Andalusian Vowel Harmony: Weak Triggers and Perceptibility*

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1. INTRODUCTION. BASIC FACTS

(1) *Eastern Andalusian Spanish*: Mainly, Almería, Granada, and Córdoba. Our data from Granada, educated people. (Spanish 5-vowel system: /i, u, e, o, a/)

(2) ***High-level (phonological) opening and Vowel Harmony*** **(cf. (2a-b))** vs. *Low-level (phonetic) opening* (cf. (2c-f)) (Zubizarreta 1979):

a. Word-final *s* aspirates and further deletes: -s > h > ^{h} > Ø. Variation encountered for ^{h} ~ Ø. Shorthand notation: $^{(h)}$. (Strong tendency to deletion.)

b. In this context final mid vowels open and low vowel further fronts, entailing vowel harmony only wrt opening (sometimes concomitant lengthening of the final vowel):

- e, o > ɛ, ɔ; - a > æ̝

nenes	[nɛ́nɛ$^{(h)}$]	'babies'	lejos	[lɛ́hɔ$^{(h)}$]	'far'
monos	[mɔ́nɔ$^{(h)}$]	'monkeys'	mes	[mɛ́$^{(h)}$]	'month'
asas	[ą́sæ̝$^{(h)}$]	'handles'	tos	[tɔ́$^{(h)}$]	'cough'

Final high vowels open to a lesser degree, dubious according to some authors (Zubizarreta 1979, Llisterri&Poch 1987 wrt pretonic, Sanders 1994, Hualde&Sanders 1995). They entail vowel harmony. Martínez Melgar (1994) finds a slight open/close alternation in final position (also reported in Alonso *et al.* 1950, Alarcos 1983, and in Salvador 1977 for *i* only). Few examples:

- i, u > i̞, u̞

tesis	[tɛ́si̞$^{(h)}$]	'thesis'	mis	[mi̞$^{(h)}$]	'my (pl.)'
crisis	[krísi̞$^{(h)}$]	'crisis'	tus	[tu̞$^{(h)}$]	'your (pl.)'
muchos	[múʃɔ$^{(h)}$]	'many'	míos	[míɔ$^{(h)}$]	'mine (pl.)'

Only 3 words in *-j* /h/ (*reloj* 'watch', *boj*(*e*) 'box tree, boxwood', (*h*)*erraj* 'coal dust'), but same behavior as *-s* (no paroxytone words): *reloj* [relɔ́$^{(h)}$]~[rɛlɔ́$^{(h)}$] .

c. Word-final *l*, *r* also weaken and are further lost. More variation. Whether they are retained or lost, these consonants do not systematically trigger opening of preceding vowels; if they do, they show a lesser degree of opening (low-level opening phenomenon). They do not entail VH ≠ (b) (Navarro Tomás 1939, Rodríguez-Castellano & Palacio 1948, Alonso *et al.* 1950, Sanders 1998):

clavel	[klaβé$^{(l)}$]	'carnation'	Rafael	[rafaę́$^{(l)}$]	'Raphael'
sol	[sǫ̝^{l}]~[só^{l}]	'sun'	cantor	[kan̪tǫ̝$^{(r)}$]	'singer'

d. All other word-final obstruents just delete as in most Spanish varieties:

pared	[paɾé]	'wall'	paredes	[paɾé$^{(h)}$]~[paɾéðɛ$^{(h)}$]	'walls'

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e. All word-internal coda obstruents aspirate and trigger gemination of following C. Previous vowels may optionally show a lesser degree of opening (low-level opening phenomenon) ≠ (b) (Zubizarreta 1979; Gerfen 2001, 2002):
capta [ká^{h}tta]~[ka̱^{h}tta] 's/he attracts' casta [ká^{h}tta]~[ka̱^{h}tta] 'caste'
capsula [ká^{h}ssula]~[ka̱^{h}ssula] 'capsule' atleta [a^{h}lléta]~[a̱^{h}lléta] 'athlete'

f. In word-internal coda position, *l*, *r* undergo other laxing phenomena in a less systematic way: l > ^{l}, ^{ɾ}, ^{ɹ}, ɾ; ɾ > ^{ɾ}, ^{l}, ^{ɹ}; and further optional lesser degree of opening of preceding vowels (Rodríguez-Castellano & Palacio 1948): low-level opening phenomenon ≠ (b) (Zubizarreta 1979):
alto [á^{l}to]~[a̱^{l}to] 'tall' verde [be̱^{ɹ}ðe]~[bé^{ɹ}ðe] 'green'

