Incomplete Resyllabification and Bidirectional Coupling in Spanish

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Phrasal resyllabification, which turns a word-final coda into a derived onset before a word-initial vowel (VC. > V.C#V), is of theoretical interest for its ability to generate transparent vs. opaque consonantal alternations in interaction with coda processes. A well-studied case is the aspiration of coronal fricatives across Spanish dialects. In both Chinato Spanish (CS; Hualde 1991) and Rio Negro Argentinian Spanish (RNAS; Kaisse 1999), canonical onset fricatives appear word-medially (1a) and (2a), as well as word-initially. In derivational terms, CS orders phrasal resyllabification before coda aspiration, which thus operates transparently, affecting codas (1b) but not derived onsets (1c). In RNAS, aspiration applies lexically, when word-final prevocalic /s/ is still a coda. Phrasal resyllabification then moves [h] into derived onset position (2c), in which coda aspiration can be said to have applied opaquely. The generative assumption that derived and canonical onsets are structurally identical is problematized by recent laboratory studies of non-aspirating Northern-Central Peninsular Spanish (NCPS), in which intervocalic /s/ in conversational speech is reported to be the shortest and most voiced in word-final position (Torreira & Ernestus 2012). Replicating this finding, Hualde & Prieto (2014) argue that "[a] transcription of, e.g., *más amor* as [má.sa.mór], with the same sequence of symbols and the same syllable structure as *masa* [má.sa] simply offers an incomplete view of phonetic reality" (p 124). Strycharczuk & Kohlberger (2016) report small but significant differences in sibilant duration across the contexts /V#sV/, /VsV/, and /Vs#V/, as in (3d), and argue that incomplete resyllabification reflects a gradient tension between the simultaneous affiliation of derived onset /s/ with the preceding lexical/prosodic word and the following vowel gesture.

In this talk, I analyze incomplete resyllabification in light of recent theoretical proposals (Smith 2018, Walker & Proctor 2019, Bradley 2020) that combine Articulatory Phonology (AP; Browman & Goldstein 1989) and the coupled-oscillator model of gestural timing (Nam et al. 2009) with the constraint-based framework of Optimality Theory (OT; Prince & Smolensky 1993). In AP, gestures are dynamically defined speech movement tasks coordinated in time. The coupled-oscillator model recasts the onset-coda distinction of syllable theory as a coordination difference. Onset consonants are coupled *in-phase* with a following vowel (i.e. /C↕V/), such that both gestures will begin at the same time. Coda consonants are coupled *anti-phase* with a preceding vowel (i.e. /V⇢C/), such that C will begin around the halfway point of V. I argue that incomplete resyllabification results from the *bidirectional coupling* of word-final intervocalic consonants: in /V_1⇢C↕V_2/, C is coupled in-phase with V_2 but also anti-phase with V_1 and thus can pattern transparently with other anti-phase /V⇢C/ sequences. If a grammar has coda aspiration without bidirectional coupling, then derived onset fricatives will be immune to aspiration. If a grammar has both coda aspiration and bidirectional coupling, then derived onset fricatives will undergo aspiration. OT formalizes these predictions as the interaction of markedness constraints on gestural coupling. /C↕V/ coupling is guaranteed by an undominated constraint, not shown here. Whether a grammar has bidirectional coupling depends on the ranking of (4a)—the gestural analogue of classical OT's NoCoda—and (4b), which enforces lexical cohesion of /VC/ sequences at the right edge of a morphological word. In CS (5), *V⇢C and *h conspire to optimize canonical onset fricatives in (a,e). In RNAS (6), V⇢C]$_{MWd}$ requires bidirectional coupling, and *V⇢S favors aspiration in candidate (h), while word-medial /s/ surfaces faithfully in (a). In NCPS, bidirectional coupling interacts with prosodic word (ω) structure, giving rise to the asymmetries in (3d). On the assumption that only strict in-phase coupling increases constriction duration in /C↕V/, bidirectional coupling predicts a shorter intervocalic /s/ in (rede⇢s↕)$_ω$(atadas)$_ω$ (3c) than in (pes↕adija)$_ω$ (3b).

Since ω-initial consonants are subject to constriction lengthening (Keating et al. 2003), the /s/ in (kɾuθe)$_{\omega}$(s↕agɾado)$_{\omega}$ (3a) is predicted to be the longest of the intervocalic sibilants in (3).

Not only does bidirectional coupling help to model the gradient variation uncovered by recent experimental studies of non-aspirating NCPS, it also resolves the phonological opacity of derived-onset [h] in RNAS using just one stratum of OT constraints, without ordered levels or rules (Harris 1993, Hualde 1991, Kaisse 1999), ambisyllabicity (Lipski 1999), output-output correspondence (Baković 1998, Colina 2006, 2009), or multiple GEN-EVAL loops (Torres-Tamarit 2014). Broś (2018, 2019) gives a Stratal OT analysis of /s/-aspiration in phrases and prefixed words, arguing that its opaque interaction with ω-final deletion in Chilean Spanish is a challenge for monostratal OT. Using just a few additional constraints, I show that a monostratal analysis with bidirectional coupling can be easily generalized to cover both prefixation and the Chilean dual-repair pattern.

Chinato Spanish

(1) a. *coda* [ko.ða] 'thing'
b. *laj codaj* [lah.ko.ðah] 'the things'
c. *la dalaj* [la.ða.lah] 'the wings'

Rio Negro Argentinian Spanish

(2) a. *dieses* [dje.seh] 'tens'
b. *dos palas* [doh.pa.lah] 'two shovels'
c. *dos alas* [do.ha.lah] 'two wings'

Northern-Central Peninsular Spanish

(3) a. *cruce sagrado* V#sV 'sacred crossing'
b. *gran pesadilla* VsV 'big nightmare'
c. *redes atadas* Vs#V 'tied nets'
d. Intervocalic sibilant duration: V#sV > VsV > Vs#V

Assign a violation for every

(4) a. *V--→C V that is coupled anti-phase with a following C.
b. V--→C]$_{MWd}$ V that is not coupled anti-phase with a following C before the right edge of a morphological word.
c. *V--→S V that is coupled anti-phase with a following coronal fricative.
d. *h glottal fricative [h].

(5)

/koða/	*V--→C	V--→C]$_{MWd}$	*V--→S	*h
☞ a. oð↕a				
b. oh↕a				*!
c. o--→ð↕a	*!		*	
d. o--→h↕a	*!			*

/lað#alað/	*V--→C	V--→C]$_{MWd}$	*V--→S	*h
☞ e. að↕a		*		
f. ah↕a		*		*!
g. a--→ð↕a	*!		*	
h. a--→h↕a	*!			*

(6)

/djeses/	V--→C]$_{MWd}$	*V--→C	*V--→S	*h
☞ a. es↕e				
b. eh↕e				*!
c. e--→s↕e		*!	*	
d. e--→h↕e		*!		*

/dos#alas/	V--→C]$_{MWd}$	*V--→C	*V--→S	*h
e. os↕a	*!			
f. oh↕a	*!			*
g. o--→s↕a		*	*!	
☞ h. o--→h↕a		*		*

References (partial)

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