Description and explanation: English revisited

Paul Kiparsky
Theoretical choices

1. Theoretical choices

2. A generalization lost and regained

3. Cyclic Palatalization
Classical OT — a restrictive theory

Universal constraints, language-specific ranking, constraints evaluated in parallel, single output representation, a learning algorithm.

- Constraint interaction handles phenomena that ordered rules can’t: conspiracies, top-down effects, the “emergence of the unmarked”.

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Universal constraints, language-specific ranking, constraints evaluated in parallel, single output representation, a learning algorithm.

- Constraint interaction handles phenomena that ordered rules can’t: conspiracies, top-down effects, the “emergence of the unmarked”.
- Brings substantive universals and typological generalizations to bear on the analysis of individual phonological systems.

Prince and Smolensky 1993
Too restrictive, though

- Can’t handle opacity (overapplication and underapplication), which SPE theory gets with counterbleeding and counterfeeding.
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- Can’t handle opacity (overapplication and underapplication), which SPE theory gets with counterbleeding and counterfeeding.
- Can’t handle inheritance of phonological properties from Bases to derivatives, which SPE theory gets by cyclic application of rules.
There’s no going back

Does opacity argue for a return to SPE-type ordered rules? No.

- Rule ordering theories make no principled distinction between opaque and transparent rule interaction.
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- The failure of ordering theories to privilege transparency is as damaging at the explanatory level as classical OT’s failure to countenance opacity is at the descriptive level.
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- Cyclic application in SPE is a stipulative mechanism.
Enriching OT with new constraint types

“Transderivational” constraints: O/O constraints, Paradigm Uniformity constraints, Sympathy, Turbidity, Targeted Constraints, Optimal Paradigms Theory, extensions of local constraint conjunction...
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Sympathy

- Selection

- Cand.

I/O Faithfulness, Markedness

Output

Sympathy
Theoretical choices

A generalization lost and regained

Cyclic Palatalization

Input 1

Faithfulness, Markedness

\( \star \)-Selection

\( \star \)Cand 1

Sympathy

Base

Input 2

Faithfulness, Markedness

\( \star \)-Selection

\( \star \)Cand 2

Sympathy

Output

O/O Constraints
**Sympathy wrecks the factorial typology**

*Collapse of the syllable typology*: Deriving the putatively non-existent “overkill” case by sympathy.

<table>
<thead>
<tr>
<th>Input: /pam/</th>
<th>DEP-C</th>
<th>Max-V</th>
<th>*CODA</th>
<th>DEP-V(I/O)</th>
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</tr>
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<tr>
<td>a. pam</td>
<td>*</td>
<td></td>
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</tr>
<tr>
<td>b. ♀ pamə</td>
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<td>*</td>
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<td>c. ♀ pa</td>
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<td></td>
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The marriage of OT and LPM is a good match because they are about different things.

- LPM is about phonological domains and the phonology-morphology interface, with consequences for interactions among phonological processes; not intrinsically rule-based.
Stratal OT: parallel strata, serial interface

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Stratal OT unifies what parallelism treats as disparate phenomena

Distinctiveness and cyclic inheritance.
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- Distinctiveness and cyclic inheritance.
- Cyclic inheritance and opacity.
Assumptions shared with other stratified models of phonology

- A language may contain distinct phonological subsystems (levels, strata, cophonologies).
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- Opacity is constraint masking.
OT with two strata

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- Unofficial two-stratum model common in descriptive practice: the phonology outputs citation forms of words, ignoring sentence-level sandhi.
OT with three strata

- Stem phonology
  - Word phonology
  - Postlexical Phonology
Strata may differ in constraint ranking

The constraint system of level \( n+1 \) may differ in ranking from constraint system of level \( n \) by promotion of one or more faithfulness constraints or markedness constraints to undominated status.
Outline