Table 1. ***Summary of facts***

FINAL			INTERNAL	
s (*j* /*h*/)	*l*, *r*	*other obstruents*	*obstruents*	*l*, *r*
$^{(h)}$ Opening + **VH** (fronting of *-a* if *-s*)	Variation $^{(l)}$, $^{(ɾ)}$, … Variation in low-level opening	Ø	^{h}C: Variation in low-level opening	Variation ^{l}, ^{ɾ}, ^{ɹ}, … Variation in low-level opening
[néne$^{(h)}$]	[so̱^{l}]~[só^{l}]	[paré]	[ká^{h}tta]~[ka̱^{h}tta]	[á^{l}to]~[a̱^{l}to]

- Aspiration of final *s* (*j* /h/) ≠ Aspiration of internal obstruents
- (Aspiration and further) loss of final *s* (*j* /h/) ≠ Loss of other final obstruents
- Opening + VH ≠ low-level opening

(3) ***Origin of lax vowels***:

a. *Traditional view*: Loss of final *s* through aspiration has triggered the appearance of *laxed* vowels, i.e. opened and fronted if *a* (Navarro Tomás 1939; Alonso *et al.* 1950; Alarcos 1958, 1983; Hooper 1976; Salvador 1977; Zubizarreta 1979; Mondéjar 1991, among others).

- Dependent phenomenon: Vowel harmony as a *laxing* phenomenon.

b. *Hualde&Sanders (1995)*: Contrast between open and close vowels independent from aspiration and further *s*-loss: *libro* [líβɾo̱] 'book' vs. *libros* [líβɾɔ] 'books'

- Parasitic phenomena: ATR vowel harmony (well-attested in other Spanish and Romance varieties without aspiration of *s*):
mono [mo̱no̱] 'monkey' perro [pe̱ro̱] 'dog'
and RTR vowel harmony:
monos [mɔ́nɔ$^{(h)}$] 'monkeys' perros [pérɔ$^{(h)}$] 'dogs'

- *a*-fronting as an independent phenomenon.

(4) *Nowadays prevalent situation of Eastern Andalusian Vowel Harmony (EAVH)*:

Loss of final *s* (through aspiration) triggers opening of preceding vowels (and fronting if *a*), as well as RTR vowel harmony: (Aspiration only present in emphatic pronunciations.)

a. -*s* as a grammatical suffix (plural or 2nd person singular).
Grammatical contrasts through vowel quality only:

nene	[néne]	'baby'	nene-s	[nɛ́nɛ]	'babi-es'
mono	[móno]	'monkey'	mono-s	[mɔ́nɔ]	'monkey-s'
peso	[péso]	'weight'	peso-s	[pésɔ]	'weight-s'
asa	[ása]	'handle'	asa-s	[ą́są̈]	'handle-s'
boca	[bóka]	'mouth'	boca-s	[bɔ́ką̈]	'mouth-s'
mi	[mi]	'my (sg.)'	mi-s	[mi̤]	'my (pl.)'
tiene	[tjéne]	's/he has'	tiene-s	[tjɛ́nɛ]	'you have'

b. -*s* as part of a grammatical suffix (1st and 2nd person plural: *-mos*, *-is*; word-markers):

tene-mos	[tɛnémɔ]~[tenémɔ]	'we have'			
tené-is	[tɛnéj]~[tenéj]	'you (pl.) have'			
tes-is	[tési̤]	'thesis'	lej-os	[léhɔ]	'far'

c. -*s* as part of the stem:

tos	[tɔ́]	'cough'	Cf. tose	[tóse]	's/he coughs'
(1) vez	[bɛ́]	'once'	Cf. (2) veces	[bésɛ]	'twice'

Loss of final *j* (/h/) also triggers opening of the preceding vowel and RTR harmony:

reloj	[rɛlɔ́]~[relɔ́]	'watch'

