I. The problem of chain shifts in acquisition

- Chain shifts involve interacting unfaithful mappings of input segments.

(1) ‘Puzzle-puddle-pickle’ chain shift of Amahl age 2;2-2;11 - (Smith 1973; also Braine 1976, Dinnsen O’Connor & Gierut 2001, Macken 1980)

a. /s, z, j, ʧ, ʤ, dʒ/ → [t, d] (all contexts) */s, z, j, ʧ, ʤ, dʒ/ → [k, g]
puzzle [pʌdzəl] special [pɛztəl]
pencil [pɛnl] Angola [ˈændələ]

b. /t, d, n/ → [k, g, η] (before target laterals)
puddle [pʌdl] sandal [tændəl]
turtle [təltər] journal [dʒənəl]

c. /k, g, η/ → [k, g, η] (all contexts)
pickle [pɪkəl] pickel [pɪkəl]
buckle [bʌkəl] buckle [bʌkəl]

- Two non-target-like processes:
  a. Loss of stridency: *[+strident] >> IDENT[±strident]
  b. Pre-lateral velarization: [COR, -str] >> [DOR, _ (ə)]

• While not target-like, neither of these processes is particularly odd in itself...

(2) Chain shift mappings in Amahl’s grammar

\[
\begin{array}{c|c|c|c}
/s, z, j, ʧ, ʤ, dʒ/ & /t, d, n/ & /k, g, η/ \\
\hline
\text{pazəl} & *[+strident] & IDENT[±strident] \\
\text{padəl} & & \\
\text{paŋəl} & *[+strident] & IDENT[±strident] \\
\text{padəl} & & \\
\end{array}
\]

- General [MARKEDNESS >> FAITHFULNESS] bias (e.g., Demuth 1995, Gnanadesikan 1995/2004, Smolensky 1996, etc.)

- BUT... their opaque interaction is problematic... What prevents target *[+strident] segments from being realized as dorsals in the pre-lateral context?

(3) a. *[+strident] >> IDENT[±strident]
   b. *[TL] >> IDENTCORONAL

(4) a. /pɛzəl/ *[+strident] IDENT[±strident]
    pɛzəl *!
    padəl *!
    paŋəl *

b. /paŋəl/ *[TL] IDENTCORONAL
    paŋəl *

• Full neutralization is predicted to occur in pre-lateral position:
  /s, z, j, ʧ, ʤ, dʒ/ → [k, g] and /t, d, n/ → [k, g, η] and /k, g, η/ → [k, g, η]

• The most common analysis of these patterns in adult phonology makes use of locally-conjoined faithfulness constraints (Kirchner 1996).
• This approach is based on the observation that the incorrect candidate in (5) incurs a greater number of faithfulness violations than does the correct (chain shift) candidate.

(6) /pazal/ $\rightarrow$ [pagal] violates both IDENT[±strident] and IDENTCORONAL.
/pazal/ $\rightarrow$ [padal] violates only IDENT[±strident]  

• The conjoined constraint is violated if and only if both of its constituent constraints are violated within a given domain.

(7) [IDENT[±strident] & IDENTCORONAL]SEGMENT: Assign one violation mark for any segment that differs in specification for both [±strident] and [CORONAL] relative to its input correspondent.

• If this constraint is highly ranked, the incorrect candidate will be ruled out and the correct candidate selected instead.

(8) CONJOINED FAITHFULNESS >> MARKEDNESS >> FAITHFULNESS

(9) Target /z/ realized as [d] in pre-lateral position

<table>
<thead>
<tr>
<th></th>
<th>[IDENT[±strident] &amp; IDENTCORONAL]SEG</th>
<th>*±strident</th>
<th>*TL</th>
<th>IDENT[±strident]</th>
<th>IDENTCORONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. /pazal/ ‘puzzle’</td>
<td>pagal</td>
<td>*![</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>padal</td>
<td>*</td>
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<td>*</td>
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<td></td>
<td>pagal</td>
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<th></th>
<th>[IDENT[±strident] &amp; IDENTCORONAL]SEG</th>
<th>*±strident</th>
<th>*TL</th>
<th>IDENT[±strident]</th>
<th>IDENTCORONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. /padal/ ‘puddle’</td>
<td>pazal</td>
<td>*![</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>padal</td>
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<td>padal</td>
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<thead>
<tr>
<th></th>
<th>[IDENT[±strident] &amp; IDENTCORONAL]SEG</th>
<th>*±strident</th>
<th>*TL</th>
<th>IDENT[±strident]</th>
<th>IDENTCORONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>c. /pikal/ ‘pickle’</td>
<td>pisal</td>
<td>*![</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>pital</td>
<td></td>
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<tr>
<td></td>
<td>pital</td>
<td></td>
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</tr>
</tbody>
</table>

• BUT... What positive evidence from the target language would lead Amahl (or any other English-learning child) to posit this conjunction and/or its high ranking?

