24.914

Language Variation and Change

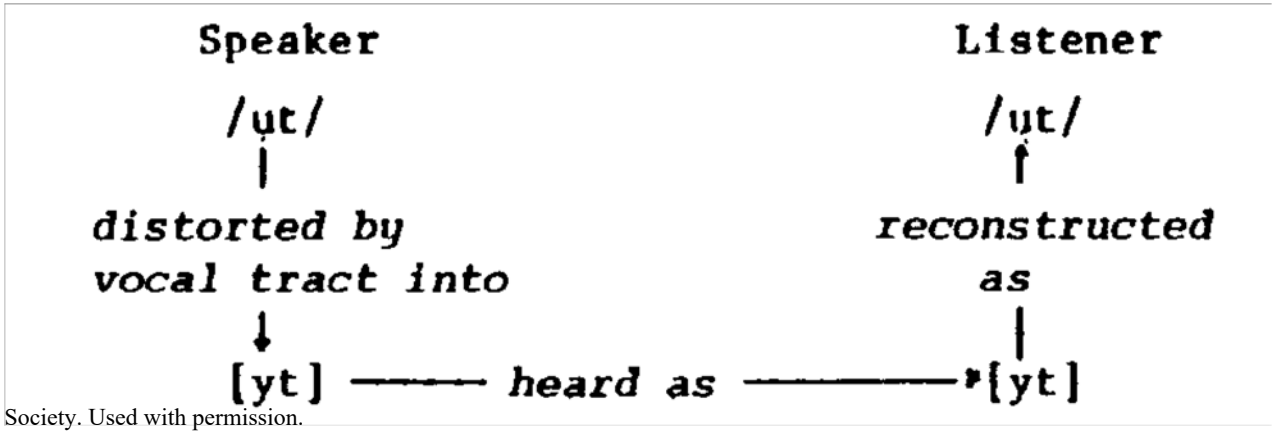
The role of the listener in sound change

Readings and assignments

- Lexical Diffusion short paper due session 13
- Think about/talk to me about a final paper topic
- Read Pierrehumbert (2000) ‘Exemplar dynamics’

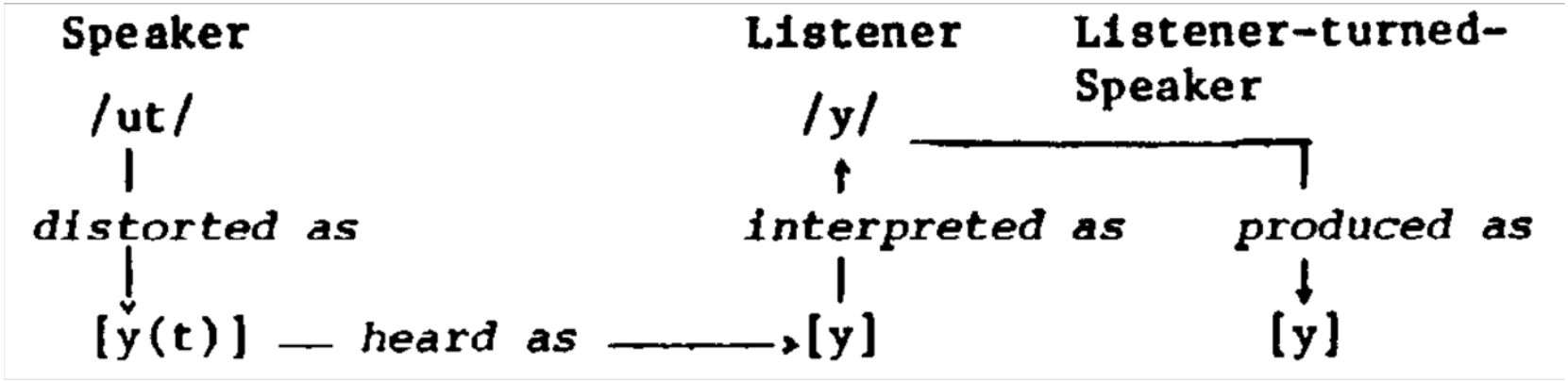
Ohala's model: undoing contextual effects

- Ohala (1981) proposes an account of the origins of sound changes that gives a central role to the listener
- Contextual effects of one segment on another are claimed to be largely mechanical, and unintended by the speaker.
  - Coarticulation, e.g. raising of F2 in back vowels due to an adjacent coronal.
  - Effects of obstruent voicing on f0, etc.
- Listeners factor out these 'distortions' of the speaker's intentions in the process of speech perception.



‘Sound change from failure to apply reconstructive rules’

- Note that Ohala does not claim that context must be lost at the same time – there may be other reasons for the failure to apply reconstructive rules.



