Class 5: Optimality Theory, part II

To do
- Topic proposal or bibliographic exercise due Thursday

Overview [after discussion of project]: Last week we talked in detail about how the theory works. This time, the focus will be on using it. Plus, target vs. process; correspondence theory.

1. **Exercise: a bleeding example from English**
o   Translate your previous rule analysis into OT

(reminder: /z/, Ø → ɨ / [+strid]__[+strid], [–son] → [–voice] / [–voice] __)

pʰi-z	'peas'	dɑg-z	'dogs'	mɪt-s	'mitts'	glæs-ɨz	'glasses'
tʰoʊ-z	'toes'	læb-z	'labs'	bloʊk-s	'blokes'	fɪz-ɨz	'fizzes'
dɑl-z	'dolls'	sɑlɪd-z	'solids'	kʰɑf-s	'coughs'	bɹæntʃ-ɨz	'branches'
pʰæn-z	'pans'	weɪv-z	'waves'			bædʒ-ɨz	'badges'
		saɪð-z	'scythes'			wɪʃ-ɨz	'wishes'

o   Could the counterbleeding candidate *[glæs-ɨs] win under any ranking of these constraints?

2. Very short feeding example

Catalan (Indo-European lang. from Spain, France, Andorra w/ 11.5 million speakers [Lewis 2009]; Mascaró 1976)

son	'they are'	bin	'twenty' (/bint/, cf. [bintiu] '21')
poks	'few'	pans	'breads'
som poks	'they are few'	bim pans	'twenty breads'

o Let's develop a rule analysis together.
o Give an OT analysis.
o Could the counterfeeding candidate *[bin pans] win under any ranking of these constraints?

3. Counterfeeding that we can capture

ARomance metaphony case from Walker 2005

Lena (dialect of Asturian, a language from Spain with about 100,000 speakers)

fí-a	'daughter'	fí-u	'son'
nén-a	'child (fem.)'	nín-u	'child (masc.)'
tsób-a	'wolf (fem.)'	tsúb-u	'wolf (masc.)'
gát-a	'cat (fem.)'	gét-u	'cat (masc.)'

o Develop a rule account
o What's the problem with translating this into OT (hint: [gét-u] is the problematic word)?
o Any ideas for playing with our faithfulness constraints to get this?

4. Opacity

- We now have our first empirical difference between SPE and OT: SPE straightforwardly predicts counterfeeding and counterbleeding, and OT doesn't.
  - any purported case of counterfeeding or counterbleeding is a good **term-paper topic**
- There are versions of OT that do better with opacity (e.g., Kiparsky's Stratal OT).

5. We need a better theory of faithfulness

- o <u>Trick question</u>: fill in the constraint violations:

/tui/	IDENT(round)	IDENT(back)
a [ty]		

- In Prince & Smolensky 1993, an output candidate contains the input form—you can see what's been inserted or deleted.
  - This is retrospectively known as the containment approach (output *contains* the input).
  - Changing features gets tricky, and metathesis gets very hard.

6. The correspondence relation

McCarthy & Prince 1995 proposed replacing containment with **correspondence**.

- Every segment in the input bears a unique index (maybe every feature, mora, syllable… whatever the parts of a representation are).
- Units of the output also bear indices (instead of the output containing input material).
- An input segment and an output segment are *in correspondence* iff they bear identical indices.

/$t_1u_2i_3$/	IDENT(round)	IDENT(back)
a [t_1y_2]		*
b [t_1y_3]	*	

- These indices define a relation between input segments and output segments:
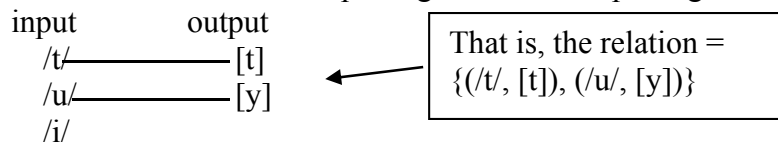
- /$p_1a_2t_3o_4k_5$/ → [$p_1a_2t_3o_4k_5$] means Corr(/p_1/, [p_1]), Corr(/a_2/, [a_2]), etc., where Corr(*x*, *y*) means "*x* corresponds to *y*".
- These are also output candidates for that input: [$p_5a_1t_4o_2k_3$], [$p_1a_1t_1o_1k_1$], [$p_6a_7t_8o_9k_{10}$].
  - But they're so outrageously bad we wouldn't normally bother including them in a tableau.
- When you see a candidate in a tableau without indices, you can assume that the correspondence relation is the obvious one.
- When it's not clear what the obvious correspondence relation is, spell it out.

