

Class 4: The duplication and conspiracy problems

To do

- Read K&K ch. 10, pp. 424-436 only—study questions due Thursday
- Read Kisseberth—study questions due Thursday
- Look at metaphony assignment, due Oct. 14

Overview: Sometimes it looks like multiple parts of the grammar are doing the same thing. If this is bad, can we do anything about it?

1. Dynamic vs. static phonology

The ‘dynamic’ phonology of a language is the phonology that shows up in alternations. We have analyzed this with rules:

cat[s]	walk[t]
dog[z]	jog[d]
pea[z]	flow[d]

The ‘static’ phonology is the generalizations that hold of monomorphemic words. Often analyzed with morpheme structure constraints:

*[ligt], *[nubs]

(Why not with rules? Because we don’t know what change to make: [nubz] or [nups].)

2. Conceptual remarks

Morpheme structure rules are funny: no one is claiming that the English lexicon actually contains words like /ækd/, repaired by MSR to *ækt* (after all, why would a learner construct such a lexical entry instead of /ækt/?). But the prohibition on *ækd* must be expressed somewhere in the grammar of English, since speakers know it (they would reject *ækd* as a new word).

Some might claim that the lexicon contains /ækD/, with a final consonant underspecified for [voice]. Still, if the MSR applies only to underspecified Cs, what *would* happen to hypothetical /ækd/? What prevents it from existing?

This comes back to the ‘lexical symmetry’ idea we see in K&K’s discussion of Russian final devoicing: the grammar needs to explain, one way or another (phoneme inventory, MSRs, or rules), why certain types of underlying forms don’t occur.

- Learning problem: how do English speakers know to reject *ækd* anyway (cf. *back down*)?

- An even weirder case that we discussed earlier: some English speakers think that *slol* and *ʃmæŋ* sound funny?¹ If we tried to write a rule to change them, instead of merely a constraint banning them, what would they change to??

3. Example: Estonian

(Finno-Ugric language with 1,100,000 speakers, mainly in Estonia--)

Estonian content morphemes have a minimum size: at least two syllables or one heavy syllable, where ‘heavy’ = CVVV, CVVC, or CVCC. *Note-taking accident! I thought these data were from Prince 1980 but they’re not...*

**/ko/, */ma/, */kan/*

Estonian also has a rule deleting final vowels in the nominative sg. (there’s also C lengthening, but don’t worry about it):

<i>/matsi/</i>	mat:s	‘lout, bumpkin, nom. sg.’
<i>/konna/</i>	kon:n	‘frog, nom. sg.’
<i>/tænava/</i>	tænav	‘street, nom. sg.’
<i>/ilma/</i>	ilm ²	‘world, weather, nom. sg.’
<i>/jalga/</i>	jalg	‘foot, leg, nom. sg.’

But it cannot apply in certain cases:

<i>/kana/</i>	kana	‘hen, nom. sg.’
<i>/koi/</i>	koi:	‘clothes-moth, nom. sg.’
<i>/maa/</i>	maa:	‘country, land, nom. sg.’
<i>/tuba/</i>	tuba	‘room, nom. sg.’
<i>/koli/</i>	koli	‘trash, nom. sg.’

- Let’s try to write a mini-grammar for Estonian that tries to capture these facts.

4. The duplication problem (Kenstowicz & Kisseberth 1977³)

This term refers to cases where rules and morpheme structure constraints seem to be doing the same thing (‘duplicating’ each other’s effects). This troubled researchers from the late 1970s onwards, because it seems (although we don’t actually know) that a single phenomenon (e.g., avoidance of sub-minimal words) should have a single explanation in the grammar.

¹ There are not many monosyllabic words like this—here are all the examples from the CMU Pronouncing Dictionary, excluding probable proper names. OED has a few more but they were all previously unknown to me.

s{p,m}C₀VC₀{p,b,m}: smarm(y), smurf, spam, sperm, spiff(y), spooʃ

s{m,n}C₀VC₀{m,n,ŋ}: smarm(y)

{ʃ,s}{l,r}C₀VC₀{l,r}: shrill, slur, slurp—notice none with *l...l* or *r...r*

skC₀VC₀{k,g,ŋ}: skink, skulk, skunk

² I’m not sure if this example and the next have lengthening.