• It is normally assumed that it is only the mechanism of conjunction that is universal - NOT the individual conjoined constraints.

• Local conjunction then serves as means of resolving language-specific inconsistencies detected by the learner (Itô & Mester 2003, Fukazawa & Miglio 1998).

• PROBLEM... there is typically no positive target-language evidence to trigger the formulation of the conjoined constraints relevant to child language chain shifts.

Proposal:

• Developmental chain shifts result from the preferential preservation of features whose prominence is enhanced through their association with other input features.

• In the case of the puzzle-puddle-pickle chain shift, the relevant relationship is stridency enhancing the prominence of CORONAL Place.

• IDENTCORONAL/[±strident] $\rightarrow$ IDENTCORONAL  
(i.e., Specific Faithfulness $\rightarrow$ General Faithfulness)

• The ‘environment’ of the specific constraint (i.e., [+strident]) is relativized to the input.

• The chain shift arises as the markedness constraint responsible for the second stage of the chain shift – *TL – attains a ranking between the two IDENT constraints... It is a natural intermediate state.

• Outline:
  II. Feature preservation and input prominence
  III. Puzzle–Puddle–Pickle  
   1. Basic Pattern - 2. Interactions and Exceptions - 3. Development
  IV. Other L1 chain shifts
  V. Summary
II. Feature preservation and input prominence

- Hypothesis: Blocking in child chain shifts should be attributed to a kind of “preferential feature preservation” based on perceptually-reinforcing input feature combinations.

- Given A→B→C, there is some key combination of features in /A/ that is (relatively) prominent and therefore preferentially preserved... this combination does not exist in /B/.

\[ 10 \]
\[
\begin{array}{c}
A/ \\
[+\alpha, +\beta]
\end{array}
\quad
\begin{array}{c}
B/ \\
[-\alpha, -\beta]
\end{array}
\quad
\begin{array}{c}
C/ \\
[-\alpha, +\beta]
\end{array}
\]

- In (10), [+\alpha] is preserved when it is associated in the input with [+\beta].

- In Amahl’s case (the ‘puzzle-puddle-pickle’ shift), this is reflected in the preservation of [CORONAL] on input [+strident] segments.

\[ 11 \]
\[
\begin{array}{c}
\text{Ident} \text{CORONAL} [/+\text{strident}]: \quad \text{A [CORONAL] feature of an input [+strident] segment is preserved by its output correspondent.}
\end{array}
\]

\[ 12 \]
\[
\begin{array}{c}
\text{IdentCORONAL:} \quad \text{A [CORONAL] feature of an input segment is preserved by its output correspondent.}
\end{array}
\]

- [CORONAL] place is more perceptible among [+strident] segments than among [-strident] segments; or, the presence of [+strident] makes [CORONAL] place more prominent.

- e.g., contrasts between [t] and [f] are more easily confused by children than are contrasts between [s] and [f] (Velleman 1988)
- e.g., cross-linguistically, [s]-[f] contrasts are strongly preferred to [t]-[f] contrasts (Ladefoged & Maddieson 1996)


- Key difference ⇒ the prominent position is defined across the input (see for McCarthy 2006 for independent discussion of zero-terminating chain shifts).

\[ 13 \]
\[
\begin{array}{c}
\text{IdentCORONAL} [/+\text{strident}]: \quad \text{A [CORONAL] feature of an input [+strident] segment is preserved by its output correspondent.}
\end{array}
\]

III. Puzzle-Puddle-Pickle

III.1 Basic Pattern

- Given a ranking like that in (12), child chain shift scenarios are expected to emerge given two conditions:
- Faithful realization of the first segment in the shift is precluded.
(15) *[+strident] >> IDENT[±strident]

- During the chain shift stage, [+strident] output features are completely avoided by Amahl.

