1 Introduction

- Harmonic Grammar (HG; Legendre et al. 1990, Smolensky & Legendre 2006) makes available positive constraints that reward good configurations instead of penalizing bad ones.
- Kimper (2011): positive harmony-driving constraints avoid Too-Many-Solutions (TMS; e.g. Blumenfeld 2006) problems that plague negative constraints.
- Johore dialect of Malay: rightward nasal harmony blocked by liquids and obstruents (e.g. Walker 2000):

\[(1)\]
\[
\begin{array}{l}
\text{pənəwəsan} & \text{’supervision’} \\
\text{məkən} & \text{’to eat’} \\
\text{mənəm} & \text{’to drink’} \\
\text{bəŋəm} & \text{’to rise’} \\
\text{mələp} & \text{’pardon’} \\
\text{pənəʃən} & \text{’central focus’} \\
\text{məʃəŋ} & \text{’stalk (palm)’} \\
\text{mənəwən} & \text{’to capture’ (active)} \\
\text{məɾətəp} & \text{’to cause to cry’}
\end{array}
\]

- Imagine Malay’: word-final clusters are broken up with epenthesis: /kast/ → [kas@t]
- If \(w(\text{Align}) > w(\text{*Complex})\), epenthesis is blocked:

\[(2)\]
\[
\begin{array}{cccc}
\text{H} & \text{Dep} & \text{*Complex} & \text{Align} \\
\text{a. nəwəkəst} & -4 & -1 & 3 \\
\text{b. nəwəkasət} & -5 & -1 & 16
\end{array}
\]


2 Two Pathologies in Positional Faithfulness

- Both pathologies modified from Jesney (2011), who shows that HS avoids them.
- Is HS the only solution, or do positive constraints provide an alternative?

2.1 Resyllabification to Facilitate Neutralization

- Final devoicing (German, Russian, Catalan, etc.):
  \(w(\text{Ident(voice)-onset}) > w(\text{*VoicedObstruent})\)
Jesney (2011): if both constraints outweigh Onset, intervocalic voiced obstruents are syllabified as codas where they can be devoiced:

\((\text{5)}\)

\[
/\text{öa:d-}5/ \quad \text{Ident} \quad (\text{voi})\text{-onset} \quad 3 \quad \text{*VoiObs} \quad 2 \quad \text{Onset} \quad 1 \quad H
\]

- a. \text{re:Æ}dw
  -1
  0
- b. \text{re:Æ}tw
  0
  0
- c. \text{re:Æ}tw
  -1
  -1

Positive \text{IDENT(voice)-onset}: Assign +1 to each onset consonant whose input correspondent has an identical value for \[\text{voice}\].

\((\text{6)}\)

Resyllabification is no longer advantageous:

\[
/\text{öa:d-}5/ \quad \text{Ident} \quad (\text{voi})\text{-onset} \quad 3 \quad \text{*VoiObs} \quad 2 \quad \text{Onset} \quad 1 \quad H
\]

- a. \text{re:Æ}dw
  +1
  1
- b. \text{re:Æ}tw
  0
  0
- c. \text{re:Æ}tw
  +1
  2

This time, positive \text{IDENT(nas)-σ} doesn’t help.

\[
/\text{båd}/ \quad \text{Ident} \quad (\text{nas})\text{-σ} \quad 3 \quad \text{*[+nas]} \quad 2 \quad \text{Trochee} \quad 1 \quad H
\]

- a. \text{bå.de}
  1
  1
- b. \text{bå.de}
  0
  0
- c. \text{bå.de}
  +1
  2

By shifting stress, the second vowel can satisfy \text{IDENT(nas)-σ} while the first is changed to satisfy \[\text{*[+nas]}\].

