Metathesis as a phonetically-based sound change

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Table of contents

Introduction

Introduction

- (General) definition:

The sequential reordering of one or more segments or features.

- Proto-Germanic *h**ro**ss* > Old English *h**or**s*.
- Spanish *t**er**co*, *t**ur**co* >> Basque *t**re**ku*, *t**ru**ku*.

- Standard English *re**l**e**v**ant* > Colloquial English *re**v**e**l**ant*.
- Standard Spanish *c**r**oqueta* > Colloquial Spanish *coc**r**eta*.

Introduction

- Metathesis is a loosely defined concept.

This lack of precision might explain why it has been defined as:

- Sporadic and irregular (Lehmann 1962; Webb 1974; Stonham 1990, etc.)
- Systematic under the right conditions (Grammont 1950; Ultan 1978; Hock 1985; Blevins & Garrett 1998, 2004; Hume 2001, 2004, etc.)

…and both descriptions might be correct.

Introduction

- Metathesis is not as common as other sound changes.
- Dismissive view: A speech or performance error with marginal character (Spencer 1996; Crystal 1997; Hume 2001).
- Problematic for phonological models that aim to integrate phonetic naturalness.
  - Less natural than other processes?
  - Or not enough research on its phonetic origins?
- Structure-preserving? Optimizing?

Typologies of metathesis

Describe the superficial structure:

- CV vs. CC vs. VV
  - VV has been argued to be non-existent (McCarthy 2000).
- Local vs. non-local
  - Already in Grammont (1950): *interversion* and *métathèse*.
  - Non-local metathesis → Multiple consecutive local metatheses? (Mielke and Hume 2000; Hume 2001).
- Feature metathesis.

Table 1 Kinds of metathesis classified by superficial description.

Metathesis	Language	Unmetathesized form	Metathesized form	Gloss	Reference
CV	Mpalit^{y}aɲ (mpal1238)	*kuta > *uta *ŋula > *ula	/twa/ /lwa/	'dog' 'finally'	Dixon (1980, 203)
CC	Late West Saxon (west2922)	Old Eng. *frosk* Old Eng. *aske*	*froks* *akse*	'frog' 'ash'	Blevins & Garrett (2004, 139)
VV	Latvian (latv1249)	*skræi + n + a* *daeu + d + a*	*skrien* *duod*	'he runs' 'he gives'	Halle & Zeps (1966, 108)
Feature	Roncalese Basque (ronc1236)	*arĩã* *gaztã*	*ãria* *gãzta*	'sand' 'cheese'	Egurtzegi (2014, 197)
Tonal	Dangme (adan1247)	*yē* 'to eat' *dò* 'to dance'	*yé* *dōó*	'eat!' 'dance!'	Holscher, Macaulay, & Petray (1991, 121)
Quantitative	Attic Greek (atti1240)	/hippɛ́ː(w)os/	/hippéoːs/	'horseman (GEN. SG.)'	Ultan (1978, 380)
	Ionic Greek (ioni1244)	/teθnɛː(w)ótes/	/teθnɛóːtes/	'the dead'	

Typologies of metathesis

Table 2 A classification of metathesis by its hypothesized phonetic trigger.

	Metathesis type	Proposed phonetic trigger	Reference
i	Perceptual metathesis	Elongated phonetic cues	Blevins & Garrett (1998)
ii	Compensatory metathesis	Stress-induced temporal shifts	Blevins & Garrett (1998)
iii	Coarticulatory metathesis	CC coarticulation	Blevins & Garrett (2004)
iv	Auditory metathesis	Auditory-stream decoupling	Blevins & Garrett (2004)
v	Reciprocal metathesis	Motor plan exchange	Egurtzegi (in preparation)
vi	'Cluster' metathesis	Motor plan anticipation	Garrett & Johnson (2013)

Articulatory bases of metathesis

Regularity and graduality in local metathesis

Regularity and graduality in local metathesis

- Early Neogrammarian accounts disregarded metathesis (alongside dissimilation) as a ‘minor’ sound change (a *Lautwechsel*, and not a *Lautgesetz*; Paul 1880).

  - Major sound changes were more frequent than minor sound changes.
  - Minor sound changes were not phonetically natural and did not follow the regularity principle (they were neither gradual nor systematic).

Regularity and graduality in local metathesis

- Both dissimilation and metathesis can be regular (Hock 1985; Hume 1998, 2001; Blevins & Garrett 1998, 2004).