(5) *EAVH generalizations*:

a. Harmonizing feature: RTR (*a*-fronting as an *independent* phenomenon)
b. Trigger: -*s* (-*j* /h/)
c. Direction: Leftwards
d. Target: All vowels, but non-final high V are reluctant to undergo opening (RTR)
e. Scope:
- Up to the stressed vowel, and usually up to the initial vowel:

momentos	[momɛ́ntɔ]~[mɔmɛ́ntɔ]	'instants'
reloj	[relɔ́]~[rɛlɔ́]	'watch'
relojes	[relɔ́hɛ]~[rɛlɔ́hɛ]	'watches'

- Post-tonic medial vowels may optionally be affected:

tréboles	[tɾéβolɛ]~[tɾéβɔlɛ]	'clovers'

- In both cases, strong tendency to VH if V are identical:

horrorosos	[ɔrɔɾɔ́sɔ]	'horrible (pl.)'
monótonos	[mɔnɔ́tɔnɔ]	'monotonous (pl.)'

Table 2. Sanders (1998), based on [σ σ́ σ] -s words

INPUT V	PRE-TONIC (INITIAL)	TONIC (MEDIAL)	POST-TONIC (FINAL)
/e/	ɛ	ɛ́	ɛ
/o/	ɔ	ɔ́	ɔ
/a/	a̱	á̱	æ̱
/i/	i	í	—
/u/	u	ú	—

Table 3. ***Complete panorama, for -s (-j /h/) words***

INPUT V	PRE-TONIC (INITIAL)	TONIC (MEDIAL)	POST-TONIC (MEDIAL)	POST-TONIC / TONIC (FINAL)
/e/	e ~ ɛ	ɛ́	e ~ ɛ	ɛ / ɛ́
/o/	o ~ ɔ	ɔ́	o ~ ɔ	ɔ / ɔ́
/a/	a ~ a̱	á̱	a ~ a̱	æ̱ / ǽ̱
/i/	i	í	i	i̱ / í̱
/u/	u	ú	u	u̱ / ú̱

(6) *Basic motivation for EAVH*:

a. ☹ **Positional Faithfulness** (Beckman 1998, Baković 2000), because spreading takes place from unstressed to stressed syllable, from suffix to root, i.e. from weak to strong positions.

b. ☺ / ☹ **Gestural uniformity**: No disagreement allowed (Smolensky 1993, Pulleyblank 2002). Harmony results from languages attempting to minimize resetting of articulators.

- ☺ when VH in uniform domains: [tɾéβɔlɛ], [mɔméntɔ], [moméntɔ]
- ☹ when VH in gapped domains: [tɾéβolɛ],[kɔhínɛ]

c. ☺ / ☹ **Optimal Domains** Theory (Cole&Kisseberth 1994), **Span** Theory (McCarthy 2004): similar to (6b).

d. ☺ **Positional (perceptual) Markedness** Licensing effects: The harmonizing feature is attracted to strong positions; it becomes more perceptible (Walker 2005, 2006).

- VH *favored* but not determined by the fact that in many cases vowel quality ends up being the only exponent of grammatical contrasts (Sanders 1998).

2. ON THE REPRESENTATION OF THE TRIGGER

(7) *Different views on the RTR source*:

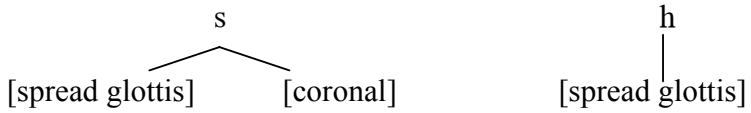
a. Split vowel system (with ATR and RTR input vowels) (Salvador 1957/1958, 1977; Gómez Asensio 1977, among others). But Ø~[s] alternations when *-s* is part of the stem (e.g., *tos* [tɔ́], *vez* [bɛ́] vs. *tose* [tóse], *veces* [bɛ́sɛ]).

b. Only /i, u, e, o, a/ input vowels:

- RTR derived from /h/ (< *-s*) and spreading through VH (Alarcos 1983). But /h/ vs. /s/ (e.g., *ojo* [óho] 'eye' vs. *oso* [óso] 'bear').
- ATR/RTR derived from syllable position in word-final position and spreading through VH (Hualde&Sanders 1995). But final raising (ATR) only in (some) elderly informants (receding feature, negative connotations).
- RTR derived from aspiration of *-s* and spreading through VH (in terms of *laxing*, Alarcos 1958 among others).

(8) RTR source: [spread glottis]

- /s, h/ → [^{h}] in codas: s, h are [spread glottis] (Vaux 1998, Gerfen 2002).