\section{2.2 Stress Shift to Facilitate Neutralization}

Nancowry: nasal Vs appear only in stressed syllables (Radhakrishnan 1981):

\[
/\text{uŋŋ̩ōk}/ \quad \text{IDENT(} (\text{nas})\text{-σ)} \quad 3 \quad \text{*[+nas]} \quad 2 \quad \text{Trochee} \quad 1 \quad H
\]

- a. \text{uŋŋ̩ōk}
  0
  0
- b. \text{uŋŋ̩ōk}
  0
  0
- c. \text{uŋŋ̩ōk}
  0
  0

\section{3 Why the Difference?}

- \((\text{7)}\): stress can shop around for a syllable with an oral vowel.
  - /e/ serves as an alternative locus for \text{IDENT(nas)-σ}’s reward, allowing denasalization of /i/.
  - Stress shift doesn’t forfeit a reward.
- \((\text{11)}\): there’s no alternative segment for \text{IDENT(} (\text{voi})\text{-onset)} to reward.

Generalization: Positive PF avoids TMS pathologies when there is no alternative element that can earn PF’s reward.

In fact, by manipulating the configurations, we can make positive PF work for the stress problem but not the syllabification problem.

\[w(\text{IDENT(nas)-σ}) > w([+nas])\]

Idealized Nancowry: stress is governed by \text{TROCHEE}
• Stress: in monosyllables, there’s no alternative for IDENT(nas)-σ to reward.

(12) /b˜i:/

<table>
<thead>
<tr>
<th></th>
<th>IDENT(nas)-σ</th>
<th>*[+NAS]</th>
<th>TROCHEE</th>
<th>CULMINATIVITY</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (b˘i)</td>
<td>1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>b. (b˘i)</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. bi:</td>
<td>-1</td>
<td></td>
<td></td>
<td>-1</td>
<td></td>
</tr>
</tbody>
</table>

• Intervocalic CC surfaces faithfully except [+voi][–voi] sequences, which metathesize.

• Summary: under the right conditions, positive PF avoids TMS problems. But we can’t always guarantee those conditions will hold.
  - PF for roots and initial syllables may be OK: can’t substitute anything for the root; only one syllable can be initial.
  - PF for stress and onsets is not safe, as we’ve seen.

4 Possible Solutions: Faithfulness & Feature Theory

• The pathologies persist because the PF constraints reward maintenance of an unmarked feature value exactly as much as it reward maintenance of the marked value.

• Asymmetrical Faithfulness: reward preservation of [+voi] and [–nas] specifically (Hall 2000, Inkelas 2000, Rubach 2003):

  (13) /mak˘de/

<table>
<thead>
<tr>
<th></th>
<th>IDENT(+voi)-onset</th>
<th>*VoiObs</th>
<th>Onset</th>
<th>Linearity</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ma:˘k.de</td>
<td>0</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>b. ma:˘k.tw</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. m˘k:tw</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

• Introducing IDENT(–voice)-onset and IDENT(–nas)-σ would resurrect the pathologies:

(14) /öa:kd-/ IDENT(+voi)-onset  IDENT(–voi)-onset  *VoiObs  Linearity  H

<table>
<thead>
<tr>
<th></th>
<th>IDENT(+voi)-onset</th>
<th>IDENT(–voi)-onset</th>
<th>*VoiObs</th>
<th>Linearity</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ma:˘k.de</td>
<td>0</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>b. ma:˘k.tw</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. m˘k:tw</td>
<td>-1</td>
<td></td>
<td></td>
<td>-1</td>
<td></td>
</tr>
</tbody>
</table>

• Asymmetrical faithfulness works only if either:
  A. IDENT(–voi) and IDENT(–nas) don’t exist, or
  B. The features [voi] and [nas] are privative (e.g. Lombardi 1994, Mester & Itô 1989, Steriade 1995)

• A: Faithfulness to unmarked features would be a TETU effect.
  - Probably OK in many cases, but we need IDENT(–voice)-onset to block intervocalic voicing, e.g.

• B: Privativity for all features is implausible (e.g. [ATR], [back])—the pathologies reemerge with these features.