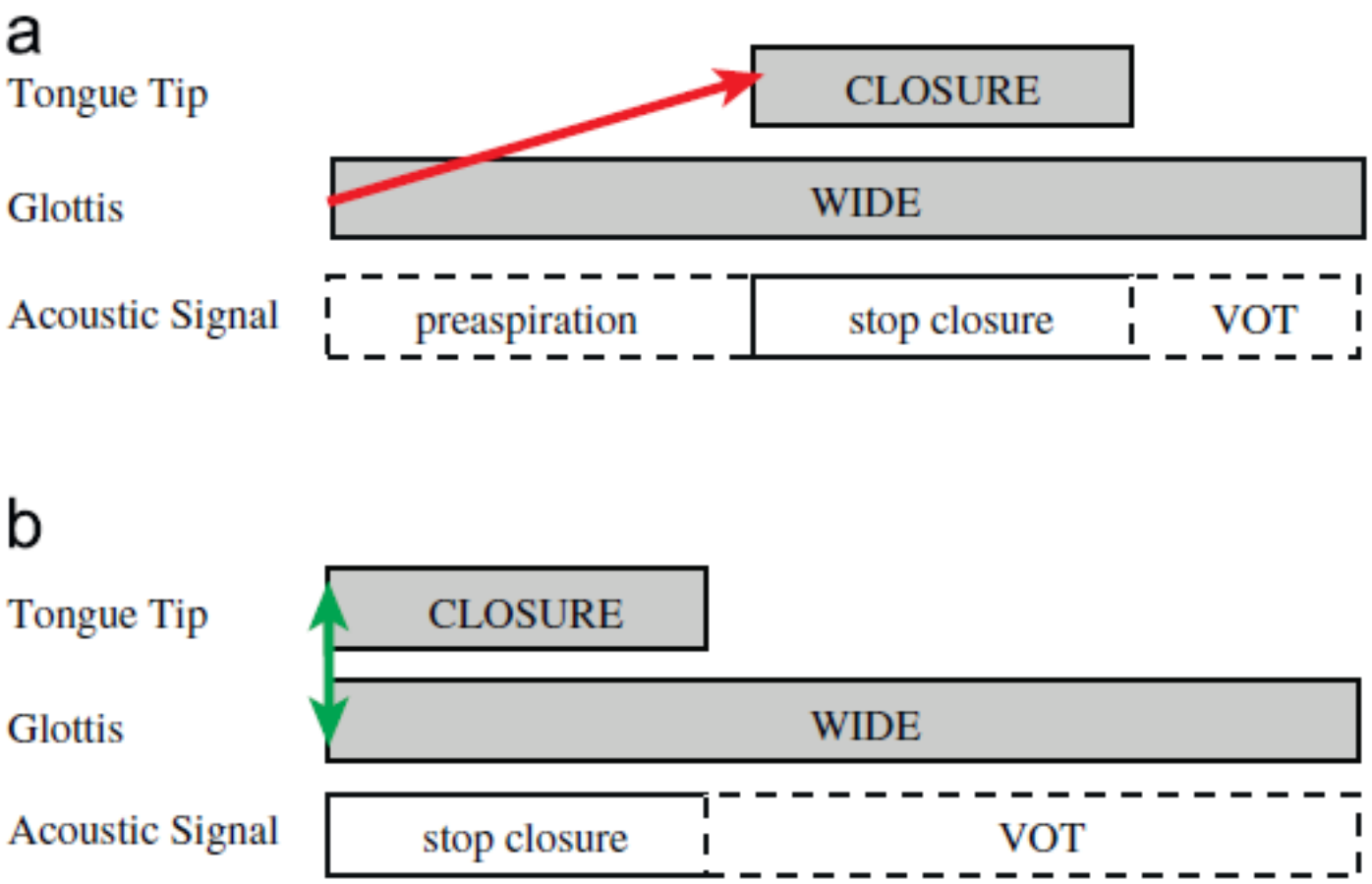
  "a general phonological motivation to become regular" (Hock 2003).

- Gradual synchronic dissimilation (Jatteau & Hejná 2018).
- …and gradual metathesis?
  - Not all types of metathesis have been documented as systematic processes.
  - Distant (non-local) metathesis tends to be less systematic than contact (local) metathesis (Ultan 1978).

Regularity and graduality in local metathesis

- Systematic coarticulatory patterns in the concatenation of specific segments.
- Incremental gestural overlap instead of direct segmental transposition (Parrell 2012; Cronenberg et al. 2020; Gilbert 2022; Mooney 2022).
- Gradual CC metathesis in the pre- to post-aspiration process in Andalusian Spanish (Torreira 2007; Ruch & Harrington 2014).
  - Standard Spanish *pasta* /pasta/; Andalusian Spanish [pahta] → [pat^{h}a].

Pre- to post-aspiration in Andalusian Spanish [pahta] → [pat^{h}a] (Parrell 2012):



/s/-lenition in coda in Andalusian Spanish

- /s/-debuccalization in coda (preceding a consonant)

  → *aspa* > [ahpa], *pasta* > [pahta], *asco* > [ahko].

- At least since the 18th century (Mondéjar Cumpián 1991; Terrell 1980).
- Some authors place it in the early 16th c. (Menéndez Pidal 1962; Boyd-Bowman 1975; Lapesa 1980).
- Or even the 14th c. (Frago García 1983).
- However, early attestations are questionable (Torreblanca 1989).