[spread glottis] refers to an articulatory gesture, i.e. the opening of the glottis (Gordon 2001). (On aspiration as debuccalization, i.e. loss of supralaryngeal features, see Lass 1976 and, for Spanish, Hualde 1989, among others.)

(9) How can RTR be a reflex of -/s/ (*-j* /h/) even under complete loss of [^{h}]?

- **RTR on vowels as cue preservation of the laryngeal feature [spread glottis]. RTR on vowels guarantees no complete loss of -/s/ (*-j* /h/).** MAX(LarF): "A laryngeal F in the input has a correspondent in the output" (Gordon 2001: 19)

a. Laryngeal features of obstruents are realized either by a release burst or by a vowel adjacent to an obstruent. Duration of preceding vowel guarantees sufficient perceptual salience of the [spread glottis] phase (Gordon 2001: 20).

b. "Formant frequencies may also vary as a function of phonation type" (Gordon&Ladefoged 2001: 400): [spread glottis] contributes to the raising of the first formant in vowels (i.e. opening), and also guarantees sufficient perceptual salience of [spread glottis].

Cf. Internal O.C → [^{h}]C.C (all obstruents, not only *s*!) do not trigger RTR-VH, but consonant gemination (cf. Gerfen 2002).

(10) Varieties with systematic *s*-loss could have a floating [spread glottis] (or RTR) feature expressing a grammatical category (i.e. plural and 2nd sing.):

leche-s /léʃe+[spr.gl.]$_{PL}$/: [léʃɛ] tiene-s /tjéne+[spr.gl.]$_{2SING}$/: [tjɛ́nɛ]

a. But then: How to derive *-es* plural endings?

/klabél+[spr.gl.]$_{PL}$/: [klaβélɛ], *[klaβé] (≠ sg. /klabél/ [klaβé])

/tós+[spr.gl.]$_{PL}$/: [tɔ́sɛ], *[tɔ́] (= sg. /tós/ [tɔ́])

b. How to derive consonant gemination in plural determiners?

lo-s casco-s [lɔ^{h}kkɑ́^{h}kkɔ] 'the helmets'

c. How to derive blocking of diphthong formation across words?

clave**les y** tomates [lɛ.i], *[lɛj] 'carnations and tomatoes'

(Cf. toma**te y** clavel [tej], *[te.i] 'tomato and carnation')

- *Generalization*: /s/

(11) Front source: [coronal]

/s/ is [coronal]: Front in vowels as cue preservation of the place feature [coronal] (Hualde&Sanders 1995)

- Only final *a* becomes fronted: *asas* [ɑ́sæ̟] 'handles', *bocas* [bɔ́kæ̟] 'mouths'

3. ON ASSIMILATION

(12) *Three modes of assimilation*:

a. Local assimilation (under retention of the trigger)
b. Local assimilation/fusion (under complete loss of the trigger)
c. Long-distance assimilation (under retention of the trigger)

(13) *Three basic patterns*: (Feature co-occurrence constraint: *LABIAL/FRONT, cf. (14a))

a. V s → V^{h} — *Phonetic output*: $V_{[RTR, Front]}$ + aspiration

[cor] [spr.gl.] [cor] [spr.gl]

V^{h} — *Phonetic output*: $V_{[RTR, Lab]}$ + aspiration

[lab] [spr.gl] [cor]

b. V s → V — *Phonetic output*: $V_{[RTR, Front]}$

[cor] [spr.gl.] [cor] [spr.gl]

V — *Phonetic output*: $V_{[RTR, Lab]}$

[lab] [spr.gl] [cor]

c. ˈV ... V → ˈV ... V *Phonetic output*: ˈV$_{[RTR]}$ ... V$_{[RTR]}$

RTR RTR

(14) a. Why is preservation of [coronal] only visible in the low vowel (/a/ →[æ])? Because [e], [ɛ], [i] are already Front vowels and Back (Round) vowels cannot be Front (*LABIAL/FRONT: Labial vowels are not Front; cf. ROUND/BACK condition in Archangeli&Pulleyblank 1994).

b. Why does preservation of the ([coronal]) place feature arise from *-s* only? Because /h/ does not have (input) place (cf. Lass 1976, Hualde 1989)

c. **Why only RTR harmony?** RTR is not a contrastive input feature. RTR is a perceptually weak element. RTR, derived from *-s* (*-j* /h/), is originated in final position. (In Romance languages, ATR/RTR input distinctions in stressed position only.)

