Class 19: Course summary through OT glasses

Overview: How does switching to OT make us better or worse off? (Or, Why introduce OT in the last week of 200A instead of waiting till 201?)

1. How does the learner select a grammar?
As with rule-based phonology, we still have the problem of multiple analyses’ being compatible with the data. We would like to understand which one the learner arrives at and why.
- If the constraint set is universal, this cuts down the analysis space considerably. If not…
- But, even a universal constraint set doesn’t help with the subset problem: how does a learner know that consonant clusters are forbidden (i.e., *CC is ranked high) if no inputs contain CC sequences? (Some learning algorithms have addressed this question: see the papers by Hayes and Prince & Tesar in Kager, Pater, and Zonneveld (eds.) Fixing Priorities: Constraints in Phonological Acquisition.)

2. Evaluation metric
The crude feature-counting evaluation metric runs into problems with substance. While a rule like [αround] → [αback] seems reasonable enough, equally valued [αround] → [αvoice] seems much less likely.

We have the same issue with constraints: why is *[αround]–[αback] a better constraint than *[αround]–[αvoice]?

In both cases, I think the search for a purely formal evaluation metric is futile.

3. Extrinsic rule ordering
Feeding in Kalinga:

<table>
<thead>
<tr>
<th>/d-in-opa/</th>
<th>*o</th>
<th></th>
<th>MAX-V</th>
<th>NASASSIM</th>
<th>IDENT(place)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>di.no,pá</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| b | din.pá | * | * | *
| c | dim.pá | * | |

○ In OT terms, what does feeding mean? What rules out the counterfeeding candidate?

Bleeding in English:

<table>
<thead>
<tr>
<th>/kæt+z/</th>
<th>[–son]</th>
<th>[–son]</th>
<th>IDENT(voice)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>kætz</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>kæts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>/bæntʃ+z/</th>
<th>[–son]</th>
<th>[–son]</th>
<th>*[+strid] [+strid]</th>
<th>IDENT(voice)</th>
<th>DEP-V</th>
</tr>
</thead>
<tbody>
<tr>
<td>c</td>
<td>bæntʃz</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| d | bæntʃs | | *! | | *
| e | bæntʃːs | | | *! | *
| f | bæntʃiz | | | | *

○ In OT terms, what does bleeding mean? What rules out the counterbleeding candidate?
Could we change each of the above rankings to get the opaque candidate—and would the result be consistent with the rest of the language?

Opacity is hard for standard OT to deal with. You may see some proposals in 201.

**Duke-of-York** in Nootka—recall the rule-based analysis

\[
C \rightarrow [+\text{labial}] / \text{V ___} [\text{ki}l] \text{ vs. [?o:\text{-}k\text{"i}l]}
\]

\[
[\text{dorsal}] [\text{round}]
\]

\[
C \rightarrow [-\text{labial}] / \text{___ syll} [\text{la:k\text{-}j\text{i}]} \text{ vs. [\text{la:k}\text{"i}q.nak]}
\]

Review: Given that /mo\text{q}/ → [mo\text{q}], what’s the ordering of the two rules?

Give an OT analysis.

### 4. Multiple sites for rule application

Recall French (optional) schwa deletion:

\[
\text{œ} \rightarrow \emptyset / \text{VC ___ C(r)V}
\]

/\text{"ari#dove#partir}/ → [\text{"ari#dove#partir}] or [\text{"ari#dve#partir}] ‘Henri had to go’

/\text{"zak#dove#partir}/ → [\text{"zak#dave#partir}] * [\text{"zak#dve#partir}] ‘Jacques had to go’

Sketch an OT analysis, making the simplifying assumption that deletion is obligatory.

Explain in OT why you can’t delete both schwas:

/\text{"ty#dovane}/ → [\text{"ty#dovane}] or [\text{"ty#dvane}] or [\text{"ty#dovne}], but not * [\text{"ty#dvne}]

‘you were becoming’

### 5. Directional application

If there is such a thing as directional rule application (in the sense that the left/rightmost eligible site has priority for undergoing the rule), standard OT doesn’t have much (that’s plausible) to say about it.

Hypothetical case (pseudo-French):

/\text{\text{"dovane}/} → [\text{\text{"dovane}}]

/\text{\text{"ty#dovane}/} → [\text{\text{"ty#dvane}}], *[\text{\text{"ty#dovne}}]

/\text{\text{"ty#vudre#k\#s\#k#l\#polisje/}} → [\text{\text{"ty#vudre#k\#s\#k#l\#polisje}}], *[\text{\text{"ty#vudre#k\#s\#k#l\#polisje}}]
6. Repeated application (self-feeding)
Recall Takelma
[a] becomes [i] if followed by [i]: /alxīxamis/ → [alxīxīmis] ‘one who sees us’
and any preceding [a]s follow suit: /i[kūmanananim]h/ → [ikūmininīnim]h ‘he will fix it for him’
/lo[ūnanin]nin/ → [lo[ūninin]nin] ‘I caused him to die for him’
/alsegesakh]sanik]h/ → [alsegesakh]sinik]h ‘we keep nodding to one another’

Sketch an OT analysis.

Imagine a pseudo-Takelma, just like real Takelma except that the rule doesn’t apply iteratively. What could be the OT analysis in that case?

7. Elsewhere Condition
Recall: Depending on the formulation, this said something like “if two rules want to do different things to a form, and one rule is more specific than the other, apply only the more specific rule.”