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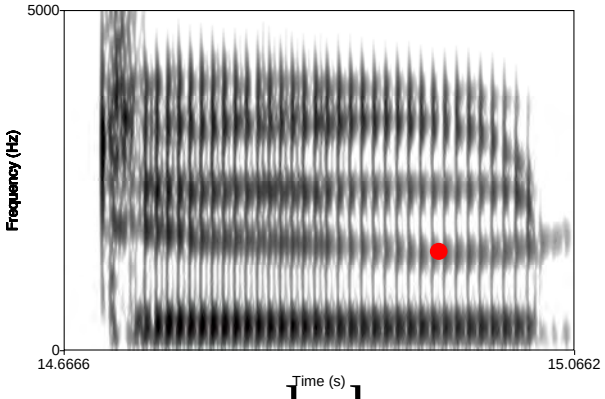
Example: Lhasa Tibetan

	8th Century Tibetan	>	Lhasa Tibetan	
a.	lus		ly:	"body"
	jul		jy:	"country"
	bod		phø:	"Tibet"
	spos		pø:	"incense"
	smn		mɛ̃:	"medicine"
	skad		qɛ̃:	"language"
b.	goŋ		qhõ:	"price"
	gjag		ja:	"yak"
	nub		nu:	"west"

- Other examples:
  - Development of nasalized vowels (above).
  - Tonogenesis/tone split accompanied by loss of stop voicing contrast (e.g. Chinese dialects, Kammu).

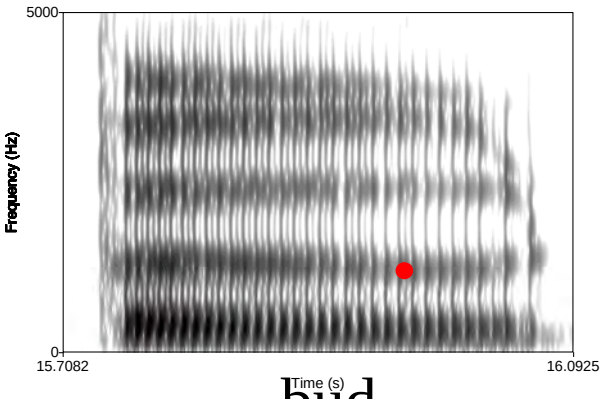
Example: Lhasa Tibetan

- Coronals have coarticulatory fronting effects on adjacent vowels.
- E.g. in English
- Partial assimilation of vowels to the tongue body position of adjacent consonants.
  - The tongue body is generally relatively fronted in anterior coronal stops (alveolar, dental).
  - facilitates positioning the tongue tip at the teeth/alveolar ridge,



dud

‘dude’

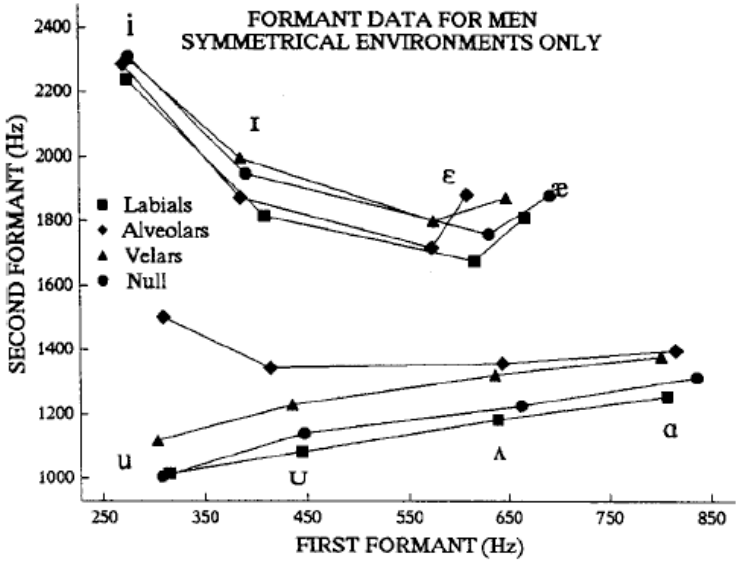


bud

‘booed’

Example: Lhasa Tibetan

- Coronals have coarticulatory fronting effects on adjacent vowels.
- E.g. in English



Hillenbrand, Clark & Nearey 2001

Example: tonogenesis in Kammu

Gloss	E. Kammu	W. Kammu Tone 1	W. Kammu Tone 2	W. Kammu Register
'rice wine'	bu:c	pù:c	p^{h}ù:c	pṳ:c
'to take off clothes'	pu:c	pû:c	pú:c	pû:c
'to cut down a tree'	bok	pòk	p^{h}òk	po̤k
'to take a bite'	pok	pók	pók	pók
'to chew'	bu:m	pù:m	p^{h}ù:m	pṳ:m
'to fart'	pu:m	pû:m	pú:m	pû:m
'stone'	gla:ŋ	klà:ŋ	k^{h}là:ŋ	kla̤:ŋ
'eagle'	kla:ŋ	klâ:ŋ	klá:ŋ	klâ:ŋ
'to weigh'	ɟaŋ	càŋ	c^{h}àŋ	ca̤ŋ
'astringent'	caŋ	câŋ	cáŋ	câŋ

- Data from Suwilai (2003) via Kingston (2011).
- [8] NB laryngeal contrast is retained in W. Kammu dialect 2.