7. Constraints on the relation

- The purpose for adding this relation to each input-output pair is so that constraints can use it.
- Faithfulness constraints (sometimes also called *correspondence constraints*) are constraints that care about various aspects of the correspondence relation.
- Here are the most important ones proposed by McCarthy & Prince:

MAX-C MAX-V	(don't delete)	Every consonant in the input must have a correspondent in the output. Every vowel in the input must have a correspondent in the output. (*maximize* the preservation of material in the input)
DEP-C DEP-V	(don't insert)	Every consonant in the output must have a correspondent in the input. Every vowel in the output must have a correspondent in the input. (every segment in the output should *depend* on a segment in the input.)
IDENT(F)	(don't change feature values)	If two segments are in correspondence, they must bear identical values for feature [F]. This constraint doesn't care about *whether* segments have correspondents or not; only about making sure feature values match *if* two segments do correspond.

- There are also constraints against merging, splitting, and reordering segments. See McCarthy & Prince 1995 for a full list.

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8. Process vs. target

We got this far

- Here's a difference between SPE and OT in typological predictions.
  - SPE might predict that similar rules (processes) should be seen across languages
  - OT predicts that a markedness constraint should trigger diverse repairs across languages.

Some terms, coined by McCarthy, that you might run into:
> *Homogeneity of target*
> > = languages impose the same well-formedness conditions on outputs
> *Heterogeneity of process*
> > = languages use different means to satisfy the well-formedness conditions

9. Case study, if we have time: *NÇ in Pater 2001; Pater 2003

- *NÇ is an abbreviation for *[+NASAL][–VOICE].
  - This constraint seems to have an aerodynamic basis (raising the velum after a nasal → velar leak and 'velar pumping' → prolongation of voicing)—see Hayes & Stivers 1996.

- What ways can you think of to "repair" a sequence like *ampa*?

o   Let's figure out the ranking for each of the following examples.

- Japanese

present	*past*	*gloss*
kat͡s-u	kat-ta	'win'
kar-u	kat-ta	'cut'
wak-u	wai-ta	'boil'
ne-ru	ne-ta	'sleep'
mi-ru	mi-ta	'look'
ʃin-u	ʃin-da	'die'
jom-u	jon-da	'read'

- "Puyo Pongo" Quichua

ʃiŋki	'soot'	t͡ʃuntina	'to stir the fire'
t͡ʃuŋga	'ten'	indi	'sun'
pampalʲina	'skirt'	ɲukant͡ʃi	'we'
hambi	'poison'	pund͡ʒa	'day'
wasi-ta	'house'	kan-da	'you'
ajt͡ʃa-ta	'meat'	atan-da	'the frog'
puru-ta	'gourd'	wakin-da	'others'
ali-t͡ʃu	'is it good?'	kan-d͡ʒu	'you?'
lumu-t͡ʃu	'manioc?'	tijan-d͡ʒu	'is there?'
mana-t͡ʃu	'isn't it?'	t͡ʃarin-d͡ʒu	'does he have?'

- Magindanaw

pəm-báŋun	'is waking up'
pən-dila	'is licking'
pəŋ-gəbá	'is destroying'
pəb-pása	'is selling'
pəd-sígup	'is smoking'
pəd-tánda	'is marking'
pəg-kúpja	'is wearing a kupia'

- Standard Malay

/məN+pilih/	məmilih	'to choose'
/məN+tulis/	mənulis	'to write'
/məN+kasih/	məŋasih	'to give'
/məN+bəli/	məmbəli	'to buy'
/məN+dapat/	məndapat	'to get, to receive'
/məN+ganti/	məŋanti	'to change'

note also in Malay

	əmpat	'four'
	untuk	'for'
	muŋkin	'possible'

- Kelantan dialect of Malay—I haven't been able to track down the real data, but it should look <u>schematically</u> like this:

/məN+pilih/	məpilih	'to choose'
/məN+tulis/	mətulis	'to write'
/məN+kasih/	məkasih	'to give'
/məN+bəli/	məmbəli	'to buy'
/məN+dapat/	məndapat	'to get, to receive'
/məN+ganti/	məŋanti	'to change'

o Can we explain why it's always the nasal that deletes (not the following C)?

- English

ɪmpʰɑsəbəl	'impossible'
ɪntʰɛmpəɹət	'intemperate'
ɪŋkʰælkjələbəl	'incalculable'
ɪmbɝb	'imberb'
ɪndisənt	'indecent'
ɪŋglɔɹiəs	'inglorious'

Some apparently unattested "solutions":
- Epenthesis   /np/ → [nəp]
- Devoice the nasal /np/ → [m̥p][1]

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[1] If *NC8 is really a constraint against the extra articulatory effort of spreading the vocal folds to prevent voicing, then a devoiced nasal is an even worse violation of that same constraint, so it makes sense that this is unattested.

10. *If we have time:* **language-internal example of heterogeneity of process**

Kwanyama (a.k.a. OshiKwanyama; Niger-Congo language with 421,000 speakers in Angola, and an unknown number in Namibia—again from Pater)

Loans:	sitamba	'stamp'
	pelenda	'print'
	oinga	'ink'

Prefixes:	/eːN+pati/	eːmati	'ribs'
	/oN+pote/	omote	'good-for-nothing'
	/oN+tana/	onana	'calf'

o What's the ranking? Let's do some tableaux

Next time: OT analysis practice session

References

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