Class 10: Optimality Theory, part III

Overview: Correspondence theory. More practice with OT, and relating it to rules+constraints issues.

0. Business

- Want to talk about Pohnpeian?
- Kie: start recording

1. We need a better theory of faithfulness

❓ Trick question: fill in the constraint violations:

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

- In Prince & Smolensky 1993, an output candidate *contains* the input form—nothing is truly deleted, only "underparsed".
  - This is retrospectively known as the containment approach.
  - Changing features gets tricky, and metathesis gets very hard.

2. The correspondence relation

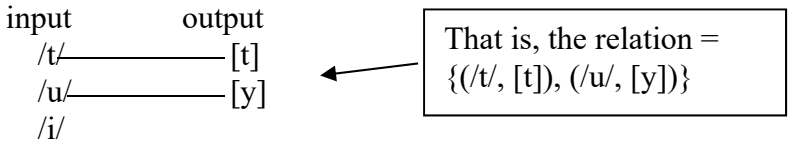
McCarthy & Prince 1995 proposed replacing containment with **correspondence**.

- Every segment in the input bears a unique index (maybe every feature, mora, syllable…).
- 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:

Zoom poll



❓ Which candidate does this drawing represent from the tableau above, *a* or *b*?

- /$p_1a_2t_3o_4k_5$/ → [$p_1a_2t_3o_4k_5$] 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$_5$a$_1$t$_4$o$_2$k$_3$], [p$_1$a$_1$t$_1$o$_1$k$_1$], [p$_6$a$_7$t$_8$o$_9$k$_{10}$].
  - ? Try drawing them in the connecting-lines format

/p$_1$a$_2$t$_3$o$_4$k$_5$/ → …

[p$_5$a$_1$t$_4$o$_2$k$_3$]

input	output
/p/	[p]
/a/	[a]
/t/	[t]
/o/	[o]
/k/	[k]

[p$_1$a$_1$t$_1$o$_1$k$_1$]

input	output
/p/	[p]
/a/	[a]
/t/	[t]
/o/	[o]
/k/	[k]

[p$_6$a$_7$t$_8$o$_9$k$_{10}$]

input	output
/p/	[p]
/a/	[a]
/t/	[t]
/o/	[o]
/k/	[k]

  - But they're so outrageously (and pointlessly) 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.
- Sometimes it's not clear what the obvious correspondence relation is
  - in that case, spell it out with subscripts.

3. Constraints on the relation

- 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. " vowel " " etymology: *max*imize 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. " vowel " " etymology: every segment in the output should *dep*end on a segment in the input.
IDENT(F)	If two segments are in correspondence, they must bear identical values for feature [F].
IDENT(voice) (don't change feature values)	If two segments are in correspondence, they must bear identical values for feature [voice]. This constraint doesn't care about *whether* segments have correspondents or not, only about making sure values for F match *if* two segments do correspond.

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

I'm going to split you into breakout rooms, each with its own page on this Google Doc (I'll pasted in the chat): https://docs.google.com/document/d/1BWntd5Oht5ybR5Q6Z9t_78431Ak0h6mzgV02Tiwv2jk/edit?usp=sharing . Use it to prepare an explanation for your classmates of the given issue that arises in a rules+constraints theory, and how it is handled in OT. You will probably want to prepare derivations and tableaux to illustrate your explanation.

4. Why aren't constraints always obeyed?

- Korean avoids VV and CC through allomorph selection (narrow-ish transcription):

plain	*nominative*	
ton	ton-i	'money'
saɾam	saɾam-i	'person'
koŋ	koŋ-i	'ball'
namu	namu-ga	'tree'
pʰaɾi	pʰaɾi-ga	'fly'
kʰo	kʰo-ga	'nose'
ɕ*i	ɕ*i-ga	'seed'

- And yet, CC and VV occur in the language

plain	*locative*
namu	namu-e
kʰo	kʰo-e
	plural
saɾam	saɾam-dɨl
koŋ	koŋ-dɨl

As we saw in class, this is problematic for a rules+constraints theory if constraints are supposed to be "surface-true". Show how this works out in OT. You can assume for the nominatives that the underlying form on the nominative suffix is "{i,ga}", meaning that either input can be used with no constraint penalty other than the markedness constraints that may end up getting violated. Include tableaux for /koŋ +{i,ga}/, /kʰo+{i,ga}/, /koŋ+dɨl/, /kʰo+e/.

5. What happens if there's more than one way to satisfy a constraint?

ʔ Assume the rules+constraints grammar {*CC, C → Ø, Ø → i}. What happens to /absko/??

- Maybe we need to prioritize the rules that could be triggered (e.g., through ordering).