F_0 and stop voicing

Ohde (1984)

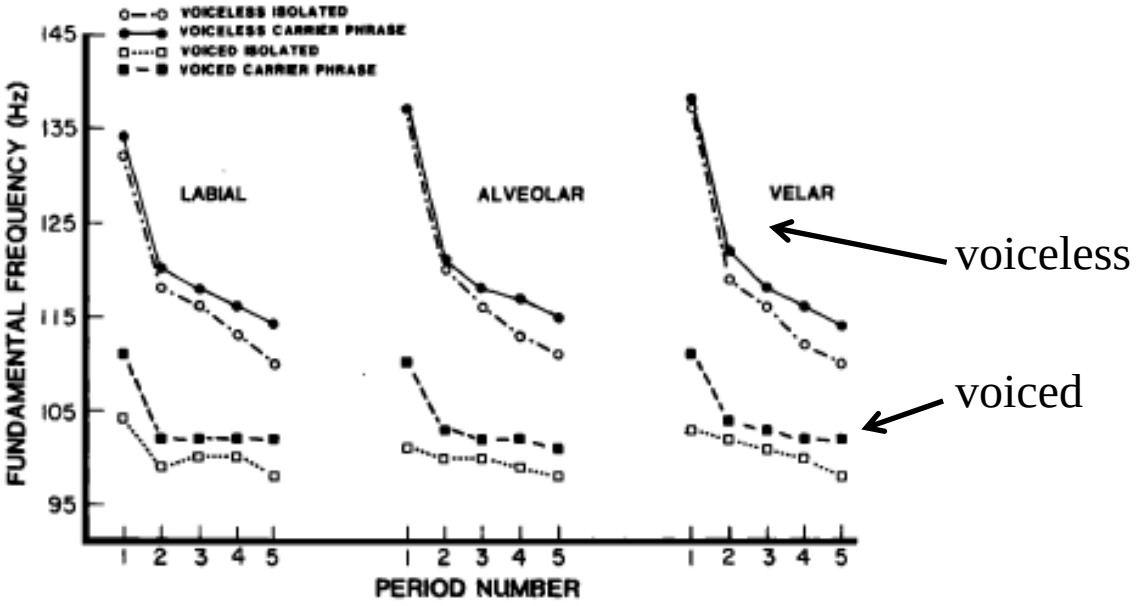
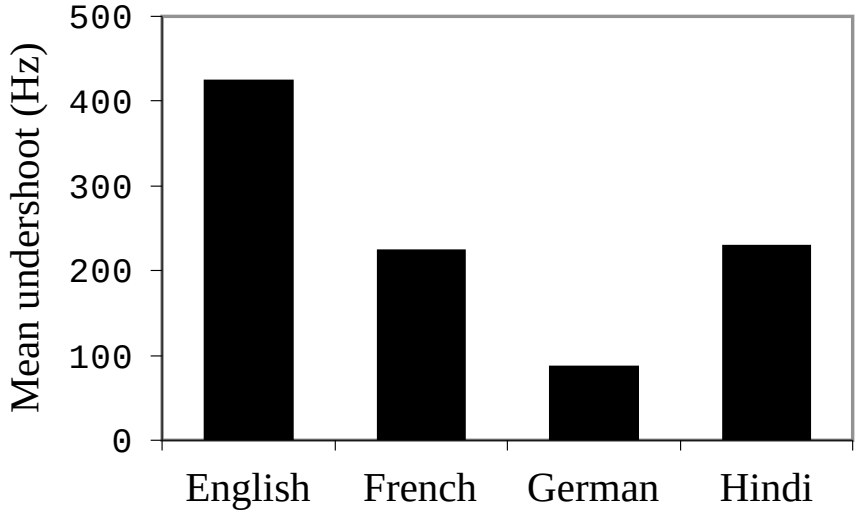


FIG. 2. Average *F*0 from voicing onset to the fifth glottal period for voiceless aspirated and voiced stops as a function of linguistic context and place of articulation.

- F_0 is higher after voiceless obstruents than after voiced obstruents (other things being equal)

Automaticity of coarticulation?

- The magnitude of coarticulatory fronting of vowels due to coronals is language-specific (Flemming 2001, 2008).
  - Undershoot = difference in F2 of [u] in a neutral context, e.g [hu] and in a context between anterior coronal stops [tut].



- How does it change Ohala's picture if coarticulation is intentional, and derives from the grammar of a language?

Perceptually-based change without loss of context: Velar palatalization

- Palatalization of velars to palato-alveolar affricates is a common sound change.
- It is not obviously assimilatory – C changes from dorsal to coronal under the influence of a dorsal (front) vowel.

