

Overshoot in Positional Licensing

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1 A Problem, A Solution, and its Consequences

- Tudanca Montañés (Hualde 1989, Penny 1978): final high vowels centralize (shown with capitalization) and trigger harmony up to and including the stressed vowel:

- (1) a. pÍntU ‘male calf’ pÍnta ‘female calf’
sekÁIU ‘to dry him’ sekálo ‘to dry it’ (mass)
- b. kÁrAbU ‘tawny owl’
orÉgAnU ‘oregano’
antigwÍsmU ‘very old’

- Positional Licensing (PL; Walker 2011, among many others):

- (2) LICENSE(λ, π): assign one violation mark for each element λ that does not coincide with some position π .

- For Tudanca: LICENSE($[-ATR], \acute{\sigma}$) (assuming centralization = $[-ATR]$ (Hualde 1989))

(3)

/oréganu/	LICENSE($[-ATR], \acute{\sigma}$)	IDENT(ATR)
a. oréganU	*!	*
☞ b. orÉgAnU		***
c. OrÉgAnU		****!

- Kaplan (to appear): (2) is pathological in Harmonic Grammar (HG; e.g. Legendre et al. 1990).

- Harmony incurs potentially many IDENT violations which can gang up on LICENSE:

(4) a.

/píntu/	LICENSE($[-ATR], \acute{\sigma}$)	IDENT(ATR)	H
a. pÍntU	-1	-1	-5
☞ b. pÍntU		-2	-4

b.

/oréganu/	LICENSE($[-ATR], \acute{\sigma}$)	IDENT(ATR)	H
☞ a. oréganU	-1	-1	-5
☞ b. orÉgAnU		-3	-6

- The new formalism developed in Kaplan (to appear): Positive Gradient PL (PG-PL):

- (5) LICENSE(λ, π): assign +1 for each λ that coincides with some π . For each λ that coincides with some π , assign +1 for each additional position that λ coincides with.

- The pathology is gone:

(6)

/oréganu/	LICENSE($[-ATR], \acute{\sigma}$)	IDENT(ATR)	H
a. oréganU		-1	-2
☞ b. orÉgAnU	+3	-3	3

- But by rewarding harmony outside the licenser, (5) motivates “overshoot”:

(7)

/oréganu/	LICENSE($[-ATR], \acute{\sigma}$)	IDENT(ATR)	H
☞ a. orÉgAnU	+3	-3	3
☞ b. OrÉgAnU	+4	-4	4

- How should we prevent overshoot? Two options:

1. Define PL so that harmony beyond the licenser is not rewarded.
2. Use other constraints to block overshoot.

- My argument: PG-PL’s overshoot is advantageous, and therefore option 2 is best; PL itself shouldn’t discourage overshoot.

- Certain PL systems show overshoot under the right conditions: Tudanca Montañés, Eastern Andalusian

2 Two Sources of Centralization in Tudanca Montañés

2.1 Final Vowel Centralization

- Final high vowels centralize and trigger harmony up to the stressed syllable (1).
- IDENT(ATR)-pretonic (Canalis 2007, Kaplan 2015, Maiden 1995, Walker 2011) blocks overshoot:

(8)

/oréganu/	LICENSE($[-ATR]$, \acute{o}) ₄	IDENT(ATR) ₃	IDENT(ATR)-pretonic ₂	H
☞ a. orÉgAnU	+3	-3		3
b. OrÉgAnU	+4	-4	-1	2

⇒ Faithfulness gangs up on LICENSE in the pretonic domain.

