Rethinking the Core-Periphery Model: Evidence from Japanese
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The Core-Periphery Model

- According to Itô & Mester (1993), Japanese can be divided into four distinct strata.
- Each stratum is characterized by surface adherence to a different number of the stratum-defining constraints listed below:

a. SyllStruc: Prevents complex onsets and codas
b. NoVoicedGem (No-DD): No voiceless obstruent geminates
c. NoVoicelessLab (No-P): Prevents nongeminate/singleton [p]
d. NoNas Voiceless (No-NT): Postnasal obstruents must be voiced

- The hierarchical behavior of the four strata is shown below, from I&M (2004: 557).

<table>
<thead>
<tr>
<th>SYLLSTRUC</th>
<th>NO-DD</th>
<th>NO-P</th>
<th>NO-NT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yamato</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sino-Japanese</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Assimilated Foreign</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Unassimilated Foreign</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Exceptions to the CP Model

I Exceptions to No-NT
- Yamato words like inti 'trickery' and anata 'you' violate No-NT outright.
  - Anata derives from unata via syncope, and has moved from the core toward the periphery.
- I&M call exceptions like these "undoubtedly native, but peripheral", but provide no explanation for their behavior.

II Exceptions to No-P
- The classifier pan 'minute' combines with numbers to count time.
- As a member of the Sino-Japanese stratum, it should obey the No-P constraint.
  - Recently, however, we have seen the paradigm level in fluent speech, moving toward the periphery of the lexicon.

III Exceptions to No-DD
- Expected adaptation mechanisms of voiced obstruent-final English borrowings:
  - Assimilated Stratum → geminate voiceless obstruent.
  - Unassimilated Stratum → geminate voiceless obstruent.
  - However, there are in fact five different adaptation mechanisms for English borrowings with a final voiced consonant.
    - Voiced geminate, voiceless geminate, voiceless singleton, voiceless singleton, lengthened vowel before voiced singleton.
    - According to Crawford (2000), voiced geminate borrowings are the most popular adaptation mechanism in the oldest attestations.

Why the Lexicon?

- We not only allow for, but motivate the analogy seen in pan.
- Kiparsky (2012) states, "analogical change is grammar optimization, the elimination of unmotivated grammatical complexity or idiosyncrasy" (p. 21).
- The h/p alternation is not motivated by synchronic phonology.

Different Underlying Form; Different Surface Form

- Derivations to account for stratal data like (3) above become trivial.
- Though originally /pan/, the underlying form for han 'group' became stored as such once the reranking occurred that later allowed pan 'bread' to be borrowed as-is.
- By the time they coexisted, they had different underlying forms.

<table>
<thead>
<tr>
<th>SYLLSTRUC</th>
<th>FAITH</th>
<th>NO-P</th>
</tr>
</thead>
<tbody>
<tr>
<td>/han/</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Assimilated Foreign</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sino-Japanese</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

What the Exceptions Tell Us
- The Core-Periphery model fails when grammatical processes affect individual lexical items, through phonological processes or lexical processes (analogy).

Conclusions

- Alternations accounted for by the Core-Periphery model are the lexical residue of earlier constraint rankings.
- Allowing underlying forms of lexical items to update in response to sound change eliminates the need for multiple synchronic constraint rankings.

My Proposal

- I argue for a more traditional view of OT:
  - Only one constraint ranking, accounting for all synchronic behavior of these strata.
- I&M’s multiple FAITH rerankings reflect the constraint rankings present at different stages throughout the history of a language.
- The hierarchical nature of the strata comes from the gradual nature of the constraint rerankings that result in sound change.
- Once a given constraint reranking has occurred, younger generations of speakers can no longer generate these forms on-line using productive phonology.
  - They must separately store each alternation previously generated by the old constraint ranking in the lexicon.
- The lexical updating process effectively moves the alternation from the synchronic phonology to the mental lexicon.
- These new forms are free to be modified by later grammatical processes without violating highly-ranked synchronous constraints.

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Selected References


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