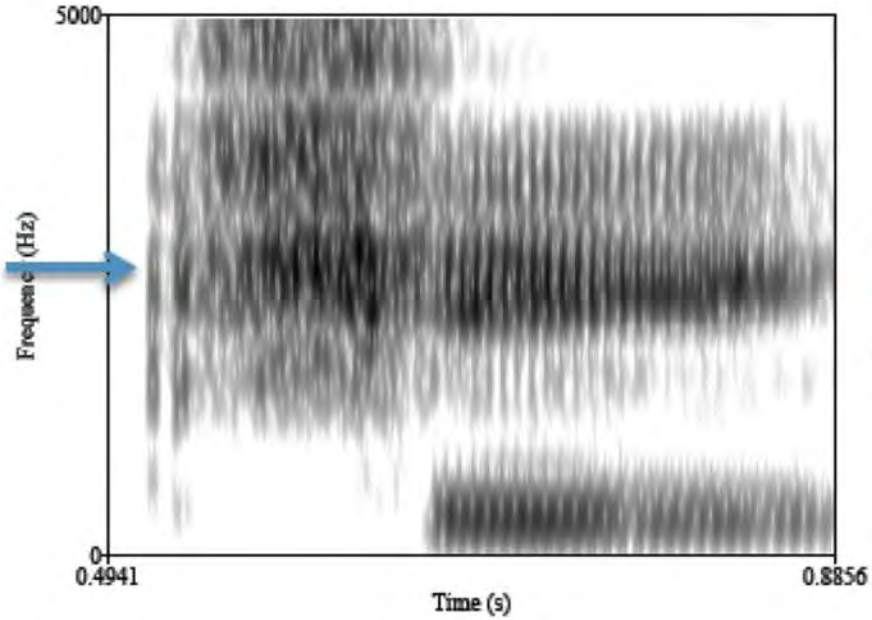
E.g. Slavic 1st palatalization:

Pre-proto-Slavic	OCS			
*wilk-e	vlʲitʃe	cf.	vlʲíkŭ	'wolf'
*pla:k-j-o:-m	platʃõ	cf.	plakati 'cry'	
*mog-e	moʒe	cf.	mogoxŭ	'was able'
*lug-j-o:-m	lŭʒõ	cf.	lŭgati	'lie'

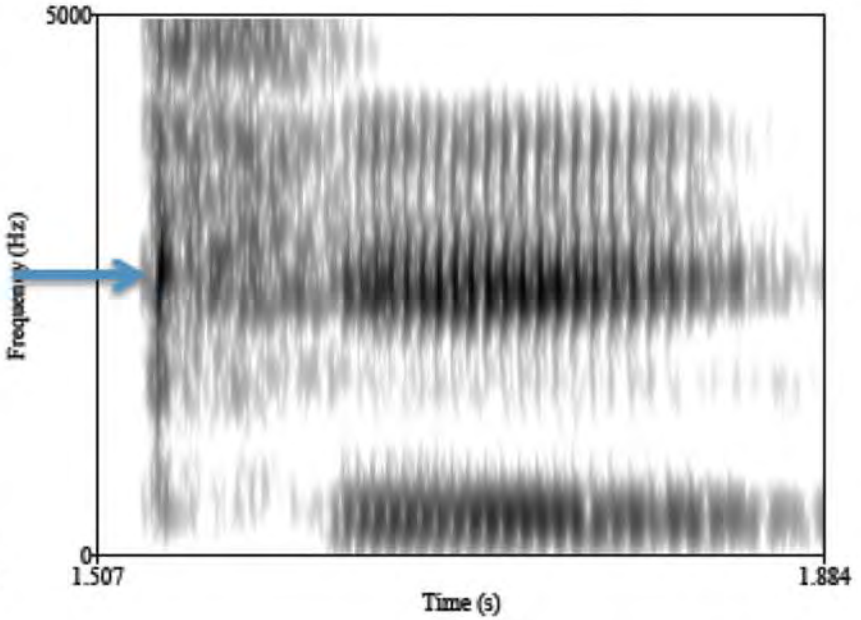
Old Chinese	Middle Chinese	
*kje	tɕje	'branch'
*k^{h}jet	tɕ^{h}jet	'to trail, drag'
*gjip	dʑjip	'ten'