Sound changes in /S.T/ clusters

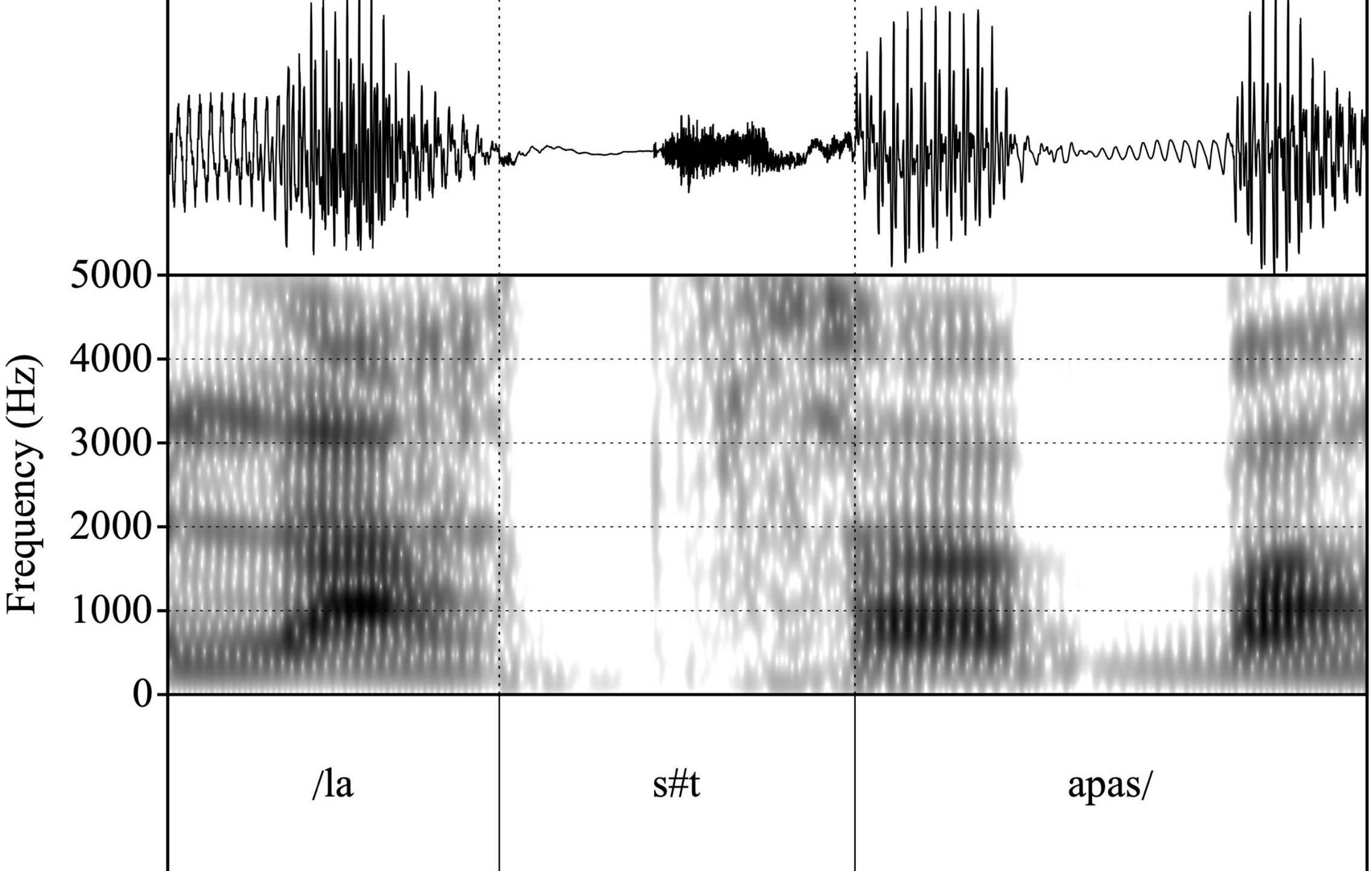
- At the end of the 20th c., pre-aspiration results in post-aspiration.
- Intermediate phase: pre- and post-aspiration in the same stop.
- All places of articulation: /s.p/, /s.t/ and /s.k/.

- Examples: *pasto* > [pahto] > [pa^{h}t^{h}o] > [pat^{h}o]
  casco > [kahko] > [ka^{h}k^{h}o] > [kak^{h}o]
  caspa > [kahpa] > [ka^{h}p^{h}a] > [kap^{h}a]

Sound changes in /S.T/ clusters

- Post-aspiration has been shown to be gradual and systematic.
    - It affects all instances of /S.T/…

even at the word boundary.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Sound changes in /S.T/ clusters

- At the beginning of the 21st c., post-aspiration results in affrication.
- Only young speakers, with (strong) post-aspiration, show it.
- Only occurs in dental stops.
  - But it might be extending to new contexts.

pasta > [pahta] > [paʰtʰa] > [patʰa] > [pat͡ha] > [pat͡sa]

