Class 6: Principles of rule ordering

To do
• Read K&K ch. 10 (pp. 424-436 only), and Kisseberth 1970, and turn in study questions on Thursday
• Get started on Kalinga assignment

Overview: Extrinsic vs. intrinsic ordering
We’ve mainly assumed that a language can impose any order it wants on rules. Many researchers have proposed that this is not the case—that at least sometimes, rules are intrinsically ordered.

Koutsoudas, Sanders & Noll 1974¹: simultaneous repeated application, plus “proper inclusion precedence”

1. Simultaneous repeated application
= all rules apply simultaneously to the UR, then again to the result, and again until no more application is possible. This results in maximal application.

2. Feeding example
Recall our previous analysis of Guinaang Kalinga:

\[ \text{d+in+opana} \]

1. \( o \rightarrow \emptyset / VC_\text{CV} \)

\[ \text{d+in+pana} \]

2. \( [+\text{nas}] \rightarrow [\alpha_\text{place} \beta_\text{lateral}] / \left[ \begin{array}{l} \text{syll} \\ \text{c.g.} \\ \alpha_\text{place} \\ \beta_\text{lateral} \end{array} \right] \)

\( \text{d+im+pana} \)

(and something to deal with \( w \))

o How would this work under simultaneous, repeated application?


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3. **Counterbleeding example**

Recall our previous analysis of Polish:

\[/\text{voz}/\]

1. \(o \rightarrow u / _{-\mathrm{syl}}{\mathrm{+voice}}_{-\mathrm{nas}}\) \(vuz\)

2. \([-\mathrm{son}] \rightarrow [-\mathrm{voice}] / _{-\mathrm{son}}{\mathrm{+voice}}_{-\mathrm{nas}}\) \(vus\)

- How would this work under simultaneous, repeated application?

- Why is it that feeding and counterbleeding are the ordering types that follow straightforwardly from simultaneous, repeated application?

By the way, Kiparsky\(^2\) argued that historical changes in which rules change their order tend to result in feeding and counterbleeding.

4. **Proper inclusion precedence**

Latin American varieties of Spanish, extrinsically ordered (and rather abstract!) analysis:

\[/\text{ake\ʌ}/\]

1. \(\chi \rightarrow 1 / _{-\mathrm{son}}{\mathrm{+os}}_{-\mathrm{son}}\) \(\text{akel}\)

2. \(\chi \rightarrow j \quad \text{----} \quad \text{akej+os}\)

‘that’ ‘those’

- What kind of rule ordering is this?

- Try to apply these rules simultaneously and repeatedly to /ake\ʌ/—what’s the problem?

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Koutsoudas & al. propose:

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“For any representation R, which meets the structural descriptions of each of two rules A and B, A takes applicational precedence over B with respect to R if and only if the structural description of A properly includes the structural description of B.” (p. 9)

the structural description of A properly includes the structural description of B = you can match B’s S.D. up with part of A’s that it is nondistinct from, and still have part of A’s S.D. left over.

- How does the definition apply to the two Spanish rules? Which rule is A and which is B?
- Possible gap in the definition: can you invent a situation where A should take precedence over B, but also vice versa?

5. **Bleeding: example originally from Kiparsky**

Schaffhouse dialect of Swiss German:

1. V → [–back] / complicated ‘umlaut’ context, including plurals

   /bogَا/ /bodَا/ /bogَا+PL/ /bodَا+PL/

   ---- ---- bogَا bodَا

2. o → __ / +cons

   +cor

   −lat

   ---- ---- bōdَا ---- ----

- Why is this ordering crucial?
- What happens if we use the Koutsoudas & al. approach?

K & al. propose that in all apparent cases of bleeding (and counterfeeding?), the rules need to be revised. In this case, they propose a context-free rule ω → ϕ.

- Apply this solution to /bodَا+PL/.

- What additional fact needs to be true in Schaffhouse for this to work?

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3 Actually, in the original it’s not [+cor] but [–grave]. [grave] is an acoustically based feature (roughly, lower frequencies are stronger for [+grave] segments), not much used these days. Labials and velars are [+grave]; dentals and alveolars are [–grave] (a.k.a. acute).
6. **The Elsewhere Condition**
   - Recall its definition from your Kiparsky 1973 reading.
   - Let’s discuss: How does the elsewhere condition compare to proper inclusion precedence?