(15) *Faithfulness constraints*:

- MAX(s/h-Features): Shorthand for the following MAX-F constraints:
  - MAX(LarF) is satisfied if [spread glottis] is preserved through [^{h}] and/or RTR in preceding V. (Only relevant for [spread glottis]; cf. *Lloret* [ʒoɾé], *[ʒoɾɛ́].)
  - MAX(Pl) is satisfied if [coronal] is preserved by a Front preceding V. (Only relevant for fricatives; cf. *mitad* [mitá] 'half' vs. *mita*(*de*)*s* [mitǽ]~[mitáðɛ] 'halves', Zamora Vicente 1960).
  - MAX(sibilant) is satisfied when [s] is preserved as a coda or as an onset. (*VOWEL/SIBILANT high in the ranking.)

(16) ***Generalized Licensing***, based on perceptual markedness (Walker 2006):

LICENSE M_{struc}/Pos_{strong}: For any instance of a marked structure in a phonological representation, some member of its chain belongs to a strong position.

a. *Chain*: Let X be an element belonging to a given representation R. Then X's chain is composed of X and all its correspondent elements within R.

b. *Marked structure* (F):
- F is a specification that is perceptually difficult
- F belongs to a prosodically weak position.
- F occurs in a perceptually difficult feature combination.

c. *Licensing* obeyed by three *configurations*:

"Direct" Licensing: Pos_{strong} Pos_{weak} / M_{struc}

"Indirect" Licensing: Pos_{strong} Pos_{weak} / M_{struc}

Identity Licensing: Pos_{strong} Pos_{weak} / $M_{struc\text{-}i}$ $M_{struc\text{-}i}$

(17) a. Direct Licensing: $-V_{[RTR_1]}$ (< $-/Vh_1/$) **Local F extension (fusion)**
$-V_{[RTR, Front]_1}$ (< $-/Vs_1/$), but *LABIAL/FRONT

b. Indirect Licensing: $-V_{[RTR]_1}{}^{h_1}$ (< $-/Vs_1$, $Vh_1/$) **Local F extension**

c. Indirect Licensing: $^{l}V_{[RTR]_1} \ldots V_{[RTR]_1}$ **Correspondence relation**
$^{l}V_{[RTR]_1} \ldots V_{[RTR]_1} \ldots V_{[RTR]_1}$ **Correspondence relation**

d. Identity Licensing: $^{l}V_{[RTR]_1} \ldots V_{[ATR]_2} \ldots V_{[RTR]_1}$ **Correspondence relation**

Licensing-at-a-distance (harmony) is achieved by correspondence (output) relations (cf. Hansson 2001; Krämer 2001; Walker 2000, 2006; Rose&Walker 2004; McCarthy 2006).

(18) ***Gradual nature of licensing requirements***:

a. For any instance of a marked structure in a phonological representation, **some** member of its chain belongs to **a strong position** (see § 4). (Cf. Walker 2006)

b. For any instance of a marked structure in a phonological representation, **some** member of its chain belongs to **the strongest position** (see § 5). (Cf. Walker 2005, 2006; Revithiadou *et al*. 2005; Downing 2006)

c. For any instance of a marked structure in a phonological representation, **every** member of its chain belongs to **a strong position** (included the strongest one) (see § 6). (Cf. Walker 2005, 2006; Downing 2006)

4. LOCAL ASSIMILATION: LICENSE-F, MAX-F AND *V/RTR

(19) a. *Markedness constraints*:

- LICENSE(s/h-Features, Onset/Nucleus):
  - LICENSE(sibilant): A sibilant element is licensed by association to a strong position; strong position here being an Onset. (The syllable Nucleus is not a good licenser for [sibilant] because of *VOWEL/SIBILANT.)
  - LICENSE(spr.gl): [spread glottis] is licensed by association to a strong position; strong position here being an Onset or a (preceding) V, i.e. the syllable Nucleus.
  - ...
- * LABIAL/FRONT: Labial vowels are not Front.
- *V/RTR: No RTR vowels.
- *CODA: No codas. (Violated by [^{h}].)

b. *Faithfulness constraints*:

- MAX(s/h-Features): Shorthand for the following MAX-F constraints (cf. (15)):
  - MAX(LarF)
  - MAX(Pl)
  - MAX(sibilant)
- MAX: Every segment of the input has a correspondent in the output.