Systematic CC metathesis in Judeo-Spanish

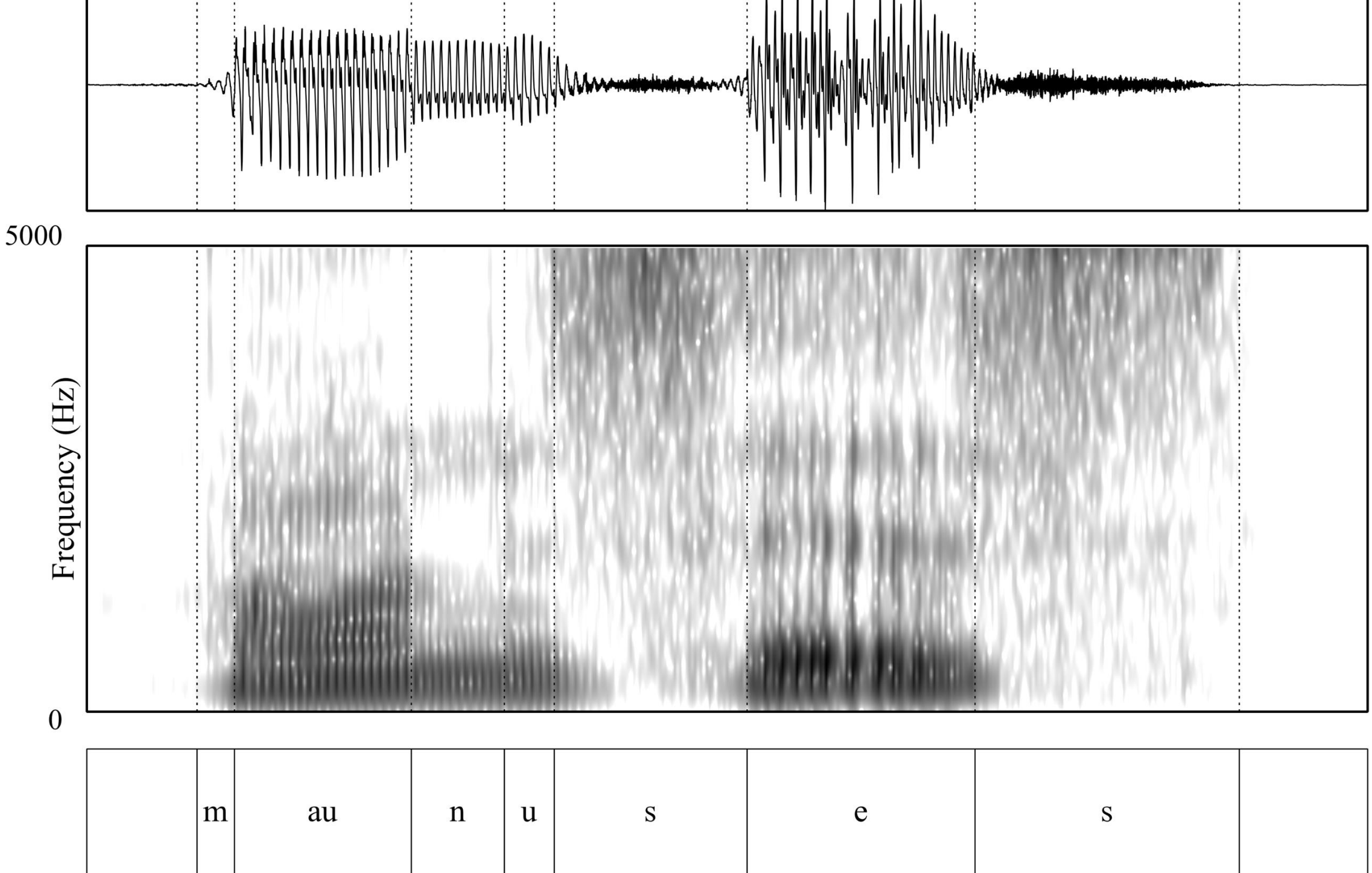
- Many comparable processes can be found in the diachronic literature.
- In these cases, we can check the systematicity, but not the gradualness.
- On rare occasions, we observe such metathesis processes across the word boundary.

tarde	['taɖ̪ɾe]
bastardo	[bas'taɖ̪ɾo]
verdura	[be'ɖ̪ɾuɾa]
cuerda	['kweɖ̪ɾa]
cordero	[ko'ɖ̪ɾeɾo]
sordo	['soɖ̪ɾo]
por amor de	[paɾa'moɖ̪ɾe(ð̪e)]

Gradual CV metathesis in Uab Meto

/ˈmanus/ [ˈmanus] ‘betel vine’	→	/ˈmanus-es/ [ˈma͡ʊnses] ‘a betel vine’
/baˈkaseʔ/ [baˈkaseʔ] ‘horse’	→	/baˈkaseʔ-e/ [baˈka͡esʔe] ‘the horse’
/ʔa-ˈmepo-t/ [ʔa-ˈmepo-t] ‘worker’	→	/ʔa-ˈmepo-t-in/ [ʔa-ˈme͡optin] ‘workers’
/ˈkokɪs/ [ˈkokɪs] ‘bread’	→	/ˈkokɪs-e/ [ˈko͡ɪkse] ‘the bread’

- Loss of the final syllable of the root with the addition of a suffix (Mooney 2022).
- Anticipation and coalescence of the unstressed root-final vowel.
- Compensatory metathesis in the classification of Blevins & Garrett.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Gradual CV metathesis in Uab Meto

- The lingual movement required for V_2, often begins during V_1 in a V_1CV_2 chain (Öhman 1966).
  - Vowel-to-vowel coarticulation and perceptual patterns can be highly language specific (Beddor et al. 2002).

- A prosodically conditioned change:
  - Vocalic features in a weak syllable are coarticulated into the adjacent, more prominent syllable until they disappear from their original position.

Gradual CV metathesis in Uab Meto

- Restricted to Austronesian and Pama-Nyungan languages.
  - Structural pre-conditions shared by languages in these families.

- Parallel changes in other families?
  - Metaphony in Romance languages?
  - Umlaut in Germanic languages?

Compensatory metathesis in other languages

a. Rotuman (rotu1241)

seséva	→	*seséav*	‘erroneous’
tíko	→	*tíok*	‘flesh’
fúti	→	*fýt*	‘to pull’
móse	→	*møs*	‘to sleep’

b. Ngkoth (ngko1236)

*alí-	>	*láj-*	‘to go’
*amí-	>	*máj-*	‘up’
*i·ná-	>	*njá-*	‘to sit’
*ulán	>	*lwán*	‘possum’

Other cases of potentially regular local metathesis

(whose gradualness is yet to be confirmed)

Coarticulatory metathesis

- It affects heterorganic consonant clusters with a shared manner of articulation (Blevins & Garrett 2004).
- Coarticulatory dynamics in the production of obstruents with shared gestures in fast speech can result in the anticipation of a given gesture over another due to gestural overlap (Browman & Goldstein 1990).
- When the closure and release of distinct articulatory gestures of two consecutive consonants are nearly simultaneous, their place of articulation cues become difficult to recover perceptually.
- Result: C_1C_2 can be reanalyzed as C_2C_1.

