

Sound change as a function of experimental setting: methodological and theoretical issues

Introduction: modalities and generalisations

Data 1: read and repeated speech. Data 2: spontaneous speech (6 speakers).

Modality 1	Modality 1
/s/ -> [h/H] /_V	<i>prensa[h]idráulicas '</i> hydr
/s/ -> [h] /_k	<i>chocolate[h]con</i> 'chocolat
$/s/ -> [\emptyset] /_d$	<i>pane</i> [Ø] <i>de</i> 'breads from'
$/b d g / -> [b d g] / V(C)_{-}$	<i>pane(s)[d]e 'breads from</i>
/b d g/ -> [B D G] /V_	<i>cinco[D]ulces</i> 'five sweet
/ptk/->[bdg]/V_	<i>cinco[b]anes</i> 'five breads
[B D G] are voiced approximants. [H] is a voiced glottal fri	icative.
[B D G] are voiced approximants. [H] is a voiced glottal fri Modality 2 /s/ -> [h/H]/_V	Modality 2
Modality 2	Modality 2 <i>prensa[H]idráulicas '</i> hyd:
Modality 2 /s/ -> [h/H]/_V	Modality 2 <i>prensa[H]idráulicas '</i> hyd:
Modality 2 /s/ -> [h/H]/_V /s/ -> [Ø] /_C /b d g/ -> [B D G] /V(C)_ /b d g/ -> [B D G] /V_	Modality 2 <i>prensa</i> [H] <i>idráulicas '</i> hyd: <i>chocolate</i> [Ø] <i>con '</i> chocolat <i>pane</i> (s)[D] <i>e '</i> breads from <i>cinco</i> [D] <i>ulces '</i> five sweet
Modality 2 /s/ -> [h/H]/_V /s/ -> [Ø] /_C /b d g/ -> [B D G] /V(C)_	Modality 2 <pre>prensa[H]idráulicas 'hyd: chocolate[Ø]con 'chocolat pane(s)[D]e 'breads from</pre>

Processes and domains of application:

1. Coda weakening (debuccalisation, voicing, elision). In spontaneous speech it also includes other consonants: /d/, /r/, /l/ (variation: optional). 2. Voiced stop weakening (spirantisation). Also applies (variably) after a nondeleted sonorant, and always after a non-deleted /s/ in spontaneous speech. Intervocalically very strong, incl. deletion. => Domain extension 3. Voiceless stop weakening (voicing), which applies both inside words and across word boundaries, but strictly after a vowel. It can be accompanied by approximantisation and occasionally occurs after deletion.





Time (s)

Controlled speech. Left: chocolates con 'chocolate with' presents no /s/ deletion before a voiceless stop and no voicing. Right: croquetas de 'croquettes with' presents deletion before a voiced segment but no spirantisation.



Spontaneous speech. Left: los chiquillos 'the guys' presents deletion before a voiceless sound and no voicing. Right: problemas de la 'problems with/about' presents deletion before a voiced sound and spirantisation.

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lraulic presses' tes with' ets'

draulic press' ates with' ets' lates with'





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- distribution graphs	 The data require a variationic phonologies. Variation is a reflection one system to another. The lifecycle of phonological different processes are gradually explonologised. Across a word bout. New rules alongside old rules.
ts the same across modalities. ed speech, with gender differences.	Grammar 1: AGREECC(voice), IDENT(voice), IDENT
speakers. Pre-/pt k/ deletion rates and /pt k/ voicing in %	/paneh+de/AGREECCa. paneh.de*!b. paneh.De*!ISTc. pane(h).ded. pane(h).De
20 10 1 1 Deletion Voicing unds include all consonants.	/paneh+kon/AGREECCa. paneh.konb. paneh.gonb. paneh.gon*!ISTc. pane(h).kond. pane(h).gon
ework: across a word boundary, deletion	Grammar 2: AGREECC(voice MAX(C), IDENT(voice),
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s constraints responsible for differ- *bdg *V_bdg	Rule generalisation and langu