(20) *Basic ranking at work*:

*LAB/FRONT, LIC(sib), LIC(spr.gl.) >> MAX(s/h) >> *V/RTR, *CODA (>>) MAX

*Coda >> Max for systematic loss of -[^{h}].

*Coda, Max crucially unordered to account for variation -[V^{h}] ~ -[V].

(For simplicity, below we only illustrate cases of systematic loss of -[^{h}], i.e. *CODA >> MAX.)

(21)

/tós/	*LAB/FRONT	LIC(sib)	LIC(spr.gl.)	MAX(s/h)	*V/RTR	*CODA	MAX
a. tós		*!	*			*	
b. tó^{h}			*!	*(Pl) *(sib)		*	
c. tó				*(L)! *(Pl) *(sib)			*
d. tɔ́s		*!			*	*	
e. tɔ́^{h}				*(Pl) *(sib)	*	*!	
☞f. tɔ́				*(Pl) *(sib)	*		*
g. tɔ̰́^{h}	*!			*(sib)	*	*	
h. tɔ̰́	*!			*(sib)	*		*

- The same stands for the final V of paroxytones and proparoxytones; cf. (28), (29), (33), (34), (39), (40).
- *Partial rankings*: 1) *LAB/FRONT >> MAX(Pl); 2) LIC(sib) >> MAX(sibilant); 3) LIC(spr.gl.) >> *V/RTR; 4) MAX(LarF) >> *V/RTR ; 5) *CODA >> MAX.

(22)

/más/	*LAB/FRONT	LIC(sib)	LIC(spr.gl.)	MAX(s/h)	*V/RTR	*CODA	MAX
a. más		*!	*			*	
b. má^{h}			*!	*(Pl) *(sib)		*	
c. má				*(L) *(Pl)! *(sib)			*
d. mą́s		*!			*	*	
e. mą́^{h}				*(Pl)! *(sib)	*	*	
f. mą́				*(Pl)! *(sib)	*		*
g. mǽ̰^{h}				*(sib)	*	*!	
☞h. mǽ̰				*(sib)	*		*

(23)

/tóse/	*LAB/FRONT	LIC(sib)	LIC(spr.gl.)	MAX(s/h)	*V/RTR	*CODA	MAX
☞a. tóse							
b. tohe				*(Pl) *(sib)!			
c. tóe				*(L) *(Pl) *(sib)!			*
d. tɔ́he				*(Pl) *(sib)!	*		
e. tɔ́se					*!		
f. tɔ́e				*(Pl) *(sib)!	*		*

(24)

/relóh/	*LAB/FRONT	LIC(spr.gl.)	MAX(s/h)	*V/RTR	*CODA	MAX
a. reló^{h}		*!			*	
b. reló			*(L)!			*
c. relɔ́^{h}				*	*!	
☞d. relɔ́				*		*

MAX(s/h) wrt Place irrelevant here because /h/ (cf. Lass 1976, Hualde 1989)

5. LONG-DISTANCE ASSIMILATION: WEAK TRIGGERS AND PERCEPTIBILITY

(25) ***Stress-targeted pattern***:

- LICENSE(RTR, σ́): For any instance of RTR, some member of that feature's chain belongs to a stressed syllable (upon Walker 2006).
- *HIGH/RTR: High vowels are not RTR (cf. Archangeli&Pulleyblank 1994).

Basic ranking: *HI/RTR >> LICENSE(RTR, σ́) >> *V/RTR

... LIC(sib), LIC(spr.gl.) >> MAX(s/h) >> *HI/RTR >> LIC(RTR, σ́) >> *V/RTR ...

(26) (For simplicity, from now on we ignore candidates with -[^{h}].)

/néne+s/	LIC(sib)	LIC(spr.gl.)	MAX(s/h)	*HI/RTR	LIC(RTR, σ́)	*V/RTR
a. nénes	*!	*				
b. néne			*(L)! *(sib)			
c. nénɛ			*(sib)		*!	*
☹ d. nénɛ			*(sib)			**!
💣e. nɛ́ne			*(sib)			*

(27) Why no migration of RTR from weak to strong position only (as in (26e), *[nɛ́ne])?