Coarticulatory metathesis

- The sequences of labial-velar (PK) and coronal-noncoronal (TK, TP) stops can result in a nearly-simultaneous closure.
  - In the former, labial release follows velar release.
  - In the latter, coronal release follows non-coronal release.
- Even when velar and labial closures are synchronous, an earlier velar closure is perceived auditorily (Connell 1994).
- Both cases of coarticulatory metathesis are predicted to be unidirectional.
  - PK > KP
  - TK, TP > KT, PT

Coarticulatory metathesis in Moquilese and Cebuano Bisayan

PK > KP in Mokilese

/apkas/	[a**pk**as], [a**kp**as]	‘now’
/kapki:la/	[ka**pk**i:la], [ka**kp**i:la]	‘to drop’
/dipkelkel/	[di**pk**elkel], [di**kp**elkel]	‘to stumble’

TK, TP > KT, PT in Cebuano Bisayan

nm	*inu**m***	:	*im**n**-a*	‘drink’
nŋ	*tunú**ŋ***	:	*tu**ŋn**-a*	‘directly at a point’
tp	*atú**p***	:	*at**p**-an, ap**t**-an*	‘roof’
tk	*liti**k***	:	*lit**k**-an, lik**t**-an*	‘snap the fingers’

Auditory metathesis (Blevins & Garrett 2004)

- Aperiodic sibilant noise may decouple from the rest of the speech signal.
  - The primary acoustic cue for sibilants.
- Sibilant noise can be “distracting” and produce high confusion rates regarding the linear order of segments around sibilants (Bregman 1990).
- This can make it difficult to retrieve the actual sequential position of a sibilant that was nevertheless clearly perceived.
- Reversal of sibilant-obstruent or obstruent-sibilant clusters.

Auditory metathesis in Faroese & Colloquial French

sk > *ks* in Faroese

/tʊ**sk**-t/	→	[tʊ**ks**t]	'German (fem.sg)'
/na**sk**-t/	→	[na**ks**t]	'impertinent (fem.sg)'
/bai**sk**-t/	→	[bai**ks**t]	'bitter (fem.sg)'
/fran**sk**-t/	→	[fraŋ**ks**t]	'French (fem.sg)'

ks > *sk* in colloquial French

French	Standard	Colloquial	
fixe	[fi**ks**]	[fi**sk**]	'fixed'
luxe	[ly**ks**]	[ly**sk**]	'luxury'
sexe	[sɛ**ks**]	[sɛ**sk**]	'sex'
axe	[a**ks**]	[a**sk**]	'axis'
Félix	[feli**ks**]	[feli**sk**]	'Félix'

Auditory metathesis : Questions

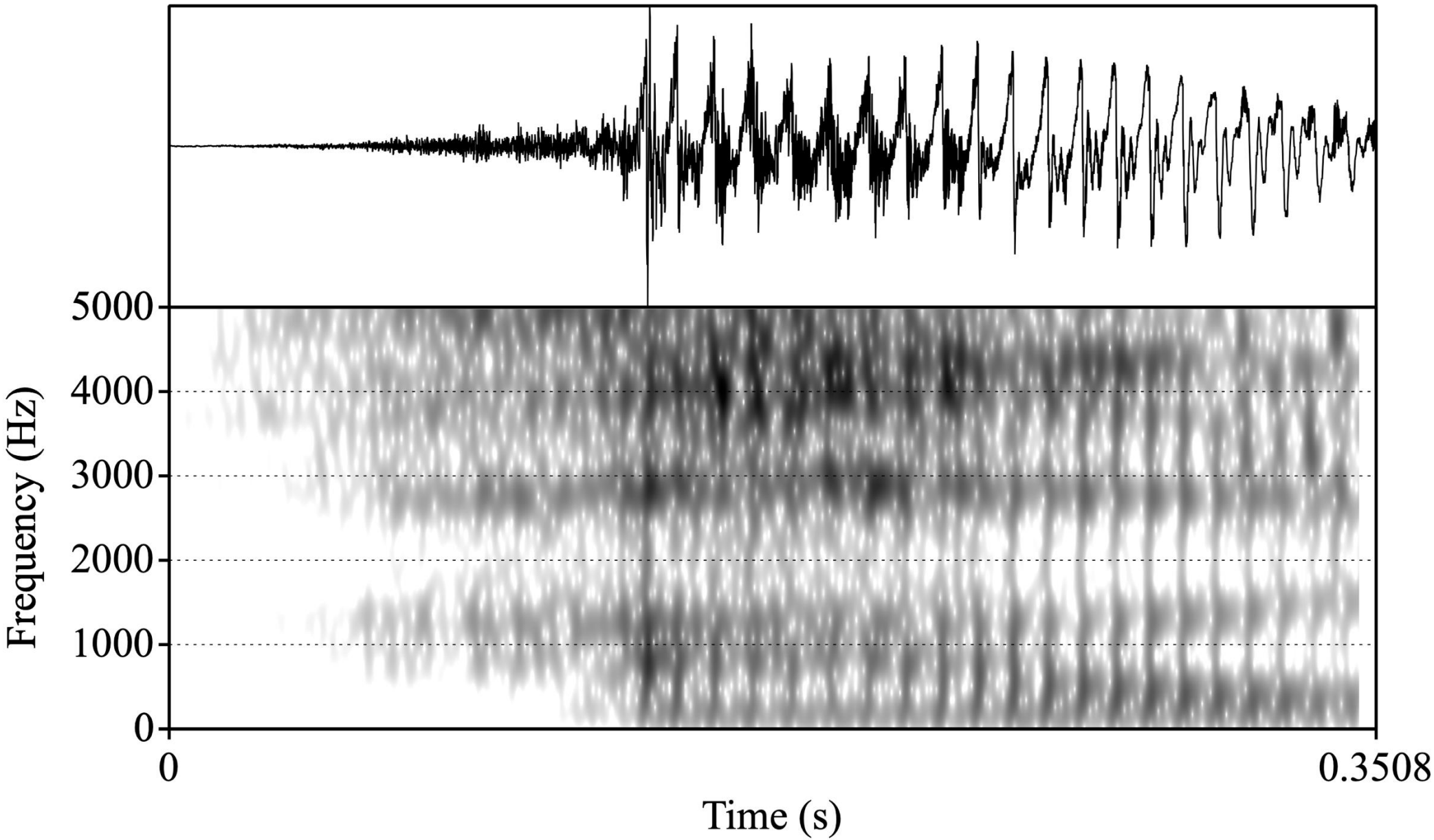
- Does the prosody of the language condition the result?