(16) a. target /s/
   - sun [tʌn], zip [dɪp], fish [wit]
   - taxi [tʰækʃɪ], zebra [dɪbra], gracious [ɡeɪʃɪt]
   - sausages [tɒtɔdɪd], legs [lɛgd], sharpening [tʰəpənɪn]

b. target /z/
   - d. target /g/
   - fetch [wɛt], ginger [dɪndə]
   - cherry [tɛrɪ], john [dɔn]
   - cheese [tɪd], pyjamas [pədəmæd]

- This is true even when it leads to quite marked clusters.

(17) desk [dɛkts], mumps [mʌmt], cubes [kʊbd]

2 The markedness constraint forcing the second stage of the shift is ranked between the specific and general IDENTCORONAL constraints.

(18) IDENTCORONAL/[+strident] >>*TL >> IDENTCORONAL

- With the exception of target [+strident] segments, coronals do not precede target laterals in Amahl’s grammar during the chain shift stage.

(19) *TL: Sequences of a [CORONAL, -continuant] segment followed by a lateral are prohibited in the output.

(20) /t, d, n/ → [k, g, η] (before target laterals)
   - puddle [pʌɡl], sandal [tæɡɡl]
   - turtle [tʰəkəl], journal [dzaɡɡl]
   - butler [bəkla]

- Note that the same constraint appears to be at work in Jamaican English (Cassidy & LePage 1980: lix)

(21) little [likl], middle [mɪgl], victuals [bɪkl], cruddle [krogli]

- In order to get the attested alternation, it must be the case that *TL outranks the general IDENTCORONAL constraint.

- BUT... in order to block the alternation from also applying to underlying [+strident] segments, it must be the case that IDENTCORONAL/[+strident] outranks *TL.

(22) a. *[+strident] >> IDENT[±strident]
   b. IDENTCORONAL/[+strident] >>*TL >> IDENTCORONAL

(23) ‘Puzzle-puddle-pickle’ chain shift

a. /pæzl/ *[+strident] : IDENTCOR/[±str]
   - *![pæzl] 
   - *![pædəl] 
   - *![pəɡl]

b. /pædal/ *[+strident] : IDENTCOR/[±str]
   - *![pædal] 
   - *![pædəl] 
   - *![pəɡl]

b. /pikl/ *[+strident] : IDENTCOR/[±str]
   - *![pikl] 
   - *![pɪtəl] 
   - *![pəɡl]

- Assuming a model where specific faithfulness constraints are biased toward high-rankings (Hayes 2004, Prince & Tesar 2004, Tessier 2006), these ranking would be expected to arise as the child encounters evidence of coronal + lateral sequences in the adult language and the initial *TL >> IDENTCORONAL/[+strident] ranking is inverted (more on this in §III.3).
III.2 Interactions and Exceptions

1. Pre-lateral clusters

- Regularly, one would expect /st/ → [kl]; BUT, instead we get /st/ → [tl].
- /st/ clusters behave like singleton [+strident] segments.

(24) pistol [pitɔl]
    postal [pɔtɔl]

I analyze these output coronals as fused realizations of the two input segments (see Gnanadesikan 1995/2004, Pater & Barlow 2003 on such coalescence in child language).

(25) Input: /st/ /st/          Output: [t] [k]

<table>
<thead>
<tr>
<th>Input</th>
<th>IDENTCOR/[-stri]:</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>/pistol/</td>
<td>*!</td>
<td>*</td>
</tr>
<tr>
<td>/pikal/</td>
<td>*!</td>
<td>*</td>
</tr>
</tbody>
</table>

- Input [DORSAL] is preserved in the case of /sk/ clusters due to high-ranking IDENTDORSAL.

(27) rascal [ra:kɔl]

(28) MAX-C >> IDENTDORSAL >> IDENTCOR/[-stri] >> *TL >> IDENTCOR

2. Base-derived form effects

- An Output-Output Faithfulness bias is also evident, allowing /tl/ → [tl] (Benua 1997; see Hayes 2004 and Tessier 2005 on high-OO-Faith biases in acquisition).