7. **Self-feeding: Takelma example from Anderson ch. 9**
   (Penutian language that was once spoken in Oregon)
   
   [a] becomes [i] if followed by [i]: \( /\text{alxam}/ \rightarrow [\text{alxîmis}] \) ‘one who sees us’
   and any preceding [a]s follow suit: /\text{ikûmananankan}^h/ \rightarrow [\text{ikûmininin}^h] ‘he will fix it for him’
   /\text{lohûnananin}/ \rightarrow [\text{lohûninin}] ‘I caused him to die for him’
   unless a voiceless C intervenes: /\text{lohûnananhi}/ \rightarrow [\text{lohûnananhi}] ‘?’
   /\text{alsegesak}^h\text{sinik}^h/ \rightarrow [\text{alsegesak}^h\text{sinik}^h] ‘we keep nodding to one another’

   - Recall the rule that simultaneously applies to all the eligible vowels—why was Anderson against it and what was his solution?
     \[ a \rightarrow i / \begin{array}{c} \text{[–stem]} \end{array} \begin{array}{c} \text{[–syll]} \end{array} \begin{array}{c} \text{[+voice]} \end{array} 0 a \begin{array}{c} \text{[–syll]} \end{array} \begin{array}{c} \text{[+voice]} \end{array} 0 i \]

   - Is this different from Koutsoudas & al.’s proposal?

   - Something to think about: do cases in which rules can’t be allowed to apply to their own output have anything principled in common?

8. **Anderson ch. 10: natural order**
   Example from Icelandic (Indo-European language from Iceland with 250,000 speakers)

   **umlaut and syncope**
   
<table>
<thead>
<tr>
<th>barn</th>
<th>‘child’</th>
<th>börn+um</th>
<th>‘child-dat.pl.’</th>
</tr>
</thead>
<tbody>
<tr>
<td>svant</td>
<td>‘hungry-neut.nom.sg.’</td>
<td>svöng+u</td>
<td>‘hungry-neut.dat.sg.’</td>
</tr>
<tr>
<td>kalla</td>
<td>‘[I] call’</td>
<td>köll+um</td>
<td>‘[we] call’</td>
</tr>
<tr>
<td>hamar</td>
<td>‘hammer’</td>
<td>hamr+i</td>
<td>‘hammer-dat.sg.’</td>
</tr>
<tr>
<td>fiffill</td>
<td>‘dandelion’</td>
<td>fifl+i</td>
<td>‘dandelion-dat.sg.’</td>
</tr>
<tr>
<td>morgunn</td>
<td>‘morning’</td>
<td>morgn+i</td>
<td>‘morning-dat.sg.’</td>
</tr>
</tbody>
</table>
If syncope precedes umlaut, what kind of ordering results for the UR /katil+um/ ‘kettle-dat.pl’?
For /jak+ul+e/ ‘glacier-dat.sg.’?
What about umlaut before syncope for /katil+um/?
For /jak+ul+e/?

- Whether a rule ordering is feeding, bleeding, etc. depends on the particular forms involved.

| /katil/  | +r/Ø | ketill | ‘kettle’ | +um | kötlum | ‘kettle-dat.pl’ |
| /ragin/ | +ul+r | regin  | ‘gods’   | rögnu | ‘gods-dat.pl’ |
| /alen/  | alin | +ul+e  | ‘ell of cloth’ | ölnum | ‘ell of cloth-dat.pl’ |
| /bagg/ | +r/Ø | böggull | ‘parcel’ | +ul+e | böggli | ‘parcel-dat.sg.’ |
| /jak/   | +ul+r | jökull | ‘glacier’ | jökli | ‘glacier-dat.sg.’ |
| /jat/   | jötunn | +ul+an | ‘giant’ | jötni | ‘giant-dat.sg.’ |
| /þag/  | þögull | þöglan | þögull | þögölag | ‘taciturn-dat.sg.’ |

If the rules are right, we have an ordering paradox! How does Anderson resolve it?

Anderson’s definition of natural order:

“where only one of the two possible orders for a given pair of rules is feeding, the feeding order is the natural one; and that where only one of the two possible orders is bleeding, the other order [i.e. counterbleeding] is the natural one. In all other cases […] no natural order is (yet) defined.” (p. 147)

Anderson proposes that at least some pairs of rules are left unordered by a language’s grammar and so apply in their natural order in each case. (See Anderson ch. 12 for some amendments to this proposal.)

- Again, is this different from the Koutsoudas & al. proposal?

- So if a grammar consists of a list of rules and some statements about their orderings, what does a change of the type observed by Kiparsky involve? (Notice the extension of the evaluation metric.)

- Can you think of other ways to deal with Icelandic?