- RIGHT-ANCHOR(I-O): An element at the right periphery of I has a correspondent at the right periphery of O. (Cf. McCarthy&Prince 1995.)

(Hence, when -/s/ (*-j* /h/) is lost, its F are retained as much as possible by the preceding vowel.)

(28)

/néne+s/	R-ANCH	LIC(sib)	LIC(spr.gl.)	MAX(s/h)	*HI/RTR	LIC(RTR, σ́)	*V/RTR
a. nénes		*!	*				
b. néne	*!			*(L) *(sib)			
c. nénɛ				*(sib)		*!	*
☞d. nénɛ				*(sib)			**
e. néne	*!			*(sib)			*

Partial rankings: 1) R-ANCH >> *V/RTR; 2) LIC(RTR, σ́) >> *V/RTR.

(29)

/kɾísis/	R-ANCH	LIC(sib)	LIC(spr.gl.)	MAX(s/h)	*HI/RTR	LIC(RTR, σ́)	*V/RTR
a. kɾísis		*!	*				
b. kɾísi	*!			*(L) *(sib)			
☞c. kɾísi̯				*(sib)	*	*	*
d. kɾi̯si̯				*(sib)	**!		**
e. kɾi̯si	*!			*(sib)	*		*

Partial rankings: 1) R-ANCH >> *HI/RTR; 2) MAX(LarF) >> *HI/RTR; 3) *HI/RTR >> LIC(RTR, σ́).

(30) ***On penult post-tonic syllables***: /tɾébol+es/: [tɾéβɔlɛ]~[tɾéβolɛ] 'clovers'

a. SPREAD instead of *GAP in Walker (2005); Walker (2000, 2006) derives the phenomenon from identity licensing configurations and resorts to INTEGRITY.

- INTEGRITY: No element of the *input* has multiple correspondents in the output. (Walker 2006, upon McCarthy&Prince 1995: "No element of S_1 has multiple correspondents in S_2.")

b. But in our case RTR is not present in the input. Our proposal:

- O-CONTIGUITY: "The portion of S_2 standing in correspondence forms a contiguous string." (McCarthy&Prince 1995)

(31) *Multiple correspondence under long-distance licensing*: (Walker 2006)

Input: /tɾébol+es/ Outputs: a. [tɾéβɔlɛ] b. [tɾé βo lɛ]

(32) *Key rankings*:

- Affected penult σ̆: ... LICENSE(RTR, σ́), **O-CONTIGUITY** >> *V/RTR ...
- Unaffected penult σ̆: ... LICENSE(RTR, σ́) >> *V/RTR >> **O-CONTIGUITY** ...

(33)

/tɾébol+es/	R-ANCH	LIC(sib)	LIC(spr.gl.)	MAX(s/h)	LIC(RTR, σ́)	O-CONT	*V/RTR
a. tɾéβolɛ				*(sib)		*!	**
☞b. tɾéβɔlɛ				*(sib)			***
c. tréβoles		*!	*				
d. tréβole	*!			*(L) *(sib)			
e. tréβolɛ				*(sib)	*!		*
f. tɾéβɔle	*!			*(sib)			**

(34)

/trébol+es/	R-ANCH	LIC(sib)	LIC(spr.gl.)	MAX(s/h)	LIC(RTR, σ́)	*V/RTR	O-CONT
☞a. tréβolɛ				*(sib)		**	*
b. tréβɔlɛ				*(sib)		***!	
c. tréβoles		*!	*				
d. tréβole	*!			*(L) *(sib)			
e. tréβolɛ				*(sib)	*!	*	
f. tréβɔle	*!			*(sib)		**	

(35) cómetelos /kóme te lo+s/ 'eat them (for you)!'

- Affected penult σ̆: [kɔ́mɛtelɔ] (*[kɔ́mɛtelɔ], *[kɔ́metɛlɔ])
- Unaffected penult σ̆: [kɔ́metelɔ] (*[kɔ́mɛtelɔ], *[kɔ́metɛlɔ])

6. BEYOND THE STRESSED SYLLABLE: LICENSING OR LAZINESS?

(36) ***On pre-tonic syllables***: /moménto+s/: [mɔmέntɔ]~[momέntɔ] 'instants'

Up to the initial syllable, the maximal-extension pattern:

a. Under perceptual markedness: LICENSE(RTR, V): For any instance of RTR, every member of that feature's chain must be associated with RTR (upon Walker 2006).