Perceptually-based change without loss of context: Velar palatalization

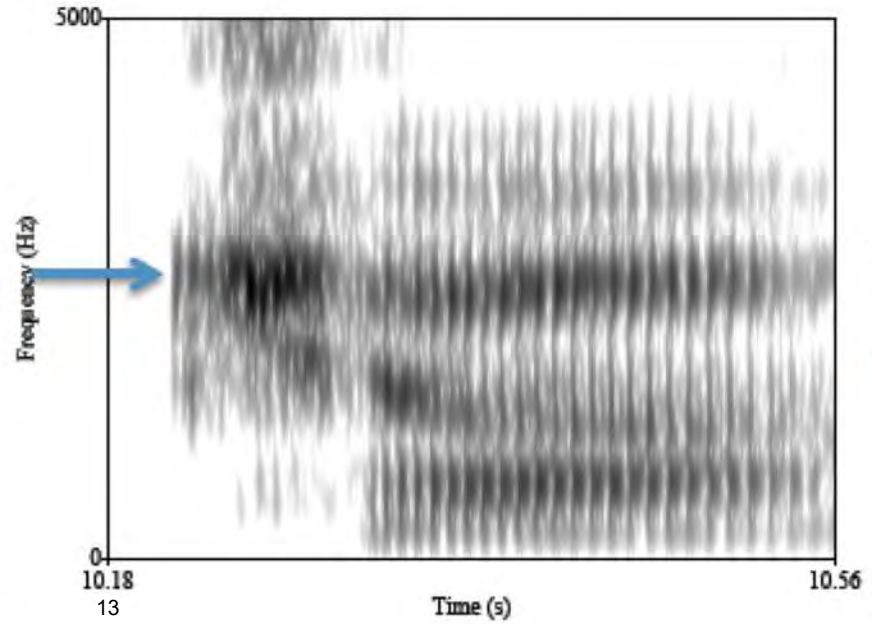
- Ohala (1992) argues that the change is based on perceptual similarity between fronted velars and palato-alveolars (also Guion 1998).
- The affrication of [tS] has its first major spectral peak at 2-3 kHz – close to F2/F3 of [i].
- The burst of [k] in [ki] has its main spectral peak at around the same frequency because the peak of a [k] burst generally tracks F2 of the following vowel because it assimilates in place to following (non-low) vowels.
- Onset of F2 is high after both consonants in [ki, tSi].



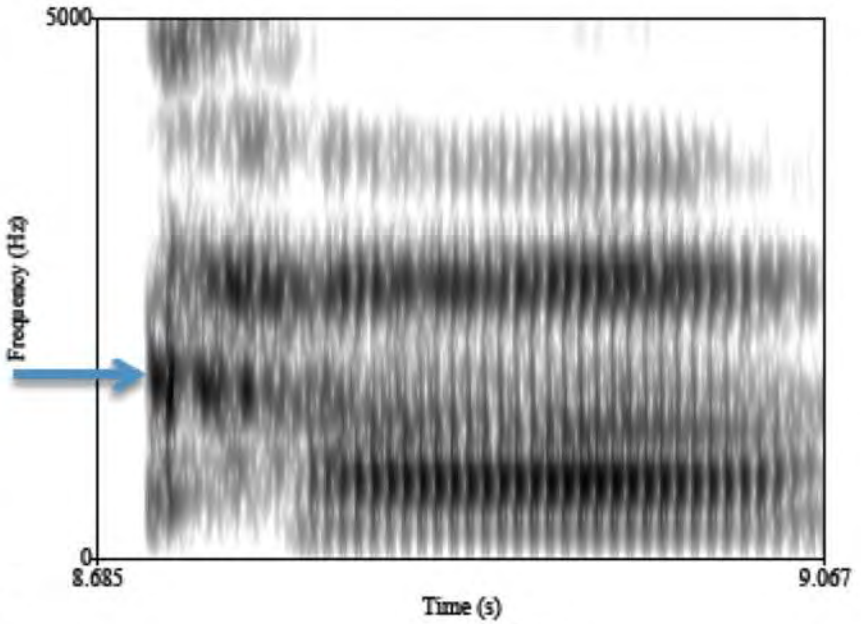
[tʃi]



[k^hi]



[tʃɑ]



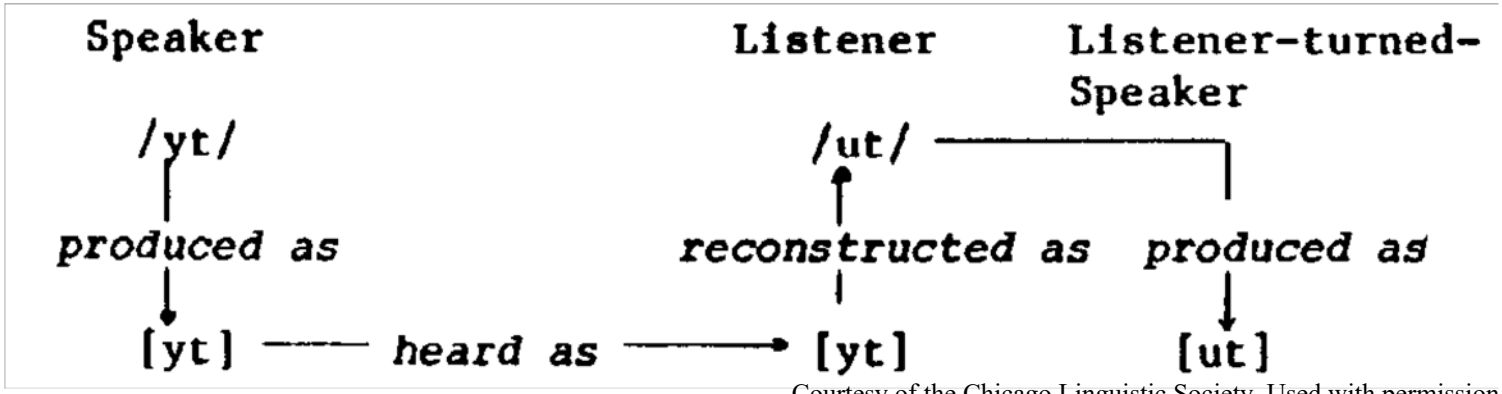
[k^hɑ]