- Why don't we have any examples from other “noisy” segments?
  - Potential candidates: [ʃ], [ǂ], clicks…

Perceptual bases of metathesis

Sound change due to a listener’s “mistakes”

ahal [ahal] ‘power’ in Basque: [haˌ̤ʰaˌ̤l]

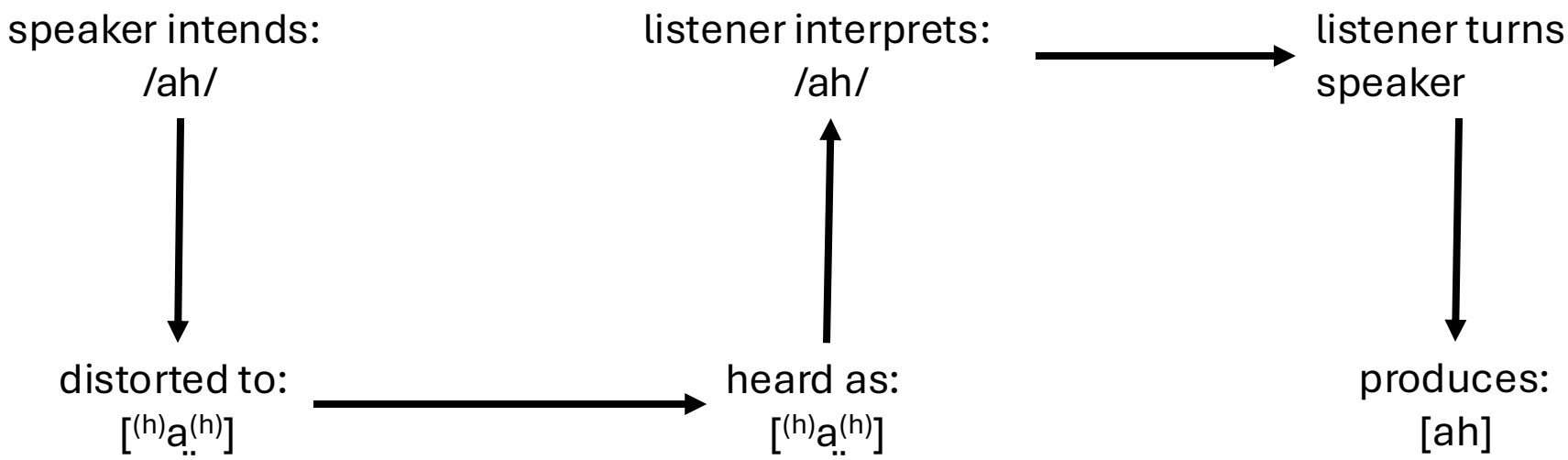


Perceptual metathesis: “Stretched-out” phonological features

- “Stretched-out” features include one or more acoustic characteristics that are articulated with an intrinsically long duration (Ohala 1993).
- Elongated phonetic cues create ambiguous sequences where a listener could reinterpret one of these features in new position .
- The erroneous reinterpretation of acoustic characteristics that permeate segments that do not inherently include them can lead to perceptual metathesis (Blevins & Garrett 1998).

