### The Core-Periphery (CP) Model

- The strata are characterized by surface adherence to a different number of the following constraints.
  - SyllStruc: Prevents complex onsets and codas
  - No-DD: No voiced obstruent geminates
  - No-P: Prevents nongeminate/singleton (p) before a vowel
  - No-NT: Postnasal obstruents must be voiced


<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 (SJ)</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>

### Origin and Behavior of Lexical Strata

- Lexical items that were borrowed during the same era of a language’s history show similar phonological and phonotactic behavior.
- Kiparsky (1974): Differences between strata are gradual and hierarchical.
  - Older strata show heavier phonotactic restrictions than younger strata.

### Same Underlying, Different Surface

- I&M posit multiple synchronic strata with same overall ranking of markedness constraints.
  - Each stratum defined by a separate ranking of Fath constraints.
- I&M’s multiple FATH rankings correspond to the constraint rankings of different eras in a language’s history.
  - Hierarchical nature of strata is due to the gradual nature of sound change.
  - Once constraint reranking occurs, new speakers no longer generate these forms using productive phonology.
  - They must separately store each alternation previously generated by the old constraint ranking in the lexicon.
- This lexical update process moves the alternation from the synchronic phonology to the mental lexicon.
  - These forms can now be modified by grammatical processes without violating highly-ranked synchronic constraints.

### Exceptions to the CP Model

#### 1. Exceptions to No-NT
- Yamato intiu ‘trickery’ and anda ‘you’ violate No-NT.
  - Anda from anda via syncope, moved from core toward periphery.
  - No explanation for movement toward periphery.

#### 2. Exceptions to No-P
- Classifier pun ‘minute’ combines with numbers.
  - Member of the SJ stratum, should obey No-P constraint.
- However, paradigm has leveled in fluent speech.

#### 3. Exceptions to No-DD
- I&M’s proposed adaptations for voiced obstruent-final English borrowings.
  - Assimilated Stratum → geminate voiceless obstruent.
  - Unassimilated Stratum → geminate voiced obstruent.
  - Too simplistic: actually free different adaptation mechanisms.
- Crawford (2009): voiced geminate borrowings were most popular adaptation mechanism in oldest attestations.

### Why the Lexicon?

- We not only allow for, but motivate the analogy of pun.
- Kiparsky (2012): “analogue change is grammar optimization, elimination of unmotivated grammatical complexity or idiosyncrasy” (p. 21)

- h/p alternation is not motivated synchronically

### Different Underlying, Different Surface

- Derivations for stratal data like pan/bun become trivial.
  - Underlying form of bun ‘group’ was stored as /han/ once the reranking occurred that later allowed pan ‘bread’ to be borrowed as-is.
- When they coexisted, they had different underlying forms.

- The Core-Periphery model tends toward overgeneralization, and fails when grammatical processes affect individual lexical items through phonological processes (syncope) or lexical processes (analogy).
- Why not just claim that these items switch strata? There is no motivation for them to switch strata, especially in the case of pan, when the nearly identical pun does not.

### Conclusions

- Alternations accounted for by indexing models are often 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.
- Stratal generalizations are descriptively and historically interesting, but lexical items that fall through the cracks are expected as analog and other processes subsequently affect individual lexical items.

### My Proposal: Lexical Update

- A more traditional view of OT:
  - Only one constraint ranking for all synchronic behavior.
- I&M’s multiple FATH rankings correspond to the constraint rankings of different eras in a language’s history.
- Hierarchical nature of strata is due to the gradual nature of sound change.
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### Origin

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### Capturing Generalizations: A Case Study of English Fricatives

#### I. Fricative Distribution
- English voiceless fricatives contrast with voiced.
  - Voiceless initially/finally, and medially voiced or geminate.
- By 1400s, these changes generated modern distribution:
  1. Final [f] deleted, making finals phonemic.
  3. Prosodic voicing of initial [i] in e.g. the.

#### II. Stratal Division
- Two strata are important for our purposes.
  - Native words: all words pre-initial/final voiced fricatives.
  - Loan words: all words post-initial/final voiced fricatives.
  - Importantly, very early Latin loans are Native as they show devoicing, e.g. fan from ravan.
  - Later Latin Loan borrowings preserved initial voicing.

#### III. Capturing Generalizations
- I-4 above compared to:
  1. Allow initial and final voiced fricatives.
  2. Degeminate geminates.
  - These generalizations easily capturable by reranking FATH.
  - This should be ideal to differentiate strata in CP model.
  - But, Native words like the are problematic.
  - Requires either ad hoc constraint just for these (unsatisfying) or ad hoc movement to Loan stratum (unnecessary).

- Instead, I argue once the phonological system allowed initial voiced fricatives, prosodic processes were then free to voice the.
  - Without being constrained to a voiceless fricative stratum, the is free to develop initial voicing.

### Future Considerations

- Line between phonology and lexicon must be better defined.
- We still lack a thorough understanding of analogy.

### Selected References