*I suggest sketching derivations to show different things that might happen to /absko/ under that rules+constraints grammar. Then show a tableau for /absko/ with *CC and suitable faithfulness constraints. Since we don't know what the winner would be in this hypothetical language, you might want to show tableaux for two different possible winners. Don't worry about explaining why, if a vowel is inserted, it's [i]—just assume that's the best vowel. (If you are already fluent in OT you may find it easy to read different possible winners off a tableau, but for the benefit of those who are still new-ish to OT, separate tableaux could help.)*

6. Can different constraints prioritize rules differently?

ʔ Assume the rules+constraints grammar {*CC, *C#, C → Ø, Ø → i}. What happens to /ubt/??

*I suggest sketching derivations to show different things that might happen to /ubt/ under that rules+constraints grammar. Then show a tableau for /ubt/ with *CC, *C#, and suitable faithfulness constraints. Since we don't know what the winner would be in this hypothetical language, you might want to show tableaux for two or three different possible winners. Don't worry about explaining why, if a vowel is inserted, it's [i]—just assume that's the best vowel. (If you are already fluent in OT you may find it easy to read different possible winners off a tableau, but for the benefit of those who are still new-ish to OT, separate tableaux could help.) Talk about some harmonically bounded candidates.*

7. What happens when constraints conflict?

- What if one constraint wants to trigger a rule, but another wants to block it?

ʔ Assume the rules+constraints grammar {*VV, *ʔ$\begin{bmatrix} \text{V} \\ \text{–stress} \end{bmatrix}$, Ø →ʔ}.[1] What happens to /aórta/? /xáos/?

- Must the grammar **prioritize** constraints?

*I suggest sketching derivations to show different things that might happen to /aórta/ and /xáos/ under that rules+constraints grammar. Then show tableaux for those inputs with *VV, *ʔ$\begin{bmatrix} \text{V} \\ \text{–stress} \end{bmatrix}$, and suitable faithfulness constraints. Since we don't know what the*

[1] based on Dutch; data from Booij 1995 via Smith 2005

winners would be in this hypothetical language, you might want to show tableaux for two or different rankings. Don't worry about explaining why, if a consonant is inserted, it's [ʔ]—just assume that's the best consonant. (If you are already fluent in OT you may find it easy to read different possible winners off a tableau, but for the benefit of those who are still new-ish to OT, separate tableaux could help.)

8. Should a rule be allowed to look ahead in the derivation to see if applying alleviates a constraint violation? (how far?)

⁇ Assume the rules+constraints grammar: {*C#, C → [–voice], [–voice] → Ø}. What happens to /tab/?

- Or does the alleviation have to be immediate?

*I suggest sketching derivations to show different things that might happen to /tab/ under that rules+constraints grammar. Then show a tableau for /tab/ with *C# and suitable faithfulness constraints. Include the candidate [tap], among others. Since we don't know what the winner would be in this hypothetical language, you might want to show tableaux for two different possible winners. (If you are already fluent in OT you may find it easy to read different possible winners off a tableau, but for the benefit of those who are still new-ish to OT, separate tableaux could help.)*

9. Relatedly, is a rule allowed to make things *worse* if a later rule will make them better?

⁇ Assume the rules+constraints grammar: {*CCC, Ø → p / m__s, $\begin{matrix}C & C & C & C\\ 1 & 2 & 3 & 4\end{matrix}$ → 3 ("if you have 4 consonants in a row, delete all but the third one")} What happens to /almso/??

*I suggest sketching derivations to show different things that might happen to /almso/ under that rules+constraints grammar. Then show a tableau for /alsmo/ with *CCCC and suitable faithfulness constraints. Include the candidates [almpso] and [apo], among others. Since we don't know what the winner would be in this hypothetical language, you might want to show tableaux for two or three different possible winners. (If you are already fluent in OT you may find it easy to read different possible winners off a tableau, but for the benefit of those who are still new-ish to OT, separate tableaux could help.)*

10. Can a constraint prohibit a certain type of <u>change</u>, rather than a certain structure? *(No need for a breakout room on this one)*

Next time:

- What happens when there are multiple places within a form where a rule could apply or a constraint is violated?
- What if applying a rule (satisfying a constraint) creates a new environment for the same rule to apply (creates a new violation of the same constraint)?
- We'll look at how this should play out in SPE (not always clear) and OT (clear, but are the typological predictions correct?)
- Remember **OT assignment** is due Friday night.

- Kie: stop recording

References

Booij, Geert. 1995. *The phonology of Dutch*. Oxford: Clarendon Press.

McCarthy, John J & Alan Prince. 1995. Faithfulness and Reduplicative Identity. In Jill Beckman, Laura Walsh Dickey & Suzanne Urbanczyk (eds.), *University of Massachusetts Occasional Papers in Linguistics 18*, 249–384. Amherst, Mass.: GLSA Publications.

Prince, Alan & Paul Smolensky. 1993. *Optimality Theory*. Blackwell.

Smith, Jennifer L. 2005. *Phonological Augmentation in Prominent Positions*. 1 edition. New York: Routledge.