(29) a. [ha:d] [ha:dli:] hard ~ hardly
    [sof] [sofli:] soft ~ softly
    [tait] [taitli:] tight ~ tightly
    b. [deŋkal] [deŋkli:] gentle ~ gently

(30) High-ranking OO-IDENT rules out velarized form

<table>
<thead>
<tr>
<th>Input</th>
<th>IDENTCOR/[-stri]:</th>
</tr>
</thead>
<tbody>
<tr>
<td>/tait+li:/ Base: [tait]</td>
<td></td>
</tr>
<tr>
<td>taizli:</td>
<td>*!</td>
</tr>
<tr>
<td>taitli:</td>
<td>*</td>
</tr>
<tr>
<td>taikli:</td>
<td>*!</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Input</th>
<th>IDENTCOR/[-stri]:</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dental+li:/ B: [deŋkal]</td>
<td></td>
</tr>
<tr>
<td>deŋsli:</td>
<td>*!</td>
</tr>
<tr>
<td>deŋtli:</td>
<td>*</td>
</tr>
<tr>
<td>deŋkli:</td>
<td>*</td>
</tr>
</tbody>
</table>

- It is not the case that /tl/ sequences cannot be faithfully realized by Amahl... They can be under the pressure of higher-ranking Specific Faithfulness or OO-Faithfulness constraints.

III.3 Development

- If, in the initial state, MARKEDNESS >> FAITHFULNESS, then full neutralization is expected ⇒ stage 1.

(31) a. *[+strident] >> IDENT[+strident]
    b. *TL >> IDENTCORONAL/[+strident] >> IDENTCORONAL

(32) Postulated initial state (stage 1) mappings

<table>
<thead>
<tr>
<th>/s,z,i,j,dz/</th>
<th>/t,d,n/</th>
</tr>
</thead>
<tbody>
<tr>
<td>[COR, +stri]</td>
<td>[COR, -stri]</td>
</tr>
<tr>
<td>[k,g,ŋ]</td>
<td>[DOR, -stri]</td>
</tr>
</tbody>
</table>
• In order for the target grammar to be reached, both of the M>>F rankings must be reversed... The intermediate stages that arise through this process depend upon the order of reranking.

• Reranking of *TL relative to IDENTCORONAL/+strident leads to the chain shift pattern1 ⇒ stage 2.

(33) Stage 1 (initial state):
M1 >> F1  *(+strident) >> IDENT[±strident]
M2 >> SpecF >> GenF  *[+strident] >> IDENT[±strident]*TL >> IDENTCOR/[+strident] >> IDENTCOR

Stage 2 (chain shift):
M1 >> F1  *(+strident) >> IDENT[±strident]
SpecF >> M2 >> GenF  IDENTCOR/[+strident] >> *TL >> IDENTCOR

Stage 3a (emergence – possibility #1 - Amahl):
F1 >> M1  IDENT[±strident] >> *(+strident)
SpecF >> M2 >> GenF  IDENTSTRI >> IDENTCOR /[+stri] >> *TL >> IDENTCOR

Stage 3b (emergence – possibility #2 - see §IV):
M1 >> F1  *(+strident) >> IDENT[±strident]
SpecF >> GenF >> M2  IDENT[±strident] >> *[+strident]

Stage 4 (adult):
F1 >> M1  IDENT[±strident] >> *(+strident)
SpecF >> GenF >> M2  IDENTCOR /[+strident] >> IDENTCOR >> *TL

• Amahl emerges from the chain shift stage as he begins to accurately realize [+strident] features in the output (circa age 2;11) ⇒ stage 3a.

(34) Evolution of the ‘puzzle-puddle-pickle’ shift
Stage 2: /s, z, s/ → [t, d]
Stage 3a: /s, z, s/ → [s, z, t]
puzzle [p[ẑ]a]  puzzle [p[̃]ẑa]
special [s[̃]t̂a]  special [spe’]ŝa]
satchel [s[̃]t̂a]  satchel [sæt’]a]

(35) Stage 3a mappings in Amahl’s grammar (before target laterals)
/s,z,s/ /t,d,n/ /k,g,ŋ/
[Cor, +stri]  [Cor, -stri]  [Dor, -stri]

• The demotion of *[+strident] to below IDENT[±strident] leads to this pattern.

(36) IDENT[±strident] >> *[+strident]

• The evaluation of IDENTCORONAL/[+strident] need not change; it is still obeyed, but, as in the adult grammar, the defining input context (i.e., the [+strident] feature) is faithfully realized in the output.

