

The prosodic word – weak or strong? Evidence from Spanish

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State of Play

Aspiration

Spanish presents opaque and transparent aspiration of coda /s/ across dialects

Aspiration is a cover term for debuccalisation to /h/

Usually inside words and at word edges, by extension: prefix edges

Lenition

Aspiration analysed as spontaneous or effort-driven lenition

Systemic changes: non-existent sound is added to the inventory, another sound vanishes

By extension: /s/ weakening, a series of strategies, marked structure, conspiracy: weak sound weak position

/s/ weakens to /h/ in preconsonantal contexts (via autosegmental bleaching of supralaryngeal features) [...]; (at) the second stage, syllable-final /s/-reduction extends to all syllable-final contexts, including phrase-final [...] while retaining word-final prevocalic /s/. [...] the extension to include word-final prevocalic /s/ occurs in the phonologically most advanced dialects (Lipski 1999:198)

Dialects considered:

- Mexico, Madrid (no aspiration): e.g. Harris (1983)
- Argentinian (no opacity): e.g. Lipski (1996)
- Granada (opacity): Kenstowicz (1996), Colina (1997)
- Chilean (with deletion): Lipski (1996), Broś (2012)

Varying patterns

1

esto [es.to] 'this'

pesca [pes.ka] 'fishing'

despertar [des.per.tar] 'to wake'

deshecho [de.se.tfo] 'undone'

3

esto [eh.to] 'this'

pesca [peh.ka] 'fishing'

despertar [deh.per.tar] 'to wake'

deshecho [de.he.tfo] 'undone'

2

esto [eh.to] 'this'

pesca [peh.ka] 'fishing'

despertar [des.per.tar] 'to wake'

deshecho [de.se.tfo] 'undone'

4

esto [eh.to] 'this'

pesca [peh.ka] 'fishing'

despertar [deh.per.tar] 'to wake'

deshecho [de.se.tfo] 'undone'

Edges

Non-opaque mappings

estas [eh.tah] 'these'

estas mesas [eh.tah.me.sah] 'these tables'

estas aguas [eh.ta.sa.ɣwah] 'these waters'

Opaque mappings

Granada

estos [eh.toh]

estas mesas [eh.tah.me.sah]

estas aguas [eh.ta.ha.ɣwah]

Chilean

[eh.to]

[eh.ta.me.sa]

[eh.ta.ha.ɣwa]

Opacity + prefixes

(1)

Granada

estos 'these' [eh.toh]

pesca 'fishing' [peh.ka]

despertar 'to wake' [deh.per.tar]

deshecho 'undone' [de.he.tfo]

(2)

Chilean

[eh.to]

[peh.ka]

[deh.per.tar]

[de.se.tfo]

same / different

- 1 **Granada**
estas aguas [eh.ta.ha.ɣwah]
deshecho [de.he.tʃo]
- 2 **Chilean**
estas aguas [eh.ta.ha.ɣwa]
deshecho [de.se.tʃo]

Observations

Status of the affix

Weak or strong?

Grammar must account for both types of mappings

Granada: affix no different than word edge

Chile: affix strong: inhibits radical changes

Answer

Contiguity

Prefix-stem boundary protected

Weak coda but not so weak...

once again: *estas mesas* [eh.ta.me.sa] vs. *despertar* [deh.per.tar]

Rule-based account

'times'	'one time is too much'	'once I ate'	processes
be.ses	una+bes+es+demasjado	una+bes+komi	Underlying form
be.ses	u.na.βes.es.ðe.ma.sja.ðo	u.na.βes.ko.mi	Syllabification
be.seh	u.na.βeh.eh.ðe.ma.sja.ðo	u.na.βeh.ko.mi	Aspiration
be.seh	u.na.βe.heh.ðe.ma.sja.ðo	u.na.βeh.ko.mi	Resyllabification
be.se	u.na.βe.he.ðe.ma.sja.ðo	u.na.βe.ko.m	Deletion (in Chilean)

Order of events

- 2 distinct repair strategies to satisfy the coda condition
- overlap of aspiration and deletion leads to opacity
- aspiration only in word-medial position and in opaque cases across a word-boundary
- /s/ is lost completely at word edges before a pause or a consonant
- no (expected) opacity in prefix-stem contexts

Questions

Is the prefix syllabified together with the stem as a single PW?

Is /s/ originally in the onset?