• Alternative: let PF assign greater rewards for faithfulness to marked values than to unmarked values:

(15) /mak˘de/

<table>
<thead>
<tr>
<th></th>
<th>IDENT(+voice)-onset</th>
<th>*VoiObs</th>
<th>Onset</th>
<th>Linearity</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ma:˘k.de</td>
<td>0</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>1</td>
</tr>
</tbody>
</table>

(16) /b˘ide/ IDENT(+nas)-σ *[+NAS] TROCHEE  H

<table>
<thead>
<tr>
<th></th>
<th>IDENT(+nas)-σ</th>
<th>*[+NAS]</th>
<th>TROCHEE</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (b˘i.de)</td>
<td>+1</td>
<td>-1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>b. (b˘i.de)</td>
<td>-1</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>c. (b˘i.˘de)</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td></td>
</tr>
</tbody>
</table>

(17) /mak˘de/ IDENT(+voi)-onset IDENT(–voi)-onset *VoiObs Linearity H

<table>
<thead>
<tr>
<th></th>
<th>IDENT(+voi)-onset</th>
<th>IDENT(–voi)-onset</th>
<th>*VoiObs</th>
<th>Linearity</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ma:˘k.de</td>
<td>0</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>b. ma:˘k.tw</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. m˘k:tw</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(18) /öa:kd-5/ IDENT(+nas)-σ IDENT(–nas)-σ *[+NAS] TROCHEE  H

<table>
<thead>
<tr>
<th></th>
<th>IDENT(+nas)-σ</th>
<th>IDENT(–nas)-σ</th>
<th>*[+NAS]</th>
<th>TROCHEE</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (ö˘E:k.d5)</td>
<td>+1</td>
<td>-1</td>
<td>-1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>b. (ö˘E:k.tw)</td>
<td>-1</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. ö˘E:t.k5</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td></td>
</tr>
</tbody>
</table>

• Asymmetrical faithfulness works only if either:
  A. IDENT(–voi) and IDENT(–nas) don’t exist, or
  B. The features [voi] and [nas] are privative (e.g. Lombardi 1994, Mester & Itô 1989, Steriade 1995)

• A: Faithfulness to unmarked features would be a TETU effect.
  - Probably OK in many cases, but we need IDENT(–voice)-onset to block intervocalic voicing, e.g.

• B: Privativity for all features is implausible (e.g. [ATR], [back])—the pathologies reemerge with these features.

• Alternative: let PF assign greater rewards for faithfulness to marked values than to unmarked values:

(19) /öa:kd-5/ IDENT(voice)-onset IDENT(nas)-σ

<table>
<thead>
<tr>
<th></th>
<th>IDENT(voice)-onset</th>
<th>IDENT(nas)-σ</th>
<th>*[+NAS]</th>
<th>TROCHEE</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ö˘E:k.d5</td>
<td>+2</td>
<td>-1</td>
<td>-1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>b. ö˘E:k.tw</td>
<td>-1</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. ö˘E:t.k5</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td></td>
</tr>
</tbody>
</table>
5 Conclusion

- Positive PF avoids TMS problems only if there is no unmarked alternative element that can be rewarded.
- Ensuring this requires not-quite-sound revisions to Faithfulness or feature theory.
- What does this mean for positive constraints versus Harmonic Serialism with respect to TMS problems (setting aside other TMS approaches like Blumenfeld (2006))? 
  - Some cases submit only to positive constraints: harmony (Kimper 2011), Positional Markedness (Kaplan 2015a,b)
  - Some cases submit only to HS: Positional Faithfulness (Jesney 2011)
  - Some cases mentioned by McCarthy (2011) and Kimper (2011) are amenable to both approaches.
- This implies a richer typology of TMS problems.
- Despite overlapping empirical domains and similar motivations, Positional Markedness and Positional Faithfulness are actually quite different.

References