1. Theoretical choices

2. A generalization lost and regained

3. Cyclic Palatalization
What do derived words inherit from their bases?

- **Stress**
  - *rèdefinítion* vs. *redùplicátion*
    - cf. *rèdefine*, *redúplicàte*
  - *glòttalización* vs. *imàginátion*
    - cf. *glòttalíze*, *imágine*
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- But not always
  - còntribútion = còntradíction
vs. contríbute, còntradíct
The SPE-style explanation

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- Stress is inherited from bases to derivatives because it is assigned cyclically.
- Stress assignment is followed by destressing in certain environments, such as pretonic open syllables.
- Prediction: cyclically assigned phonological properties persist unless wiped out by later rules.
Lexical contrastiveness and cyclicity

- Derived words preserve the stress of their base in all and only those contexts where stress is lexically distinctive (Pater 2000).
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- LPM: lexical rules are cyclic.
Lexical contrast: *Epàminóndas* vs. *Tàtamagóuchi*

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An unwanted consequence

Ranking the markedness constraints between the I/O and O/O constraints allows contrast without inheritance:

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<tr>
<td>[[imagin] ation]</td>
<td>imagining</td>
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...and **inherence without contrast.**
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At the stem level, this ranking is equivalent to saying that P is lexically distinctive.
Stratal OT

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Testing the correlation

1. Pretonic light syllables lose their stress (a consequence of foot binarity): órigin, oríginal; grámmar, grammárian; májesty, majéstic; mírácle, miráculous, sýnoným, synómýnous, phonétic, phònétícian, mèteorólogy, mèteorológica\al; àcadémic, àcademícian, épígràph, epígraphy
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2. Stress is preserved in heavy pretonic syllables: quóte, quótátion; vítal, vítálity
Testing the correlation

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2. Stress is preserved in heavy pretonic syllables: quote, quotation; vital, vitality

3. Stress is preserved in non-pretonic syllables: original, originality; phenomenon, phenomenonology; apocalyptic, apocalyptic; apocopate, apocopation; episcopalian, epigrammatic; equalize, equalization
Same distribution for lexically distinctive stress

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2. Contrastive stress in heavy pretonic syllables: chìmpànzée, Hàlicàrnássus, ìncàntátion (vs. níncompòop, Kìlimanjáro)
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[Stratal OT predicts cyclic stress preservation at sites of lexical distinctiveness.]
Outline

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2. A generalization lost and regained
3. Cyclic Palatalization
Palatalization before \( y \)

- palace  
  palatial \([\text{p}^{\text{h}}\text{\textae}\text{i}\text{\textae}]\)  (cf. baron-ial)
- revise  
  revision  (cf. rebell-ion)
- Tunis 
  Tunisia  (cf. Mongol-ia)
- space  
  spacious  (cf. bil-ious)

- Palatalization: \( t,d,s,z \rightarrow \text{\textlangle} f,g,f,z \text{\textrangle} / \_y \)
Palatalization before $y$

- palace  palatial $[p^h\theta l\text{e}i\text{ʃ}t]$ (cf. baron-ial)
- revise  revision  (cf. rebell-ion)
- Tunis  Tunisia  (cf. Mongol-ia)
- space  spacious  (cf. bil-ious)

- **Palatalization:** $t,d,s,z \rightarrow t\text{ʃ},\theta l,f,z /\_y$

- Perhaps part of a general coronal assimilation process ($tr \rightarrow t\_l$ etc.).
Palatalization before $y$

- **palace**: palatial $[\text{p}ʰ\text{əl}ɪ\text{ʃ}ʃ]$ (cf. baron-ial)
- **revise**: revision (cf. rebell-ion)
- **Tunis**: Tunisia (cf. Mongol-ia)
- **space**: spacious (cf. bil-ious)

- Palatalization: $t,d,s,z \rightarrow tʃ,dʒ,f,ʒ$ / $\_y$
- Perhaps part of a general coronal assimilation process ($tr \rightarrow tʃ$ etc.).
- Doesn’t apply before stressed $u$ ([yuːw]). Standard analysis: $y$ here is part of the nucleus.