(Does not explain Granada-Chile discrepancy, or non-aspirating prefix only)

Status of the prefix

- Spanish prefixes considered to be separate prosodic words or 'domains' (Wiltshire 1999, Face 2002, Shepherd 2003)
- underlying form debatable: /des/ never appears on the surface in certain dialects [des] in non-aspirating; either [des] or [deh] in aspirating dialects
- striking similarity in the behaviour of prefixes and phonological words: *deshecho* [de.he.tʃo] 'undone' *las ocho* [la.ho.tʃo] 'eight o'clock' (Granada)
the same syllabification and debuccalisation, suggesting a single driver
- the prefix cannot resyllabify with the stem until debuccalisation (motivationwise)

Status of the prefix

So: resyllabification = post-lexical — prefix = special status
— prefix = different grammatical category

But: the prefix behaves as any other affix in other dialects

It does not enter the phrase-level category

No change in the final /s/

No uniform analysis

Contiguity

Segments adjacent in the input should be adjacent in the output. (Kenstowicz 1994)

introduced as a constraint banning non-edge deletion and insertion in reduplicative languages
input-output correspondence, morpheme contiguity

In Spanish: bans /s/ elision in word-medial contexts

esto [eh.to] 'this' versus *es que* [e.ke] 'that is'
e-epenthesis to break illicit sC clusters: *estrategia* [es.tra.te.xja] 'strategy' or *eslavo* [es.la.βo] 'Slav'; helps create an additional syllable; non-optimal strategy (*[se.tra.te.xja])

CONTIG active:

higher status and strength of morpheme-internal positions as opposed to the weaker edges (Trubetzkoy 1939)

Constraints

- MAX(Seg): Every segment of the input has a correspondent in the output.
- *s]CODA: /s/ is banned from the coda.
- IDENT(Pl): The place features of the input must be preserved in the output.
- ONSET: Syllables must have onsets.
- ALIGN-L(Stem,syll): The left edge of the stem must coincide with the left edge of the syllable.

Double repair

word mapping

/escondidos/	*s]CODA	CONTIG	IDENT(PI)	MAX(Seg)
☞ a. eh.kon.ði.ðo			*	*
b. e.kon.ði.ðo		*!		**
c. eh.kon.ði.ðoh			**!	
d. es.kon.ði.ðos	**!			

phrase mapping

/una+bes+komi/	*s]CODA	CONTIG	IDENT(PI)	MAX(Seg)
a. u.na.βeh.ko.mi			*!	
b. u.na.βes.ko.mi	*!			
☞ c. u.na.βe.ko.mi				*

Comment

CONTIG is mute

it does not protect the edges of constituents in any way

Resyllabification does not apply

the onset position of the following word is already filled

But before a vowel: aspiration overapplies

resyllabification as alignment

ONSET ranked higher

Prefixed words behave like single morphemes

no aspiration applies across a prefix boundary before a vowel
cannot be analysed as sequences of words where aspiration applies
BUT: the ban on coda /s/ remains active in that prefix-final
fricatives are aspirated before a consonant, but not deleted as in
una vez comí

the data suggest that prefixes do not behave like separate prosodic
words or 'special domains'

Stratal OT: word level renders aspirated s ([h])

it cannot be protected from deletion
pre-vowel cases of prefixation solved by syllabification at word level
pre-consonantal cases escape this solution

pre-vowel prefix: desecho 'undone'

/des + etfo/	ONSET	CONTIG	*s]CODA	ALIGN-L	MAX(SEG)	IDENT(PL)	*h
a. de .s e.tfo				*			
b. de.h e.tfo				*		*!	*
c. des. e.tfo	*!		*				
d. deh. e.tfo	*!					*	*
e. de. e.tfo	*!				*		

pre-consonantal prefix: descalzar 'unshoe'

/deh + kal.sar/	ONSET	SSG	*s]CODA	ALIGN-L	IDENT(PL)	*h	MAX(SEG)
a. de h.kal.sar					*	*	
b. de.hkal.sar		*!		*	*	*	
c. des.kal.sar			*!				
d. de.skal.sar		*!		*			
e. de de.kal.sar							*

CONTIG does not protect *descalzar* in this case

morpheme boundary intervenes between the prefix and the stem
 definition does not explicitly mention any morphemic restriction,
 but has been traditionally treated as referring to morphemes
 Chilean case demonstrates that the grammar treats a prefixed word
 as a whole, barring deletion across a prefix boundary as if it were
 one morpheme

prefixed words are treated in an exactly the same way as bare
 stems and suffixed words — they belong to the ‘word’ domain
 elision of the underlying /s/ is possible only at word edges
 inside words, aspiration is the last stage of /s/ weakening

CONTIG must refer to the whole prosodic word

- CONTIG]Pw: No deletion/insertion in the middle of a prosodic word.
Rubach: insertion problems in Macedonian (2011)
- Reference to prosodic structure is not problematic from the Stratal OT perspective
prosodic structure is erected at the first derivational level
phrase level already contains the information concerning prosodic word parsing at the level of the input
- Prosodic word structure is erected in the stem *calzar* 'to shoe'), followed by the PW node after prefixation

