**Puzzle**

Certain patterns that are common in child phonology violate generalizations from adult phonological typology.

Example: Positional velar fronting (PVF; Inkelas & Rose, 2007).

- Velar place becomes alveolar in prosodically strong contexts:
  - cup [ˈtʰəp] 1;09.23
  - again [ɹ' din] 1;10.25
- Velar place is preserved in prosodically weak contexts:
  - bagel [ˈbejɡul] 1;09.23
  - back [ˈbeɡk] 1;10.02

PVF reverses a strong bias in adult phonological typology:

Featural contrasts are realized preferentially in strong contexts. Example: Manner contrasts in Korean (Ahn, 1998).

**Phonetic basis**

Children and adults experience different articulatory pressures.

- Child’s tongue has more anterior position, larger relative size (Crelin, 1987); speech gestures are less precise (Fletcher, 1992).
- Many common child phonological processes can be analyzed in terms of children’s motor limitations. For PVF: anterior position of tongue predisposes child to fronting of velar consonants.

An account that incorporates these phonetic differences has the potential to explain the transient nature of child patterns: As motor control matures, patterns driven by early limitations will fade.

**A slippery slope?**

Does this reasoning amount to a claim that child patterns are essentially performance errors (Hale & Reiss, 1998, 2008), “somehow outside the realm of theoretical claims about language” (Dinnsen, Green, Morissette, & Gierut, 2011)?

No. We reject the “pure performance” account for several reasons:

1. Performance errors are variable and unpredictable; the child patterns in question are highly systematic.
2. Child patterns are conditioned by phonologically defined factors (e.g. syllables, feet).
3. Children’s physical production abilities often exceed what they demonstrate in habitual speech.

Child patterns like velar fronting are a reflection of competence; they require a grammatical analysis. We follow a well-established precedent by proposing a phonological model that incorporates phonetic pressures (e.g. Flemming, 2001; Kirchner, 2001; Steriade, 2001).

Our model is analogous to Steriade’s P-map, which holds that:

- a. Speakers have knowledge of the relative perceptibility of sound contrasts in different contexts;
- b. This knowledge is encoded in the phonological grammar.

**The A-map**

Children’s performance errors can be the seeds of their phonological patterns.

It is well known that children show conservative tendencies favoring continued production of their own error forms (Becker & Tessier, 2011; Ferguson & Farwell, 1975; Tessier, 2012).

A child who experiences frequent performance errors due to articulatory limitations has a choice: keep attempting something that is motorically too challenging for him to execute reliably, or revert to a simpler target that can be attained consistently.

**Conclusion**

Through the influence of the A-map, children’s phonetically-motivated performance errors take on grammatical status. This eliminates need for constraints like *#k, which are problematic due to lack of reflex in adult typology.

**References**


