias. A lot hinges on this (see above). Where should we look for it?

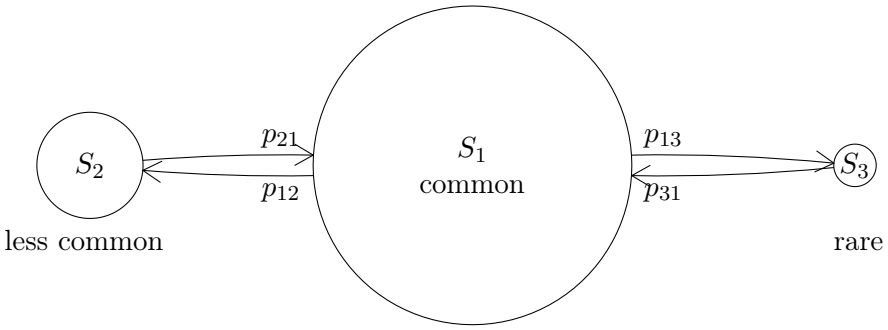
   (i) "Diachronic conspiracies"

   (ii) Mismatches between perceptual confusions and actual sound changes. Underphonologization.

   (iii) "Crazy classes". Good place to look because paradigmatic simplicity bias is so reliable. Example (better than the one from last week): Ohala has proposed that "high-airflow" segments, which have a big glottal opening (aspirates, voiceless oral fricatives, [h]) pattern with nasals in inducing nasalization of adjacent vowels (because tracheal resonances and antiresonances sound like nasal ones). In the absence of analytic bias, you might expect these sounds to pattern together in natural languages. Do learners treat "nasals, aspirates, and voiceless fricatives" as a single class?

   (iv) Biases in analogical change?

b. Way to get a handle on extinction rates. These are just as important in determining typological frequencies as innovation rates, but receive much less attention. Hard to study in lab, since you need to compare speakers of languages of which one is very rare:



c. Way to handle influence of L1 on channel biases in production and perception.

d. Theory of learner that allows extrapolation from lab to nature for both channel and analytic biases.

e. *Phonetic* typological data: What are the channel biases? Cross-linguistic confusion data in particular would be useful.