Perceptually-based change with and without loss of context

- Misinterpretation of contextual effects with loss of context makes the failure of reconstruction understandable.
- But why is context misperceived? If it is due to an error of production or perception, or accidental noise, is that sufficient to generate a sound change?
- Occasional perceptual errors seem unlikely to translate into novel productions because they will be overwhelmed by correct perceptions.
  - Systematic/frequent misperception is required to account for a regular sound change.
  - Paul: 'A single inaccuracy of the ear cannot possibly have any lasting results for the history of language. If I do not accurately catch a word…but I guess his meaning from the context…then I supply the word in question according to the memory-picture which I have in my mind. If the connexion is not sufficient to explain clearly the meaning, it may be that I shall supply a wrong meaning, or I may supply nothing at all…But how I should come to think that I have heard a word of a different sound, and still set this word in the place of the one I understand, is to me incomprehensible' (p.21)
- Why would misinterpretation of contextual effects occur systematically?

Sound change via hyper-correction

- Ohala argues that dissimilation results from erroneous over-application of reconstructive processes.



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- Local dissimilation

Slavic			
mõgutʃājsij	>	mõgutʃājʃiji	'softest'
stoj-ā-	>	stojā-	'stand'

Proto-bantu	Pre-Shona	Shona	
*-bua	*-bwa	-bɣa	'dog'
*-mu-	kumwakumɣa		'to drink'

Sound change via hyper-correction

- Non-local dissimilation

E.g. IE > Sanskrit *bʱendʱi > bandʱ- 'bind'
Proto-Quechumaran > Quechua *t'ant'a > t'anta 'bread'

Latin: /nav-alis/ navalis
/popul-alis/ popularis
/milit-alis/ militaris

- Are the required coarticulatory effects attested/strong enough to motivate the required reconstructive processes?
- See Gallagher (2010) for an alternative account for a subset of these cases.

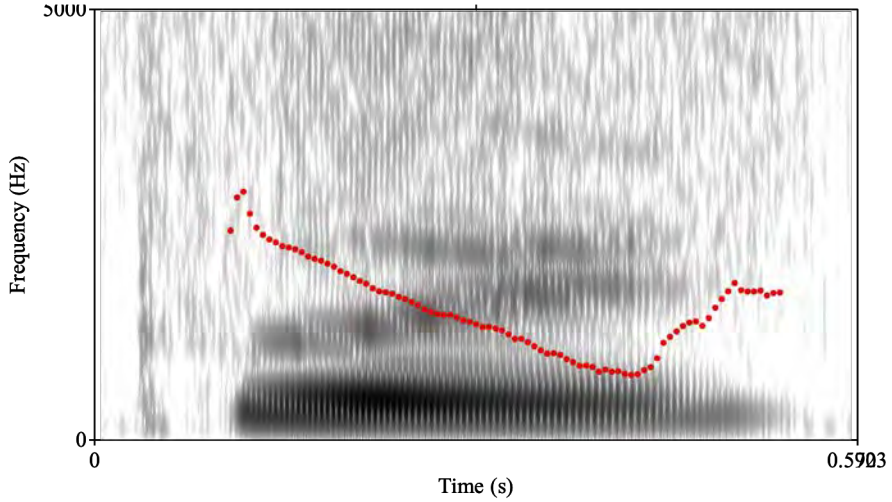
Gradualness of change

- Does Ohala's model predict that sound change should be gradual?
  - E.g. tonogenesis from loss of laryngeal contrasts

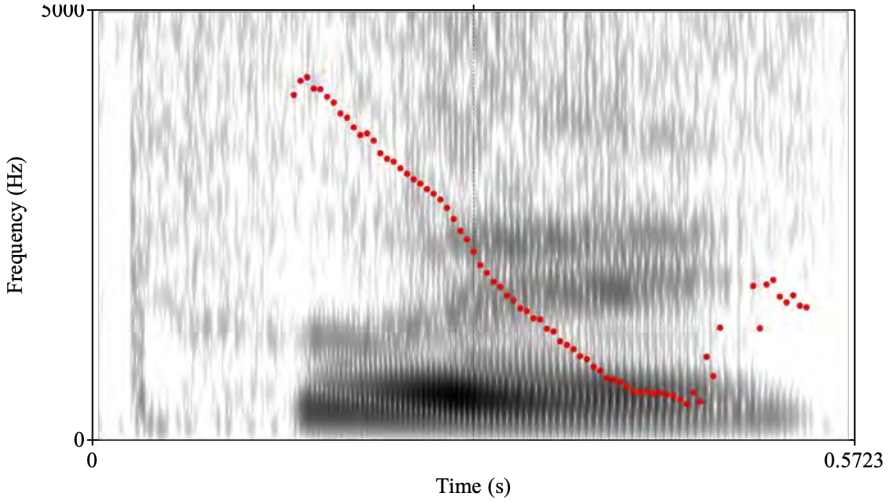
Gradual tonogenesis in Seoul Korean

- Korean contrasts unaspirated (‘lax’), aspirated and tense stops.
  - http://www.phonetics.ucla.edu/appendix/languages/korean/korean.html
- Differentiated by Voice Onset Time and F_0 following the stop.