- Alternatives to IDENT(ATR)-pretonic: $*[-ATR]$, CRISPEGE (Ito & Mester 1999, Kawahara 2008, Walker 2001, 2011)

2.2 Labial-Induced Centralization

- Pretonic mid vowels centralize when adjacent to a labial:

(9)

mEñíka	‘pinky’
gwEbéra	‘egg-basket’
bOnúka	‘weasel’
mOrθíya	‘blood-sausage’

- Other vowels normally do not centralize in this context:

(10)

piyíhkos	‘pinches’
píntáa	‘painted’ (fem)
buhános	‘worms’
púntáa	‘stitch’
pasár	‘to pass’
mařános	‘pigs’

(11)

a.	/bonúka/	*LAB-[+ATR] ₄ mid	IDENT(ATR) ₃	*LAB-[+ATR] ₂ v	H
	a. bonúka	-1		-1	-6
☞	b. bOnúka		-1		-3

b.	/pínta/	*LAB-[+ATR] ₄ mid	IDENT(ATR) ₃	*LAB-[+ATR] ₂ v	H
☞	a. pínta			-1	-2
	b. pÍnta		-1		-3

⇒ IDENT suppresses *LAB-[+ATR]_v.

2.3 When the Two Sources Converge

- However, non-mid vowels undergo labial-induced centralization *just when final-vowel centralization/harmony also occurs*:

(12)

piYíhku	‘pinch’
ehpInÁθU	‘spinal cord’
mUríyU	‘stone’
bUhÁnU	‘worm’
mArÁnU	‘pig’
tAmbÚhU	‘short and fat person’

- The pretonic vowels centralize because (i) they are labial-adjacent, and (ii) licensing-driven harmony also occurs.

- This is the overshoot predicted by positive Positional Licensing.

- (12) is produced by combining (8) and (11):

(13)

pretonic harmony + non-mid labial centralization

/ehpináθu/	*LAB-[+ATR] ₄ mid	LIC ₄	Id(ATR) ₃	Id(ATR)-pre ₂	*LAB-[+ATR] ₂ v	H
a. ehpináθU			-1		-1	-5
b. ehpinÁθU		+2	-2		-1	0
☞ c. ehpinÁθU		+3	-3	-1		1
d. EhpInÁθU		+4	-4	-2		0

no non-mid labial centralization
no pretonic harmony

- Because the summed weights of LICENSE and *LAB-[+ATR]_v exceed Faithfulness, when centralization satisfies both of them, it is motivated.

- The previous results still obtain. On their own, neither LICENSE nor *LAB-[+ATR]_v can overcome Faithfulness.

- PG-PL's encouragement of overshoot is crucial:

(14)

/ehpináθu/	*LAB- [+ATR] ₄ mid	LIC 4	ID(ATR) 3	ID(ATR)-pre 2	*LAB- [+ATR] _V	H
(☞) a. ehpinÁθU		+2	-3	-1		-3
☛ b. ehpinÁθU		+2	-2		-1	0

- Summary:

- Tudanca Montañés exhibits the overshoot that PG-PL predicts.
- PG-PL provides a simple analysis; where necessary, overshoot is blocked by other constraints.

3 Harmony in Eastern Andalusian

3.1 s-Aspiration, Laxing, and Harmony

- Vowel harmony in Eastern Andalusian (Jiménez & Lloret 2007, Lloret & Jiménez 2009) provides similar evidence for overshoot-inducing PL.
- s-Aspiration: Word-final (more generally, coda) /s/ deletes, triggering laxing of now-word-final vowel:

(15)

<i>mes</i>	mɛ	‘month’
<i>tos</i>	tɔ	‘cough’

- This triggers harmony on the stressed vowel:

(16)

<i>monos</i>	mónɔ	‘monkeys’
<i>tesis</i>	tɛsɪ	‘thisis’
<i>lejos</i>	léhɔ	‘far’

- Two optional extensions of this harmony:

(17) *Post-tonic vowels optionally harmonize:*

<i>treboles</i>	tréβole ~ tréβole	‘clovers’
<i>cómetelos</i>	kómetelɔ ~ kómetelɔ	‘eat them (for you)!’
	*kómetelɔ, *kómetelɔ	

⇒ If one post-tonic vowel harmonizes, they all do.