Prosodic structure of the word *descalzar*

[des[calzar]PW]PW'

Evaluation of descalzar 'to unshoe' with CONTIG]Pw

/deh + kal.sar/	ONSET	SSG	CONTIG]Pw	*s]CODA	ALIGN-L	IDENT	*h	MAX
a. de deh.kal.sar						*	*	
b. de.hkal.sar		*!			*	*	*	
c. des.kal.sar				*!				
d. de.skal.sar		*!			*			
e. de.kal.sar			*!					*

- the provided constraint ranking is able to account for all the Chilean examples, including prefixed words
- treating prefixes as an integral part of the word is the only viable option
- prefixes added at a different stage of phonology?
whether we add the prefix des- at the very beginning or at the end is irrelevant: it is not the base (stem) that undergoes the change in question but the prefix itself
- prefixed word as a whole is treated as one contiguous string resistant to deletion

Word level evaluation of deshecho 'undone' with aspiration across a prefix boundary

/des + etʃə/	ALIGN-L	ONSET	*s]CODA	MAX(SEG)	IDENT(PL)	*h
a. de.se.tʃə	*!					
b. de.he.tʃə	*!				*	*
c. des.e.tʃə		*	*!			
d. ↻ de.h.e.tʃə		*			*	*
e. de.e.tʃə		*		*!		

Phrase level evaluation of deshecho 'undone' with aspiration across a prefix boundary

/deh.e.tʃə/	ONSET	*s]CODA	ALIGN-L	IDENT(PL)	*h	MAX
a. de.se.tʃə			*	*!		
b. ↻ de.he.tʃə			*		*	
c. des.e.tʃə	*!	*		*		
d. deh.e.tʃə	*!				*	
e. de.e.tʃə	*!					*

Conclusion

- resyllabification does / does not take place at the word level
- prefix-final segment remains attached to the coda position in Granada, but not in Chile
- ALIGN-L ranked above ONSET to ensure alignment or below it to enable resyllabification
- no affix-specific constraints, prefixes are added at the word level and deletion takes place at the phrase level, where syntax comes into place
- resyllabification is either there all along or activated at the phrase level, depending on the dialect
- dialects with no aspiration/deletion interplay constitute an even more straightforward case

Conclusion

- crucial redefinition of contiguity
- a different look at positional strength
 - coda position is weak
 - affixes are weak
 - onsets are strong
 - stems are strong
 - affix+stem is strong as a single constituent (prime node)
- boundaries / edges are meeting points of the different strength categories where opacity effects can be observed (compare word-final and prefix-final overapplication effects)

Thank You!

Stratal OT analysis of the opaque Chilean cases

/una + bes + entre/	ONSET	*s]CODA	ALIGN- L(Stem, σ)	IDENT(PL)	MAX(SEG)
a. $\text{u.na.}\beta\text{e.sen.tj}\epsilon$			*		
b. $\text{u.na.}\beta\text{e.hen.tj}\epsilon$			*	*!	
c. $\text{u.na.}\beta\text{e.en.tj}\epsilon$	*!				*
d. $\text{u.na.}\beta\text{es.en.tj}\epsilon$	*!	*			
e. $\text{u.na.}\beta\text{eh.en.tj}\epsilon$	*!			*	

Solution: Stratal OT

word-level aspiration

phrase-level resyllabification and deletion

Stratal OT account

Word level aspiration: vez /bes/ 'time'

/bes/	*s]CODA	MAX(SEG)	IDENT(PL)
a. bes	*!		
b. ɸ beh			*
c. be		*!	

Phrase level /h/ retention before a vowel in *una vez entré*
 'once I entered'

/u.na + beh + en.tre/	ONSET	*s]CODA	MAX(SEG)	IDENT(PL)
a. u.na.βe.sen.tre				*!
b. ɸ u.na.βe.hen.tre				
c. u.na.βe.en.tre	*!		*	

Stratal OT account

Phrase level deletion before a consonant in *una vez comí* 'once I ate'

/u.na + beh + ko.mi/	ONSET	CONTIG	*s]CODA	IDENT(PL)	*h	MAX(SEG)
a. u.na.βeh.ko.mi					*!	
b. u .na.βe.ko.mi						*

*h ensures the correct evaluation at the phrase level

*s]CODA is crucial at the word level

ranked high: only syllable-final /s/ is affected in non-opaque cases
onset /s/ remains untouched, e.g. *semana* 'week', *quise* 'I wanted'
or *asombroso* 'astonishing'