[pul] ‘fire’



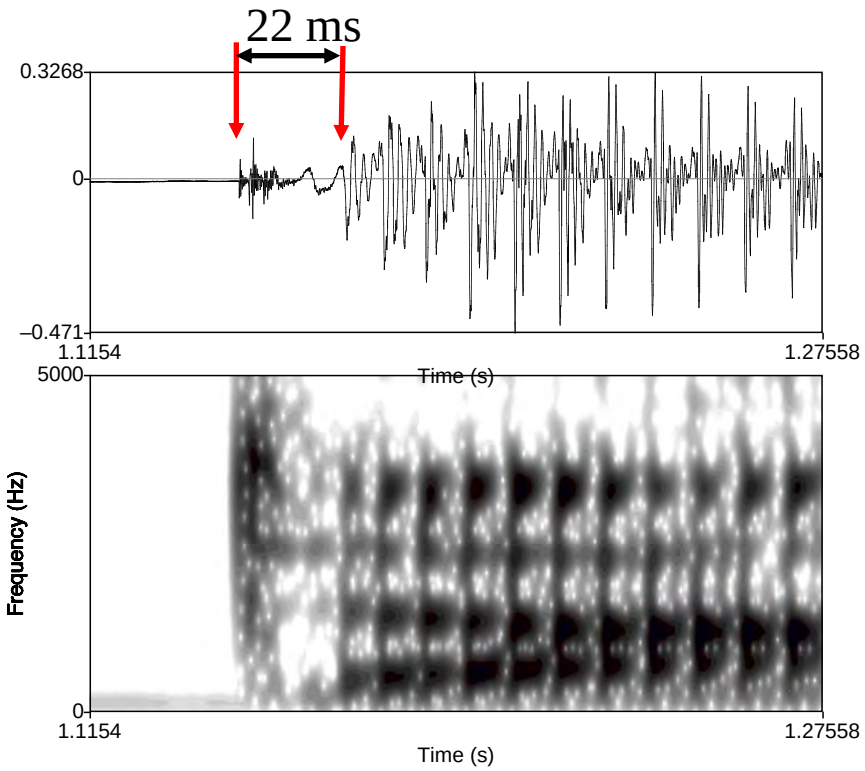
[p^{h}ul] ‘grass’