(18) *Pretonic vowels optionally harmonize:*

<i>momentos</i>	moméntɔ ~ moméntɔ	‘instants’
<i>reloj</i>	relɔ ~ relɔ	‘watch’
<i>relojes</i>	relóhe ~ relóhe	‘watches’
<i>monederos</i>	moneðéɾɔ ~ moneðéɾɔ	‘purses’
	*moneðéɾɔ, *moneðéɾɔ	
<i>cojines</i>	kohíne ~ kohíne	‘pillows’
<i>cotillones</i>	kotizóne ~ kotizóne	‘cotillions’
<i>recógelos</i>	rekóhelɔ ~ rekóhelɔ ~ rekóhelɔ	‘pick them’
	*rekóhelɔ	

⇒ Like post-tonic vowels, pretonic vowel harmonize as a group.

⇒ Pretonic harmony requires post-tonic harmony.

- Not analyzed here: high Vs lax word-finally but do not harmonize: *crisis* krísɪ ‘crisis’

3.2 Analysis

- Optionality in HG = variation in constraint weights (Hayes 2017, Jesney 2007)
- The full range of patterns emerges with PG-PL, IDENT(ATR), and IDENT(ATR)-pretonic simply by changing LICENSE's weight:

(19) *Variable Post-tonic Harmony*

a.

/kómetelos/	LICENSE([−ATR], ó) 4	IDENT(ATR) 3	H
a. kómetelɔ		-1	-3
b. kómetelɔ	+2	-2	2
(☞) c. kómetelɔ	+4	-4	4
d. kómetelɔ	+3	-3	3

$w(\text{LICENSE}) > w(\text{IDENT})$

b.

/kómetelos/	LICENSE([−ATR], ó) 2	IDENT(ATR) 3	H
a. kómetelɔ		-1	-3
(☞) b. kómetelɔ	+2	-2	-2
c. kómetelɔ	+4	-4	-4
d. kómetelɔ	+3	-3	-3

$2w(\text{LICENSE}) > w(\text{IDENT}) > w(\text{LICENSE})$

- Coordination among post-tonic vowels is predicted: candidate (d) is collectively harmonically bounded by (b) and (c).

(20) *Variable Pretonic Harmony*

a.

/monedéros/	LICENSE($[-ATR]$, \acute{o}) ₆	IDENT(ATR) ₃	IDENT(ATR)-pre ₂	<i>H</i>
a. moneðérɔ		-1		-3
☞ b. mɔneðérɔ	+4	-4	-2	8
c. moneðérɔ	+2	-2		6
d. mɔneðérɔ	+3	-3	-1	7

$$w(\text{LICENSE}) > w(\text{IDENT}) + w(\text{IDENT-pretonic})$$

b.

/monedéros/	LICENSE($[-ATR]$, \acute{o}) ₄	IDENT(ATR) ₃	IDENT(ATR)-pre ₂	<i>H</i>
a. moneðérɔ		-1		-3
b. mɔneðérɔ	+4	-4	-2	0
☞ c. moneðérɔ	+2	-2		2
d. mɔneðérɔ	+3	-3	-1	1

$$2w(\text{LICENSE}) > w(\text{IDENT})$$

$$w(\text{IDENT}) + w(\text{IDENT-pretonic}) > w(\text{LICENSE})$$

- Coordination among pretonic vowels is predicted: candidate (d) is collectively harmonically bounded by (b) and (c).
- Pretonic harmony entails post-tonic harmony:
 - If $w(\text{LICENSE}) > w(\text{IDENT}) + w(\text{IDENT-pretonic})$, then $w(\text{LICENSE}) > w(\text{IDENT})$

(21) Factorial Typology (OT-Help; Staubs et al. 2010): 4 languages:

- Harmony only on stressed vowel (Eastern Adalusian)
- Harmony on stressed vowel and all post-tonic vowels (Eastern Adalusian)
- Harmony everywhere (Eastern Adalusian)
- No Harmony

- The No Harmony language emerges when it is not the case that $2w(\text{LICENSE}) > w(\text{IDENT})$ (from (19b) and (20b)). Therefore, this is the only condition Eastern Adalusian imposes on these constraints.