Data interpretation &	theoretical assumptions	Stratal OT a
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		 one system to another. The lifecycle of phonologic
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40 30 20		 phonologised. Across a word New rules alongside old ru
10 0	10 0	• INEW TUIES alongside old Id
Modality 1 Modality 2	Modality 1 Modality 2	Сс
H	trolled speech, with gender differences.	Grammar 1: AGREECC(void IDENT(voice), IDE
Twofold rise in spirantisation ac	ross speakers.	/paneh+de/ AGREE
Pre-/pt k/ and pre-/bd g/ deletion rates in %	Pre-/pt k/ deletion rates and /pt k/ voicing in %	a. paneh.de *!
		b. paneh.De *! © c. pane(h).de
70 60 50 50	70 60 50 ×	d. pane(h).De
40 30 20		
10 0 1		a. paneh.kon/ AGREE
pre_ptk pre_bdg	Deletion Voicing	b. paneh.gon *!
	1 • 1 1 11	© c. pane(h).kon
 Rates of deletion before voiceles The deletion rate in Modality 2 i 		d. pane(h).gon
Analytical f	ramework:	Grammar 2: AGREECC(vo
	tion across a word boundary, deletion	MAX(C), IDENT(voi
dependent on phrase context.		/paneh+de/ AGREE
a) *s]CODA, MAX(C) » II	DENT(Place) at the word level	a. paneh.de*!b. paneh.De*!
/panes/ *s]COD	A MAX(C) IDENT(Place)	b. paneh.De *! c. pane(h).de
a. panes *!		I d. pane(h).De
Image: www.selectricImage: www.selectricImage: www.selectricc. pane	*	/paneh+kon/ AGREE
c. pune		a. paneh.kon
$\mathbf{b} \mathbf{O} \mathbf{v} \mathbf{c} \mathbf{r} \mathbf{w} \mathbf{c} \mathbf{l} \mathbf{C} \mathbf{O} \mathbf{D} \mathbf{v} \mathbf{v} \mathbf{I} \mathbf{D} \mathbf{r} \mathbf{v} \mathbf{r}$	$(D1 \circ c_{1})$ $M(A \times (C) \circ t_{1} t_{1} \circ c_{2} \circ t_{2} \circ c_{1} \circ c_{2} \circ 1$	b. paneh.gon *!
	(Place), MAX(C) at the phrase level	Image: C. pane(h).kon d pane(h) gop
	B]CODA IDENT(Place) MAX(C)	d. pane(h).gon
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c. pane.sen	*!	
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ent stages of weakening: *ptk, *V_	ptk, [*] bag [*] V_bdg	Rule generalisation and la

ata interpretation &	theoretical assumptions	Stratal OT a
Frequency of occurr	ence – distribution graphs	• The data require a variati
Pre-/b d g/ deletion rates by modality in %	Spirantisation rates by modality in %	 phonologies. Variation is a resolve one system to another. The lifecycle of phonologie different processes are gradual phonologised. Across a word in New rules alongside old rules alongsid
Modality 1 Modality 2	Modality 1 Modality 2	Сс
ccasional spirantisation in con	ments the same across modalities. trolled speech, with gender differences.	Grammar 1: AGREECC(voie IDENT(voice), IDE
vofold rise in spirantisation ac Pre-/pt k/ and pre-/bd g/ deletion rates in %	Pre-/pt k/ deletion rates and /pt k/ voicing in %	/paneh+de/AGREEa. paneh.de*!b. paneh.De*!Imit c. pane(h).de*!d. pane(h).De
1 ■ pre_ptk ■ pre_bdg	s sounds include all consonants.	/paneh+kon/ AGREE a. paneh.kon
ne deletion rate in Modality 2 i Analytical f	is 0%.	
	ation across a word boundary, deletion	Grammar 2: AGREECC(vo MAX(C), IDENT(voi
•	DENT(Place) at the word level	/paneh+de/ AGREE a. paneh.de *!
<pre>/panes/ *s]COD a. panes *! </pre>	DA MAX(C) IDENT(Place) *	b. paneh.De *! c. pane(h).de ☞ d. pane(h).De
c. pane	*	<pre>/paneh+kon/ AGREE a. paneh.kon</pre>
	(Place), MAX(C) at the phrase level	b. paneh.gon *! C. pane(h).kon d. pane(h).gon
<pre>/paneh+en/ ONSET *s</pre>	S]CODA IDENT(Place) MAX(C) * * * *	

3. Turbidity: deleted segments leave a trace/block processes. Positional faithfulness constraints are not violated as the segment is not erased from the phonological representation.

analysis and implications

tionist approach: competition between two coreflection of a change in progress: transition from

gical processes: the domains of application of the ally extended. Spirantisation inside words is now boundary, the transition is not complete. rules. The same trajectory for voicing.

Constraint hierarchy:

oice), *s]CODA, *h » *V_bdg, *V_ptk » MAX(C), ENT(cont), IDENT(Place) » *bdg, *ptk

EECC	*h	*V_bdg	MAX(C)	IDENT(cont)	*bdg
!	*			1 1 1 1	*
!	¦ ⊁			*	
	 		*	- 	*
	<u> </u> 		*	*!	

\sum	*h	*V_ptk	MAX(C)	IDENT(v)	*bdg	*ptk
	*!		 	 		*
	*		 	*	*	
	 		*	1 		*
	1 		*	*!	*	

e), *s]CODA, *h » *V_ptk, *bdg, *V_bdg »	
), IDENT(cont), IDENT(Place) » *ptk	

С	*h	*bdg	*V_bdg	MAX(C)	IDENT(cont)
	*	*			
	*			*	
	 	*1			
	 			*!	-

$\overline{}$	*h	*V_ptk	*bdg	MAX(C)	IDENT(v)	*ptk
	*!				 	*
	*		*		*	
	 			*		*
	- 		*!	*	*	

Conclusions

language change via synchronic observation. Speech modality as a factor in inter- and intra-speaker variation. Linguists should be cautious about data-gathering methodology.