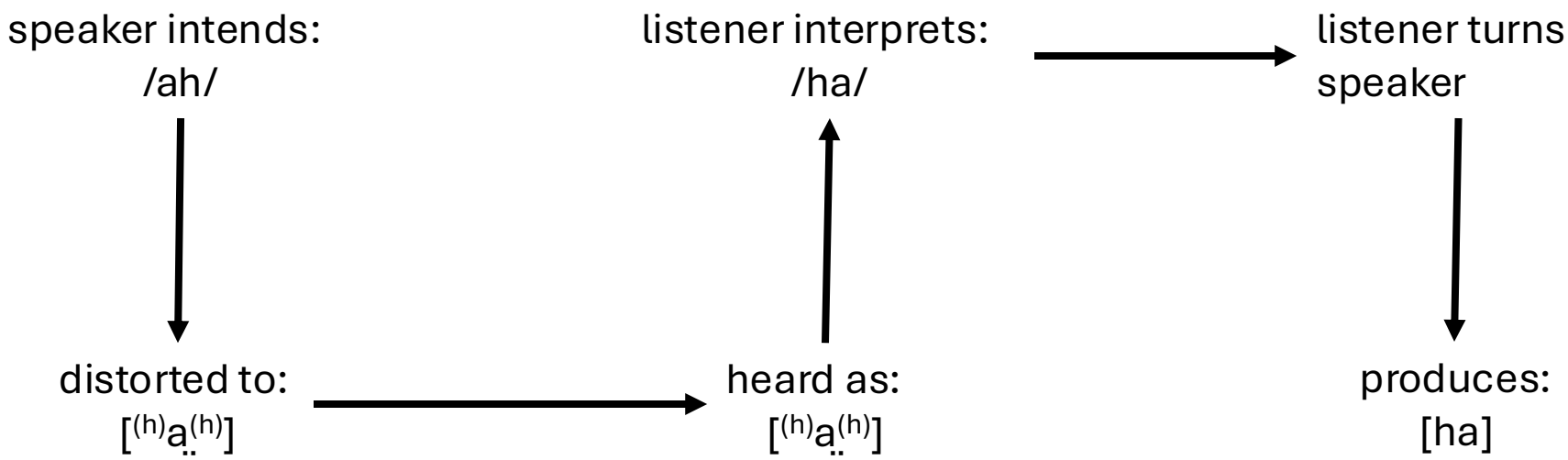
Reanalysis of elongated phonetic cues: Correction (Ohala 1981, 1993)

- Correct interpretation of Vh coarticulation:

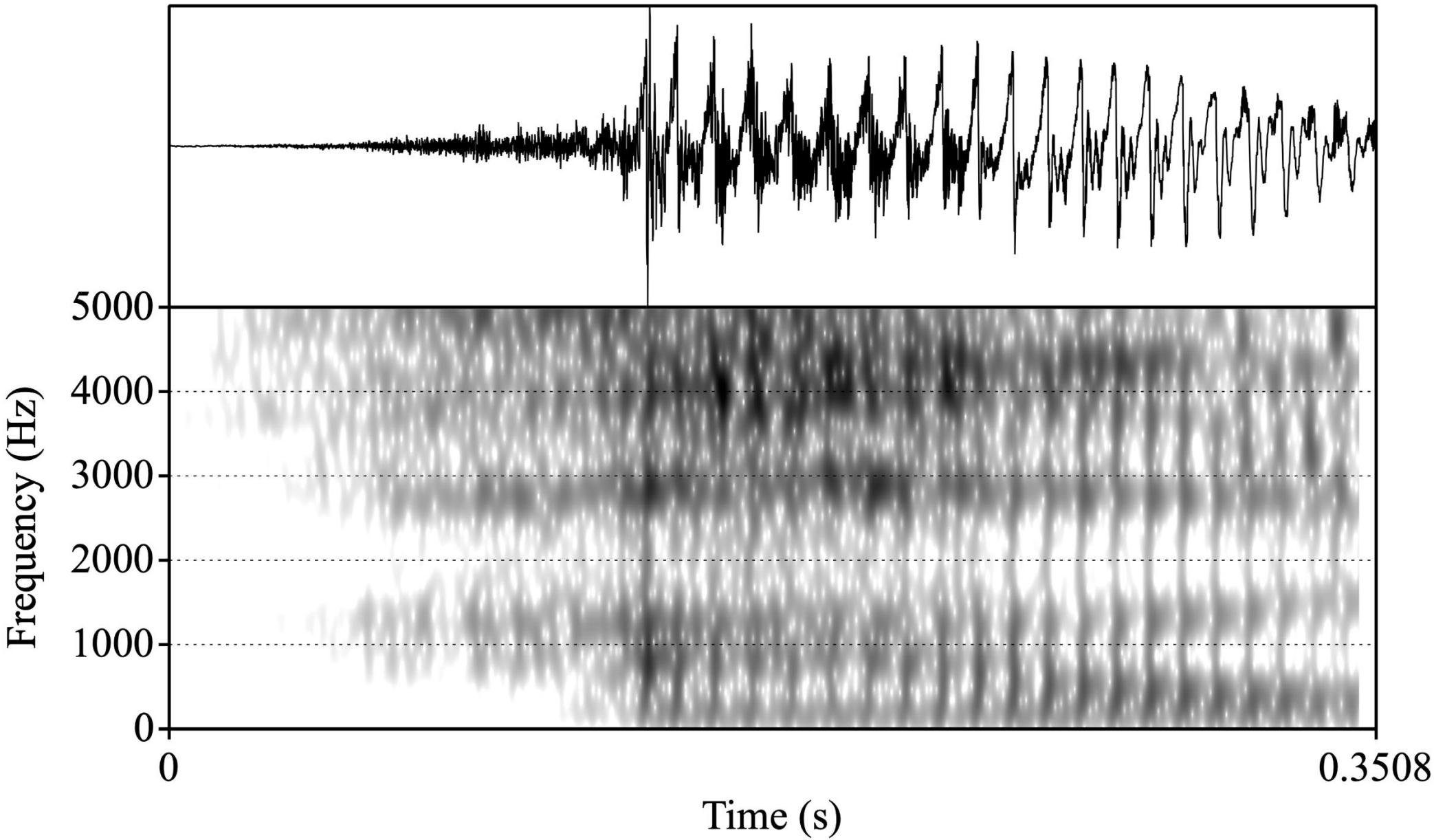


Reanalysis of elongated phonetic cues: Perceptual metathesis (Blevins & Garrett 2004)

- Reinterpretation of Vh coarticulation in a new position:



ahal [ahal] ‘power’ in Basque: [haˌ̤ʰaˌ̤l]



Perceptual metathesis: “Stretched-out” phonological features

Table 4 Stretched-out features and their relevant phonetic cues (Blevins and Garrett 2004, 123).