Example of a non-trivial case from Prince & Smolensky:
(a) V → [+stress] / __ C₀ V C₀ #
(b) V → [+stress] / __ C₀ #

If both rules are applicable, which should be chosen, by the Elsewhere Condition?

Give an example of a word where (a) would apply.

Give an example of a word where (b) would apply.

How can we capture the priority of (a) in OT? What happens if we change the ranking?

Other cases are trivial in OT: If the specific constraint is ranked lower, it becomes invisible.
8. The duplication and conspiracy problems
I think it’s clear how the conspiracy problem is solved by OT: a single high-ranked markedness constraint can block satisfaction of various other markedness constraints, and trigger violation of various faithfulness constraints.

And as for cross-linguistic conspiracies (like Austronesian um), the same markedness constraint can be differently ranked (with respect to various faithfulness constraints) in different languages.

- Duplication problem: how do we explain in OT why English has voicing agreement in plurals and past tense, and also lacks morphemes like *nsg?

9. The “too many solutions” problem
We’ve seen that there can be impressive cross-linguistic exuberance in “solving” markedness “problems”—e.g., the different Austronesian solutions to the OCP-labial problem in /P-um-…/ or /C-um-…P/ (where P stands for a labial consonant).

And yet there are limits. Two prominent examples:
- No language consistently deletes C2 in VC1C2V sequences to solve a NOCODA or *CC problem (Wilson).
- Many languages devoice to solve a *[–son,+voice]# problem, but none delete or epenthesize (Lombardi).

The most developed response to the too-many-solutions problem is Colin Wilson’s theory of targeted constraints, but see also Evolutionary Phonology (e.g., Blevins & Garrett).

10. Constraint violability
Recall that Nupe lacks sequences like [(t)s(j)i], [(t)s(j)e], except in reduplication ([tsi-tsa] ‘choosing’ vs. [ti-tsa] ‘beginning’).

Kaye & Nykiel argued that *si can’t be a surface constraint (because of the reduplicated words), and therefore that the adaptation of Yoruba [siši] ‘sixpence’ as Nupe [jiši] must be due to a constraint on underlying forms.

- Assuming that some constraint (to do with base-reduplicant similarity) rules out a reduplicated candidate like *[ti-tsa], how can we explain the loan adaptation in OT?

A not-completely-solved puzzle in loan adaptation: cases like Shibatani’s Japanese and Korean examples.

Recall Korean: Chinese #l borrowed as /l/, but changed to [n] when word-initial, although Korean didn’t have an l → n rule until then:
Dec. 9, 2004  5

no in  ‘old man’  tʃʊ lo\(^1\)  ‘premature old age’
nak wən  ‘paradise’  hjan lak  ‘enjoyment’

- In OT, how can we explain why not *[lak wən]? But why not *[ak wən] or [tak wən]?

11. Look-ahead
Let’s say that in Nanti, a rule shifting stress within a foot can be triggered by a violation of *\text{CLASH}:

\[(o.ko)(ri.kjī)(tā)ka \rightarrow (ō.ko)(ri.kjī)(tā.ka)\]

but

\[(no.tā)(me.sè)(tā)kse\] ro  doesn’t change.

- Why is that a problem for Sommerstein’s theory?
- How does OT solve the problem?

OT may or may not be going too far with its look-ahead ability (see too-many-solutions problem).

12. Positional neutralization
Recall that some positions are better than others at supporting contrasts (e.g., onsets vs. codas).

In rule-based approaches, this was often implemented with licensing constraints: e.g., [+voice] is illegal unless associated with an onset, or unless prevocalic.

OT approaches include
- Positional markedness constraints: *[+voice] \(σ\) or *[+voice] unless __V
- Positional faithfulness constraints: IDENT(voice)/onset (or IDENT(voice)/__V), in interaction with *[+voice]

These do make different predictions in some cases (recall Guaraní, where stressed syllables could be nasal or non-nasal, but their underlying nasality value couldn’t change).

13. Cyclicity
Why do derived words sometimes retain characteristics of their morphological predecessors? There have been various proposals in OT, such as Output-Output correspondence, and cyclic application of the constraint ranking.

14. Lexical phonology
How can we capture phonology that happens with some Word Formation Rules (affixes, etc.) and not others? NDEB?

\(^1\) Really, [r] not [l], because of a rule in Korean: the sound written \(ẹ\) is [r] syllable-initially and [l] syllable-finally.
Proposals include…

- A separate OT grammar for each level. A form goes through the Level 1 grammar each time a Level 1 WFR is applied, then through the Level 2 grammar for each Level 2 WFR, etc., with a postlexical grammar applying last.
- Faithfulness constraints that apply not between input and output but between different outputs. These can be indexed to the morphological level at which one form is derived from the other, thus getting some lexical phonology effects.

NDEB is harder…

15. What to do next

- Take Ling 201 (Phonological Theory II) with Colin Wilson next quarter (required for linguistics grad students)
- Check the phonology seminar (261ABC) schedule and feel free to come to whatever talks interest you. www.linguistics.ucla.edu/colloquia
- Look out for proseminars (251) including, this spring, one on phonotactics by Bruce and Colin.
- Be on the look-out for 205 (Morphology) 217 (Experimental Phonology) and 236 (Computational Phonology)—they’re not offered every year.
- Andy will be there for section tomorrow if you want to hang out and talk about phonology.