Metathesis is the friend you never wanted: late and fake
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Overview. The motivations for metathesis vary: metathesis can be purely segmental, prosodic, or morphologically conditioned (Canfield 2015). However, if we set aside cases of morpheme-specific metathesis, the remaining cases have very similar *implementations*. We analyze two productive synchronic cases of metathesis: Sevillian Spanish (CC) and Uab Meto (CV). Setting aside *why* metathesis occurs, we find that these metathesis patterns do not bear the phonetic or phonological characteristics expected of true transposition. Instead, we argue that productive phonological metathesis is best analyzed as gestural overlap, and that it occurs late, after other phonological rules.

To show this, we investigate three properties of each pattern: (1) phonetic data shows increased articulatory overlap and intermediate forms; (2) other phonological processes feed metathesis, but not vice versa; (3) productivity indicates that metathesis is blind to most morphological structure.

Case Study 1: Sevillian Spanish. Sevillian Spanish has synchronic CC metathesis in /s ptk/ sequences. Like other Spanish varieties, coda /s/ debuccalizes to [h] in Sevillian (1a). Unlike other varieties, [h] also variably metathesizes with the following stop (1b) (Ruch 2013; Ruch & Peters 2014; Torreira 2007, a.o.).

1. /tʃi**sp**a/ → a. [ˈtʃi**hp**a] → b. [tʃi**ph**a] 'spark'

Several phonetic properties indicate that Sevillian metathesis occurs via gestural overlap. First, there are phonetically intermediate forms such as ([tʃi**hph**a]) (Ruch 2008), where the [h] gesture surrounds the stop. Second, while single stops are partially voiced intervocalically, [pata], stop-h sequences [patha] resist perseverative voicing, which we attribute to the overlapped [h] gesture (O'Neill 2010). If metathesis occurred by segment transposition, neither of these effects would be expected.

The interaction between stress and metathesis shows that metathesis happens late. For the purposes of stress, listeners treat metathesized segments as if they were still in their original positions. In a stress judgment experiment with nonce words (Author 2021), Sevillian listeners generally find antepenultimate stress more acceptable if the penult is light than heavy ([luˈma**fa**to] > [luˈma**fan**to]) (2a > 2c). But they show no preference between (2b) [luˈma**fa**tho] and (2c) [luˈma**fan**to], suggesting that [th] "closes" the preceding syllable, as if stress is assigned to /CVs.tV/. Stress treats surface stop-h syllables as heavy, and so stress must occur before metathesis makes the penult light.

2. a. [luˈma**fa**to] [LˈLLL] (/lu.ma.**fa**.to/, LLLL) *No coda*
   b. *[luˈma**fa**tho] [LˈLLL] (/lu.ma.**fas**.to/, LLHL) *Stop-h coda*
   c. *[luˈma**fan**to] [LˈLHL] (/lu.ma.**fan**.to/, LLHL) *Sonorant coda*

Lastly, Sevillian metathesis is productive and is not morpheme-specific. It occurs in monomorphemes, and across word/morpheme boundaries (Horn 2013), further suggesting that it occurs late (Kiparsky 1982).

Case Study 2: Uab Meto. Uab Meto has synchronic, productive CV metathesis (cf. Rotuman, Leti). Metathesis is prosodically motivated, and is fed by stress. Post-tonic syllables metathesize in order to reduce lapses between stress and the word edge. Metathesis therefore occurs late, since the stress of relevant vowels must already be determined by the time it takes place.

3. a. /ˈkokɪs-e/ → [ˈko͡ɪks-e] 'the bread' cf. [ˈkokɪs] 'bread'
    b. /ʔa-ˈmepo-t-in/ → [ʔa-ˈme͡op-t-in] 'the workers' cf. [ʔa-ˈmepo-t] 'worker'
    c. /ˌmanu ˈmutiʔ/ → [ˌma͡on ˈmutiʔ] 'white chicken' cf. [ˈmanu] 'chicken'

Like Sevillian Spanish, Uab Meto shows phonetically intermediate forms in fast speech (4), suggesting that the metathesized vowel fully surrounds the stop. Metathesized sequences also can be distinguished from underlying ones by their coarticulation with adjacent segments (cf. s-palatalization in (4b.) ta͡ɪsʲi̥ vs. (5) taɪ-s). If metathesis were transposition, we wouldn't expect greater-than-normal overlap in these cases.

4. a. me͡op ~ me͡opo̥ 'work (phrase-medial)' cf. [mepo] 'work (phrase-final)'
    b. ta͡ɪs ~ ta͡ɪsʲi̥ 'sea (phrase-medial)' cf. [tasi] 'sea (phrase-final)' *more overlap*
5. taɪ-s *ta͡ɪsʲi̥ 'sarong (lit. worn thing)' cf. [taɪ] 'to put on' *normal overlap*

Vowel hiatus resolution provides additional evidence that Uab Meto metathesis does not involve true transposition. In Uab Meto, vowel hiatus across a morpheme boundary is not possible (*V-V), and is resolved via consonant epenthesis (6). However, some dialects have a counterbleeding pattern where we get consonant epenthesis and metathesis (7). This suggests that metathesized CV sequences behave as if they partially remain in their original positions. If metathesis were transposition, we'd expect it to be able to fix the *V-V violation by itself (e.g. *fatu-e→*faut-e,* 'the stone', instead of *fatu-e → fautu-e → fautg-e*).

6. a. /fatu-e/ → [fatw-e] 'the stone' *(Amanuban)*   7. a'. /fatu-e/ → [fa͡otg-e] *(Amarasi)*
    b. /tasi-e/ → [tasj-e] 'the sea'   b'. /tasi-e/ → [ta͡ɪsg-e]
    c. /meo-e/ → [meow-e] 'the cat'   c'. /meo-e/ → [me͡og-e]

The Uab Meto pattern is productive and not morpheme-specific. Any CV sequence following stress may metathesize, even in loanwords (e.g. /kalo/ → [ka͡ol] 'if', Kupang Malay). This again suggests that metathesis occurs late.

Discussion. Both Sevillian Spanish and Uab Meto have metathesis patterns that **(a)** occur after stress assignment, **(b)** are productive, and not morpheme specific, and **(c)** are realized as gestural overlap. Based on these shared properties, we conclude that metathesis occurs late in the phonology and through the mechanism of gestural overlap. One possibility this raises is that stress assignment requires atomic segmental representations, but that metathesis requires gestures that have internal temporal structure. The "late"ness of metathesis here suggests that these two levels of representation are not identical – segmental phonology can feed gestural phonology, but not the other way around.

In a typological survey of metathesis patterns, we find a class of languages that appear to have properties (a) and (b) (e.g. Nivacle, Gutierrez 2020; Faroese, Seo & Hume 2001), and we predict that (c) should also hold upon closer phonetic investigation. While conceptualizing metathesis as gestural overlap is not entirely new (Grammont, 1933; Hall, 2003), detailed phonetic comparison has not been carried out in many languages. Our proposal eliminates problems associated with phonological transposition, and suggests that diachronic accounts of metathesis-as-overlap (e.g. Blevins & Garrett, 1998) may not be different at all from the synchronic reality. While metathesis occurs before stress in some languages, seemingly in contrast to our proposal (e.g. Maltese, Hume 1991), these cases seem to have morphological restrictions. This raises the question of if true segmental transposition is ever in the phonology, or if it is best left to morphology.