3.3 Summary

- Without overshoot from PG-PL, the analysis cannot produce pretonic harmony.
- Walker (2011): an OT-based analysis using traditional PL (very much like the one presented here). Since traditional PL doesn't trigger overshoot, the analysis requires a second PL constraint ("Maximal Licensing") specifically designed to trigger harmony everywhere.

4 Conclusion

- PG-PL makes an analysis of Tudanca Montañés available, and it offers a simple account of Eastern Andalusian.
- The proper way to prevent overshoot is by suppressing it with other constraints, not defining PL so that it cannot trigger it.
- PG-PL combines both traditional PL and Walker's Maximal Licensing—no need for two different formalisms.

References

- Canalis, Stefano (2007) Total Vowel Harmony in Two Romance Dialects. Handout from talk presented at Phonetics and Phonology in Iberia, Universidade do Minho, Braga, June 25–26.
- Hayes, Bruce (2017) Varieties of Noisy HG. In *Proceedings of AMP 2016*, Karen Jesney, Charlie O'Hara, Caitlin Smith, & Rachel Walker, eds.
- Hualde, José Ignacio (1989) Autosegmental and Metrical Spreading in the Vowel-Harmony Systems of Northwestern Spain. *Linguistics* **27**: 773–805.
- Ito, Junko & Armin Mester (1999) Realignment. In *The Prosody-Morphology Interface*, René Kager, Harry van der Hulst, & Wim Zonneveld, eds., 188–217, Cambridge, U.K.: Cambridge University Press.
- Jesney, Karen (2007) The Locus of Variation in Weighted Constraint Grammars. Poster presented at the Workshop on Variation, Gradience and Frequency in Phonology. Stanford, CA: Stanford University. July 2007.
- Jiménez, Jesús & Maria-Rosa Lloret (2007) Andalusian Vowel Harmony: Weak Triggers and Perceptibility. paper presented at the 4th Old World Conference in Phonology, Workshop on Harmony in the Languages of the Mediterranean, Rhodes, January 18–21, 2007.
- Kaplan, Aaron (2015) Maximal Prominence and a Theory of Possible Licensors. *NLLT* **33**: 1235–1270.
- Kaplan, Aaron (to appear) Positional Licensing, Asymmetric Trade-Offs, and Gradient Constraints in Harmonic Grammar. *Phonology*.
- Kawahara, Shigeto (2008) On the Proper Treatment of Non-Crisp Edges. In *Japanese/Korean Linguistics*, Mutsuko Endo Hudson, Peter Sells, & Sun-Ah Jun, eds., vol. 13, 55–67, Stanford: CSLI Publications.

- Legendre, Géraldine, Yoshiro Miyata, & Paul Smolensky (1990) Harmonic Grammar – A Formal Multi-Level Connectionist Theory of Linguistic Well-Formedness: An Application. In *Proceedings of the Twelfth Annual Conference of the Cognitive Science Society*, 884–891, Cambridge, MA: Lawrence Erlbaum.
- Lloret, Maria-Rosa & Jesús Jiménez (2009) Un Análisis *Óptimo* de la Armonía Vocálica del Andaluz. *Verba* **36**: 293–325.
- Maiden, Martin (1995) Evidence from the Italian Dialects for the Internal Structure of Prosodic Domains. In *Linguistic Theory in the Romance Languages*, John Charles Smith & Martin Maiden, eds., 115–131, Amsterdam: John Benjamins.
- Penny, Ralph (1978) *Estudio Estructural del Habla de Tudanca*. Beihefte zur Zeitschrift für romanische Philologie 167, Tübingen: Niemeyer.
- Staubs, Robert, Michael Becker, Christopher Potts, Patrick Pratt, John J. McCarthy, & Joe Pater (2010) OT-Help 2.0. Software package. Amherst, MA: University of Massachusetts Amherst.
- Walker, Rachel (2001) Round Licensing, Harmony, and Bisyllabic Triggers in Altaic. *NLLT* **19**: 827–878.
- Walker, Rachel (2011) *Vowel Patterns in Language*. New York: Cambridge University Press.