

Covert phonetics, overt phonology: findings from child consonant harmony

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Consonant harmony (henceforth, CH) appears, on the surface, to be a long-distance, (i.e. non-local), assimilatory process. In child language, CH is often manifested as assimilation of major place of articulation. The data below, from Dinnsen et al. (1997) are representative examples of regressive labial harmony from an English-speaking child.

[pup]	‘soup’	[popi]	‘soapy’
[bibwa]	‘zebra’	[pap]	‘sharp’

In each word, the LABIAL feature of the right-most plosive spreads leftward to the next consonant, apparently skipping the intervening vowel. Long-distance assimilation of major place features is unattested in adult language, a fact which poses a challenge to any phonological theory that attempts to reconcile developing and mature grammars. Previous analyses (McDonough & Myers (1991), Pater (1997), Goad (1997), etc.) have failed to provide a truly explanatory account of child CH and have, in some cases, yielded unwarranted predictions.

I argue that child CH is, in fact, a local assimilatory phenomenon and propose an analysis that parallels the one put forward by Gafos (1996) for adult consonant (sibilant) harmony in Hokaan Chumash. Gafos proposes that the articulatory gestures involved in producing the harmonic consonants remain contiguous throughout the production of the vowel in a CVC sequence, thus satisfying the locality condition. I argue that a similar mechanism allows CH in child language and that the relevant gesture (for labial harmony, lip rounding) is contiguous from the trigger consonant, through the vowel, to the target. I will also appeal to the notion of covert contrast as established by Scobbie et al. (2000) to explain why the associated acoustic cues of lip rounding can only be uncovered through phonetic analysis.

I examine data produced by Clara, a child acquiring Québec French, who exhibits a restricted typology of CH, with the majority of her harmonic utterances being cases of regressive labial harmony (Rose 2000). I find that labial harmony occurs much more frequently when the intervening vowel is labial or central. Since schwa is by far the most common central vowel produced by Clara and tends to be rounded in Québec French (Gendron 1966), the vowel is homorganic with the trigger consonant in most harmonic utterances and strict locality is maintained. Thus, the only cases of CH to be accounted for are those in which a non-labial (i.e. unrounded) peripheral vowel intervenes between the trigger and target consonants. (See Table 1 for typological examples.) Through acoustic analysis of forms of the latter type, I find evidence of covert contrast, here manifested as the phonetic cue for rounding, namely a substantial lowering of the third formant (F3) (Ladefoged 2005). As such, labial harmony in Clara’s speech can be viewed as a local assimilatory process, with the lip rounding gesture in all cases being maintained across the CVC sequence.

The underlying mechanisms of CH in child language are obscured by phonetic transcription, which is by nature impressionistic and incapable of capturing fine-grained phonetic detail. My investigation of child CH suggests that careful analysis of phonetic data can lead to important insights on processes that have, in the past, proven to be complicated and problematic for phonological theory.

Table 1

Typology of labial harmony in Clara's speech			
Homorganic (rounded) vowel:	la porte	[pɔ'pœt]	'the door'
Central vowel (with some degree of rounding):	du pain	[pə'pœ]	'(some) bread'
Non-homorganic peripheral vowel:	un lapin	[œpɛ'pœ]	'a rabbit'

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