**Opacity: overapplication of palatalization**

<table>
<thead>
<tr>
<th>Asia [éiζə]</th>
<th>Asiatic [èiζi:ærɪk]</th>
</tr>
</thead>
<tbody>
<tr>
<td>ocean [óuʃŋ]</td>
<td>oceanic [òuʃi:ænɪk]</td>
</tr>
<tr>
<td>palace</td>
<td>palatial [pʰəlɛiʃt]</td>
</tr>
<tr>
<td>artifice</td>
<td>artificial [àrrɪfɪʃt]</td>
</tr>
<tr>
<td></td>
<td>artificiality [àrrɪfɪʃiælɪrɪ]</td>
</tr>
</tbody>
</table>
## Opacity: overapplication of palatalization

<table>
<thead>
<tr>
<th>English</th>
<th>Phonemic Form</th>
<th>Overapplication!</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>[êiʒə]</td>
<td></td>
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Overapplication is productive: nonce forms

- space  spacious  spà[ᵻː]ósity
- grace  gracious  grà[ᵻː]ósity
- pretence  pretentious  pretèn[ᵻː]ósity
- palace  palatial  palà[ᵻː] álity

Q: Where does the [ᵻː] come from?
### Overapplication is productive: nonce forms

<p>| | | |</p>
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**Q:** Where does the [i:] come from?

**Why not** *vicious*: *vi[[j]osity*, like *viscous*: *viscosity*?
Overapplication is productive: nonce forms

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Q: Where does the [iː] come from?

- Why not *vicious* : viscous : viscosity?
- Why not *social* : total : totality?
Overapplication is productive: nonce forms

space  spacious  spà[ʃiːː]ósity
grace  gracious  grà[ʃiːː]ósity
pretence  pretentious  pretèn[ʃiːː]ósity
palace  palatal  palà[ʃiːː]álity

Q: Where does the [iː] come from?

- Why not *vicious : vicious : viscosity?  
- Why not *social : social : totality?

A: [ʃ] is /-sy-/. /y/ triggers palatalization, becomes syllabic before a stressed vowel (*\text{\textsc{Clash}}), and deletes elsewhere (OCP).
Opacity and cyclicality: the connection

- $y$-deletion makes palatalization opaque, so Stratal OT tells us that it must be at later level.
Opacity and cyclicity: the connection

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- This *predicts* the retention of palatalization in the base.
Inheritance

a. perpe[tʃ]ual  perpe[tʃ]uity
b. ma[tʃ]ure  ma[tʃ]uration
c. si[tʃ]uate  si[tʃ]uation
d. in[tʃ]uit  in[tʃ]uition
e. luk[ʃ]ury  lug[ʒ]urious
Inheritance

a. perpe[tʃ]ual  perpe[tʃ]uity
b. ma[tʃ]ure  ma[tʃ]uration
c. si[tʃ]uate  si[tʃ]uation
d. in[tʃ]uit  in[tʃ]uition  underapplication!
e. luk[ʃ]ury  lug[ʒ]urious
Inheritance

a. perpe[tj]ual  perpe[tj]uity
b. ma[tj]ure  ma[tj]uration
c. si[tj]uate  si[tj]uation
d. in[tj]uit  in[tj]uition  underapplication!
Intuition vs. maturation

Assume $u$ is short when unstressed and long when stressed.
**Intuition vs. maturation**

- Assume *u* is short when unstressed and long when stressed.
- So the *y* in short *u* must be an onset, hence triggers palatalization.
Intuition vs. maturation

- Assume \( u \) is short when unstressed and long when stressed.
- So the \( y \) in short \( u \) must be an onset, hence triggers palatalization.
- No palatalization in *intuition* because prevocalic vowels don’t shorten: *expiation* vs. *explication*, *inchoation* vs. *intonation*.
Stratal OT provides a tight theory of the interaction of phonological processes.
Conclusion

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- The deductive structure provides a basis for typological predictions about phonological systems.
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- The deductive structure provides a basis for typological predictions about phonological systems.
- It also helps explain how phonology can be acquired.
- It provides a framework for comprehensive phonological description.