Voice Onset Time

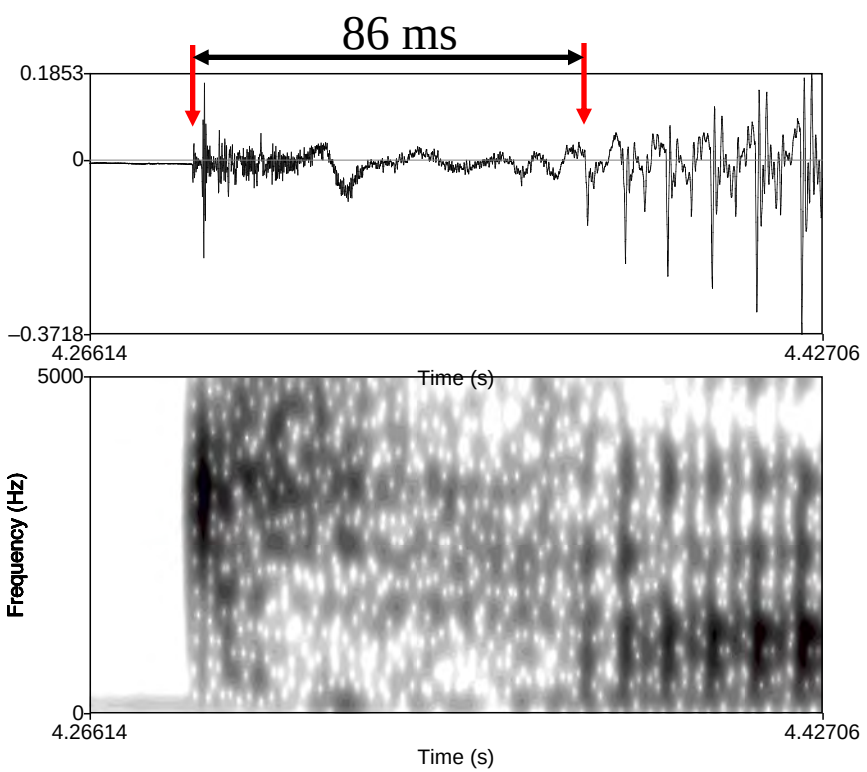
- English utterance-initial stops

Voiceless unaspirated



die

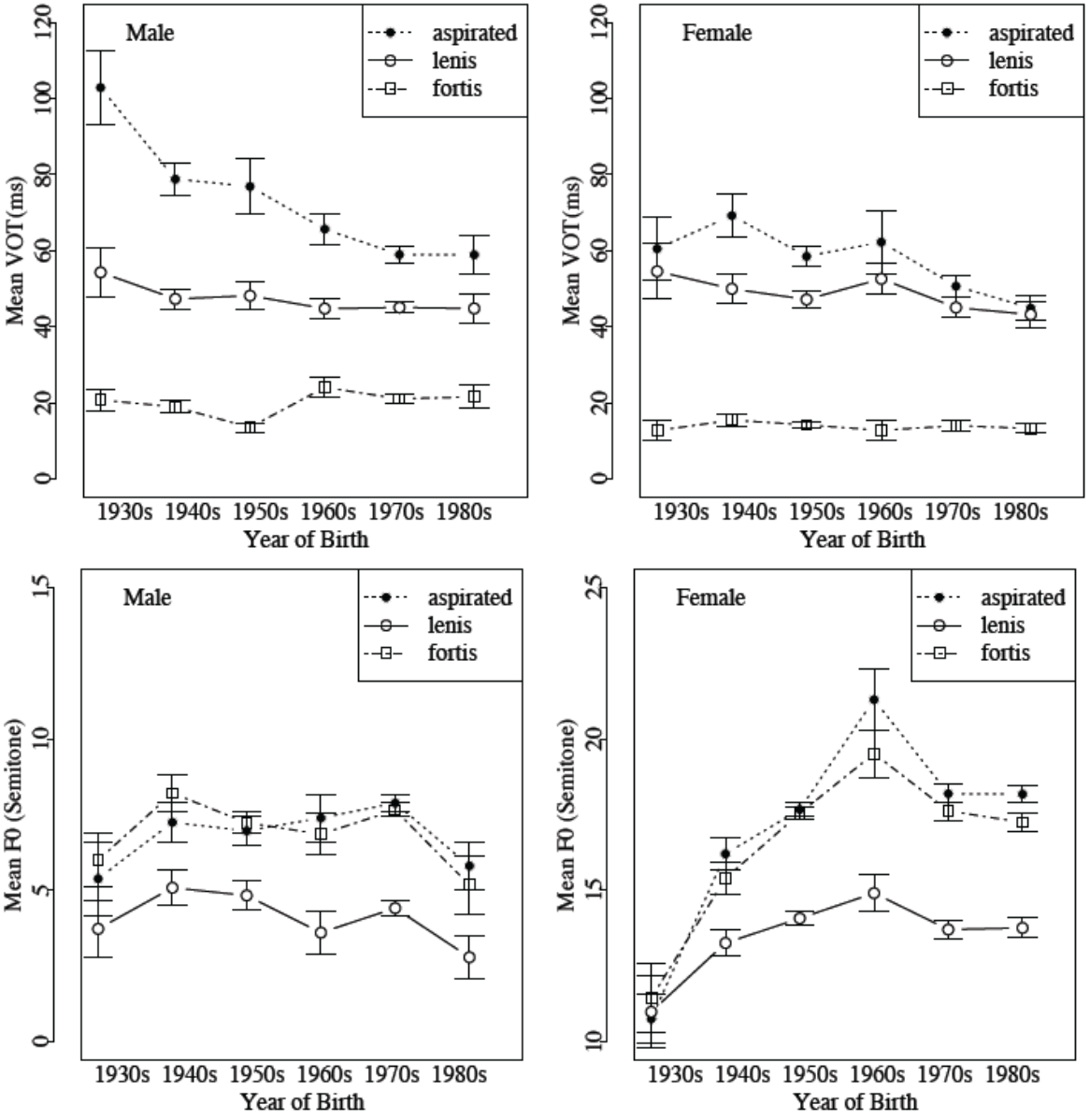
Voiceless aspirated



tie

Gradual change in the Korean lax-aspirated contrast

- VOT used to be a significant cue to the contrast betweenAP-initial initial lax and aspirated stops in Korean (at least for males).
- In Seoul Korean, the VOT difference is now small and F0 is a significant cue (Kang 2013)
- Speakers recorded in 2003
- VOT difference between aspirated and lax stops differs significantly by gender and YoB.
- No gender*YoB interaction (few speakers born in 1930s – 4 m, 2 f)



References

- Gallagher, G. (2010). Perceptual distinctness and long-distance laryngeal restrictions. *Phonology* 27: 435-480
- Guion, S. G. (1998). The role of perception in the sound change of velar palatalization. Phonetica, 55, 18–52.
- Kingston, John (2011) Tonogenesis. In M. van Oostendorp, C. J. Ewen, E. Hume, & K.Rice (Eds.), *The Blackwell Companion to Phonology*. Blackwell Publishing.
- Kirby, J. (2010). Cue selection and category restructuring in sound change. PhD diss, U of Chicago.
- Kirby, J. (2013). The role of probabilistic enhancement in phonologization. In A. Yu (ed.), *Origin of Sound Patterns: Approaches to Phonologization*. Oxford: OUP, pp. 228-246

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