³ Kenstowicz, Michael, and Charles Kisseberth (1977). *Topics in Phonological Theory*. New York: Academic Press.

5. Shortening a grammar

Using the brace notation to collapse $\emptyset \rightarrow V / C _ C\#$
 $\emptyset \rightarrow V / C _ CC$

into the shorter $\emptyset \rightarrow V / C _ C\{C,\#\}$ says that these rules have something significant in common. (Why? recall SPE's evaluation metric...)

6. Kisseberth: cases where the notation doesn't allow shortening

These rules have something in common too (what?), but they can't be collapsed using curly brackets:

$$\begin{aligned} \emptyset &\rightarrow V / C _ CC \\ C &\rightarrow \emptyset / CC + _ \end{aligned}$$

Cases like this are called *conspiracies*, and their widespread existence is the *conspiracy problem*.

(The difference between a case of the duplication problem and a case of the conspiracy problem is sometimes fuzzy and the terms are sometimes used interchangeably.)

7. Constraints

Kisseberth proposes using a constraint to make the rules of Yawelmani simpler:

Instead of $V \rightarrow \emptyset / VC _ _ C V$
 [-long]

use $V \rightarrow \emptyset / C _ _ C$ subject to the constraint *CCC
 [-long]

The constraint can *trigger* rules or *block* them.

- Blocking isn't too problematic—how does it work in the example above?

But triggering might be problematic. What if a constraint triggers multiple competing rules in some cases: how do you choose which rule to apply?

Many more conspiracies have been identified, giving rise to more constraints.

8. The “international conspiracy” problem (Kiparsky)

Sometimes different rules in different languages seem to be aiming for the same surface patterns.

Example on next page: cognate infixes in some Western Austronesian languages—see Zuraw & Lu (submitted) for more/better details and references.

	Tagalog (Philippines)	Timugon Murut (Indonesia)	Sarangani Blaan (Philippines)	Limos Kalinga (Philippines)	Acehnese (Indonesia)	Palauan (Palau)	Kulalao Paiwan (Taiwan)	Tjuabar Paiwan (Taiwan)
p/f	pili, pumili	patoj, matoj	fati, mati	pija, kumija	pajoh, sumajoh pubuɛt, sumubɛt	--	pili, pnili piqaj, pniqaj	pajsu, pənjəsu
t	takbo, tumakbo	tuun, tumuun	tiis, tmiis		tulak, tumulak	toŋakl, tmoŋakl		təkəʎ, təm(ə)kəʎ
s	sulat, sumulat				saluɛn, sumaluɛn	sisiiʔ, smisiiʔ		supu, səmpu sənaw, səmənaw
k/q	kuha, kumuha				kalʔn, kumalʔn	kiut, kmiut	quʎuts, qmuʎuts	kan, kəman kava, kəmava
b/v	bili, bumili	bigod, migod	bunal, munal	bali, gumali buuk, gumuuk bulbul, gumulbul		basəʔ, masəʔ	burəs, bnurəs vuʎu, vnuʎu	
d/ð	datiŋ, dumatiŋ			dakol, dumakol	duŋɣ, dumɤŋɣ	ðakl, θmakl		
g	gawa, gumawa	gajo, gumajo			gantɔŋ, gumantɔŋ	--		
note also						ðobəʔ, ðwobəʔ kɛmɛð, kwɛmɛð daləm, dwaləm		təvəʎa, tən(ə)vəʎa sav-u, səpəv-u

Moral

➔ Even if referring to a constraint doesn't simplify the grammar of an individual language, it sometimes seems to give some insight into cross-linguistic patterns. (Following SPE reasoning, where that which is frequent cross-linguistically is thought to be favored by learners, we might conclude that such a constraint is somehow “natural” for learners to construct. What would that mean? Do we need an evaluation metric for constraints?)

Next time we'll look more at theories that combine rules and constraints.