> [SPREAD in Walker (2005: 953-954): "the spreading constraint seeks to take full advantage of the vocalic positions in the word by requiring affiliation with all of them rather than with a particular site of prosodic strength (Kaun 1995, among others)."]

b. Under articulatory markedness: e.g., LAZY: Minimize effort (Kirchner 1998), or No-Disagreement (Smolensky 1993, Pulleyblank 2002).

> [LICENSE/SPREAD in Downing (2006).]

(37) a. monederos /monedέro+s/ 'purses'

- Stress-targeted pattern: [moneðέrɔ]
- Maximal-extension pattern: [mɔnεðέrɔ] (*[mɔneðέrɔ], *[monεðέrɔ])

b. cojines /kohín+es/ 'pillows'; cotillones /kotiʒón+es/

- Stress-targeted pattern: [kohínɛ]; [kotiʒónɛ]
- Maximal-extension pattern: [kɔhínɛ]; [kɔtiʒónɛ] **(Licensing!)**

(38) *Key rankings*:

- Affected initial σ̆: ... LICENSE(RTR, σ́), **LICENSE(RTR,V)** >> *V/RTR ...
- Unaffected initial σ̆: ... LICENSE(RTR, σ́) >> *V/RTR >> **LICENSE(RTR, V)** ...

(LICENSE(RTR, σ́) >> LICENSE(RTR, V) may be universal due to contingent relation)

(39)

/moménto+s/	R-ANCH	LIC(sib)	LIC(spr.gl.)	MAX(s/h)	LIC (RTR, σ́)	LIC (RTR,V)	*V/ RTR
a. moménto				*(Pl) *(sib)		*!	**
☞b. moménto				*(Pl) *(sib)			***
c. moménto	*!			*(L) *(Pl) *(sib)			
d. moménto				*(Pl) *(sib)	*!	**	*
e. moménto	*!			*(Pl) *(sib)		*	**
f. moménto	*!			*(Pl) *(sib)		**	*

(40)

/moménto+s/	R-ANCH	LIC(sib)	LIC(spr.gl.)	MAX(s/h)	LIC (RTR, σ́)	*V/ RTR	LIC (RTR,V)
☞a. moménto				*(Pl) *(sib)		**	*
b. moménto				*(Pl) *(sib)		***!	
c. moménto	*!			*(L) *(Pl) *(sib)			
d. moménto				*(Pl) *(sib)	*!	*	**
e. moménto	*!			*(Pl) *(sib)		**	*
f. moménto	*!			*(Pl) *(sib)		*	**

(41) O-CONTIGUITY and LICENSE(RTR, V) are not instances of a unique constraint (i.e. SPREAD): When O-CONTIGUITY is violated, LICENSE(RTR, V) is violated as well, but not the other way around.

- Maximal-extension pattern (42a): All vowels harmonize (stressed and stressless, pre-tonic and post-tonic, word-initial and word-final). Only need to resort to LICENSE(RTR, V) >> *V/RTR (= maximal span; SPREAD will do the same job).
- No full harmony in 4-σ proparoxytone words, only two attested possibilities: Non-maximal non-gapped domain (42b); Non-maximal gapped domain (42c).

(42) Ex.: **recógelos** /ɾekóhe lo+s/: (a) [ɾɛkɔ́hɛlɔ] ~ (b) [rekɔ́hɛlɔ] ~ (c) [rekɔ́helɔ]
'pick them' (d) *[ɾɛkɔ́helɔ]

		O-CONT	LIC(RTR,V)	
(a)	ɛ ɔ́ ɛ ɔ	√	√	LIC(RTR, σ́), **LIC(RTR,V)** >> *V/RTR, **O-CONT** = LIC(RTR, σ́), **LIC(RTR,V), O-CONT** >> *V/RTR
(b)	e ɔ́ ɛ ɔ	√	*	LIC(RTR, σ́), **O-CONT** >> *V/RTR >> **LIC(RTR,V)**
(c)	e ɔ́ e ɔ	*	*	LIC(RTR, σ́) >> *V/RTR >> **O-CONT, LIC(RTR,V)**
(d)	ɛ ɔ́ e ɔ	*	*	*Non-attested* (impossible winner under our account!) ☺ ☺

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