• There is no need to alter the relative ranking of the general and specific IDENTCORONAL faithfulness constraints.

IV. Other L1 Chain Shifts

• Other L1 shifts also preferentially preserve the coronality of target [+strident] segments – including the well-attested s→θ→f pattern.

(37) R.H. s→θ→f (Dinnsen & Barlow 1998: 91)

a. /s/ → [θ]
   sew [θou]  icy [aiθi]
   sink [θink]  vase [veθ]

b. /θ/ → [f]
   thorn [θorn]  bathy [bæθi]
   thumb [θum]  tooth [tuf]

c. /f/ → [f]
   fire [faθ]  beautiful [bjudafal]
   five [faθ]  leaf [lif]

1 It is possible for the chain shift to be preceded by a stage with mappings /s/→[z], /d/→[g], /g/→[g]. This arises given IDENTCOR/[+strident] >> *TL >> IDENTCOR, IDENTSTRI. In the absence of relevant data, this possibility is set aside here.
Chain shift mappings in R.H.’s grammar

\[
\begin{array}{cccc}
/s/ & \theta/ & /f/ \\
[\text{COR}, +\text{stri}] & [\text{COR}, -\text{stri}] & [\text{LAB}, -\text{stri}] \\
\end{array}
\]

- This chain shift affects all instances of the target segments...

(38) Chain shift mappings in R.H.’s grammar

\[
\begin{array}{cccc}
/s/ & /\theta/ & /f/ \\
[\text{COR}, +\text{stri}] & [\text{COR}, -\text{stri}] & [\text{LAB}, -\text{stri}] \\
\end{array}
\]

(39) a. \( *[+\text{strident}] \rightarrow \text{IDENT}[\pm\text{strident}] \)
b. \( \text{IDENTCORONAL}/[+\text{strident}] \rightarrow *\theta \rightarrow \text{IDENTCORONAL} \)

(40) \( s \rightarrow \theta \rightarrow f \) chain shift

a. \( /\text{soo}/ \) ‘sew’ \( *[+\text{strident}] \rightarrow \text{IDENTCOR}/[+\text{stri}] \rightarrow *\theta \rightarrow \text{IDENTCOR} \)

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</thead>
<tbody>
<tr>
<td>soo</td>
<td>*!</td>
<td>*</td>
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</tr>
<tr>
<td>f soo</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>f soo</td>
<td></td>
<td>*</td>
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</tbody>
</table>

b. \( /\theta\text{am}/ \) ‘thumb’ \( *[+\text{strident}] \rightarrow \text{IDENTCOR}/[+\text{stri}] \rightarrow *\theta \rightarrow \text{IDENTCOR} \)

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<tbody>
<tr>
<td>sa\text{am}</td>
<td>*!</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>\theta\text{am}</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>f am</td>
<td></td>
<td>*</td>
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</tbody>
</table>

(41) Stage 3b (emergence – possibility #2):

- This chain shift in R.H.’s grammar follows a different path of dissolution than did the ‘puzzle-puddle-pickle’ pattern.

- Variation begins to emerge first in the realization of target \( /\theta/ \rightarrow \) stage 3b.

(42) Progression of R.H.’s chain shift pattern (Dinnsen & Barlow 1998:93)

Stage 2: \( s \rightarrow \theta \) Stage 3b: \( s \rightarrow \theta \)

\[
\begin{array}{cccc}
\text{s} & \text{a} & \text{ice} & \text{vase} \\
\text{soo} | \text{b} & \text{oo} | \text{oo} \\
\text{icy} | \text{ai} & \text{ai} & \text{ai} \\
\text{vase} | \text{vei} & \text{vei} & \text{vei} \\
\end{array}
\]

Stage 2: \( f \rightarrow \theta \) Stage 3b: \( f / \theta \rightarrow \theta \)

\[
\begin{array}{cccc}
\text{t\text{h\text{um\text{b}}}b} & \text{f\text{a\text{m}}} & \text{m\text{outh\text{y}}} & \text{t\text{h\text{um\text{b}}}b} \\
\text{thumb} | \text{f\text{a\text{m}}} & \text{ma\text{f\text{i}}} & \text{thumb} | \text{f\text{a\text{m}}} \\
\text{m\text{outh\text{y}}} & \text{ma\text{f\text{i}}} & \text{m\text{outh\text{y}}} & \text{ma\text{f\text{i}}} \\
\text{t\text{h\text{um\text{b}}}b} & \text{t\text{h\text{um\text{b}}}b} & \text{t\text{h\text{um\text{b}}}b} & \text{t\text{h\text{um\text{b}}}b} \\
\end{array}
\]

Stage 2: \( f \rightarrow \) Stage 3b: \( f \rightarrow \)

\[
\begin{array}{cccc}
\text{f\text{e\text{i\text{r}}}b} & \text{b\text{j\text{u\text{d\text{a\text{f\text{o\text{i}}}b}}}l} & \text{b\text{j\text{u\text{d\text{a\text{f\text{o\text{i}}}b}}}l} & \text{f\text{e\text{i\text{r}}}b} \\
\text{fire} | \text{b\text{j\text{u\text{d\text{a\text{f\text{o\text{i}}}b}}}l} & \text{b\text{j\text{u\text{d\text{a\text{f\text{o\text{i}}}b}}}l} & \text{fire} | \text{b\text{j\text{u\text{d\text{a\text{f\text{o\text{i}}}b}}}l} \\
\text{b\text{j\text{u\text{d\text{a\text{f\text{o\text{i}}}b}}}l} & \text{b\text{j\text{u\text{d\text{a\text{f\text{o\text{i}}}b}}}l} & \text{b\text{j\text{u\text{d\text{a\text{f\text{o\text{i}}}b}}}l} & \text{b\text{j\text{u\text{d\text{a\text{f\text{o\text{i}}}b}}}l} \\
\end{array}
\]

- This can be accounted for if, rather than the \( *[+\text{strident}] \rightarrow \text{IDENT}[\pm\text{strident}] \) ranking, it is the \( *\theta \rightarrow \text{IDENTCORONAL} \) ranking that is affected.

- \( *\theta \) is demoted to below \( \text{IDENTCORONAL} \)

(43) Stage 3b mappings in R.H.’s grammar

\[
\begin{array}{cccc}
/s/ & /\theta/ & /f/ \\
[\text{COR}, +\text{stri}] & [\text{COR}, -\text{stri}] & [\text{LAB}, -\text{stri}] \\
\end{array}
\]

- This chain shift in R.H.’s grammar follows a different path of dissolution than did the ‘puzzle-puddle-pickle’ pattern.

- Variation begins to emerge first in the realization of target \( /\theta/ \rightarrow \) stage 3b.

(44) \( s \rightarrow \theta \rightarrow f \) chain shift

a. \( /\text{soo}/ \) ‘sew’ \( *[+\text{strident}] \rightarrow \text{IDENTCOR}/[+\text{stri}] \rightarrow *\theta \rightarrow \text{IDENTCOR} \)

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<tbody>
<tr>
<td>soo</td>
<td>*!</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>f soo</td>
<td></td>
<td>*</td>
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<tr>
<td>f soo</td>
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</table>

b. \( /\theta\text{am}/ \) ‘thumb’ \( *[+\text{strident}] \rightarrow \text{IDENTCOR}/[+\text{stri}] \rightarrow *\theta \rightarrow \text{IDENTCOR} \)

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<tbody>
<tr>
<td>sa\text{am}</td>
<td>*!</td>
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<tr>
<td>\theta\text{am}</td>
<td></td>
<td>*!</td>
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<td>f am</td>
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(45) Stage 3b (emergence – possibility #2):

- This chain shift in R.H.’s grammar follows a different path of dissolution than did the ‘puzzle-puddle-pickle’ pattern.

- Variation begins to emerge first in the realization of target \( /\theta/ \rightarrow \) stage 3b.
V. Summary

• Chain shift phenomena arise (and then subside) in the developing phonological systems of child language learners without any direct evidence of their existence in the target language.

• This can occur when one combination of features present in the input is privileged. Such privilege is based on enhanced prominence and is reflected through specific versions of identity constraints. These specific constraints are biased toward high ranking.

• Reranking of constraints on the basis of positive evidence is all that is required for the chain shift to both initially emerge and eventually dissipate.

• Ultimately, developmental chain shifts are driven by a need to be faithful to input features whose prominence is enhanced by their local input context.

• They are restrictive intermediate stages that emerge without the learner needing to postulate constraints or representations for which the target language lacks positive evidence.

VI. References