Feature	Segmental realization	Acoustic property with long duration
rhoticity	rhotics, rhotic Vs	lowered F3 (LM: 244, 313)
laterality	laterals, lateral Vs	lateral formants (LM: 193–197)
rounding	rounded Cs, rounded Gs, round Vs	lowering of all formants (LM: 356–358)
palatalization	palatalized Cs, palatal Gs, high front Vs	raised F2 (LM: 364)
velarization	velarized Cs, velar Gs and high back Vs	lowered F2 (LM: 361–362)
pharyngealization	pharyngealized Cs, Gs and Vs, ʕ, ħ	lowered F3, raised F1 (LM: 307)
laryngealization	laryngealized Cs, Gs and Vs, ʔ	more energy in F1, F2, more jitter (LMJ)
aspiration	aspirated / breathy Cs, Gs and Vs, ɦ, h	more energy in F0, more noise (LMJ)
retroflexion	retroflex Cs and Vs	lowered F3, F4, clustering of F2, F3, F4 (L: 203, LM: 28)
nasalization	nasals, nasalized Vs and nasalized Gs	spectral zero / nasal, anti-resonance (LM: 116)

(L = Ladefoged 1993; LM = Ladefoged and Maddieson 1996; LMJ = Ladefoged, Maddieson, and Jackson 1988).

Perceptual metathesis: “Stretched-out” phonological features

- Perceptual metathesis is restrictive:
  - Not all features show long acoustic cues.
    - Not all segments will be affected by it.
  - Not all elongated phonetic cues span equally long times.
    - Some segments may “move through longer distances” than others.
  - Some segments/configurations can block it.
    - /h/ vs. /ʔ/ in Cayuga.
  - Possible results are limited by the language’s phonotactics.

Perceptual metathesis: “Stretched-out” phonological features

- English rhotics show long-distance effects on unstressed vowels of both the preceding and following syllables.
  - V_2 in rV_1CV_2 and V_1 in V_1CV_2r.
  - Lowering of F2 and F3.

- The extent of coarticulation varies from language to language.
  - Longer nasalization in languages with no contrastive nasality (Manuel 1990).
    - Not necessarily, e.g. Lakhota.
  - Coarticulatory pharyngealization in Arabic dialects (Al-Raba’a & Davis 2020).
    - Spreads through the syllable in Moroccan Arabic and Rural Jordanian Arabic.
    - Spreads through the word in Palestinian and Cairean Arabic.

Non-local metathesis

- Structured variation in the incremental gestural overlap in the production of two specific adjacent sounds can result in regular gradual metathesis, as in Andalusian Spanish.
- Does proposing iterative contact metatheses (à la Hume 2001) make sense if there is no historic evidence of them?
- Resolving an ambiguous or instable stage in a structure-preserving manner (à la Ohala 1993).
- However, a model based on independent errors does not lend itself to regular processes.

Perceptual metathesis of aspiration in Basque

- In Basque, we find many metatheses involving stretched-out phonological features (Egurtzegi 2014):
  - nasalization, palatalization, velarization, rhoticity, laterality, and aspiration.

- None of them seems to be a clear-cut case of a systematic change.

- Misperceptions that lead to metathesis occur in specific words.
  - They are not generalizable to any phonological context.
  - They do not extend to the entire lexicon.

Perceptual metathesis of aspiration in Basque

Metathesis of the aspiration in old loanwords

	Latin		Unmetathesized variant		Metathesized variant	
a.	*arēna*	≫	*areh̃a	>	***h**area*	‘sand’
	Asenārius	≫	*azeh̃ari	>	***h**azeri*	‘fox’ (cf. *Acenari*)
	leōnem	≫	*leoh̃e	>	*le**h**oi(n)*	‘lion’
	annona	≫	*anoh̃a	>	*an**h**oa*	‘ration’

b. Metathesis of the aspiration in inherited words

Unmetathesized variant		Metathesized variant	
*igune > *iguh̃e	>	*higũĩ > ***h**iguin*	‘repugnance’
*abune > *abuh̃e	>	*habũĩ > ***h**abuin*	‘foam’
*ebane > *ebah̃e	>	*hebãĩ > ***h**ebain*	‘disabled’
Medieval Basque *iba**h**i*	>	***h**ibai*	‘river’

c. Metathesis of the aspiration in dialectal Basque

Unmetathesized variant		Metathesized variant	
***h**on* ‘good’ + *erran* ‘to say’	>	*on**h**erran*	‘blessing, benediction’
***h**on* ‘good’ + *eritzi* ‘to deem’	>	*on**h**eritzi*	‘to love, approval’
er + ***h**auts* ‘dust’	>	***h**errauts*	‘dust’
loak ‘sleep (erg.)’ + ***h**artu* ‘to take’	>	*lo**h**akartu*	‘to take sleep’

Perceptual metathesis of aspiration in Basque

Metathesis of the aspiration as a feature

Latin	Unmetathesized variant	Metathesized variant	
parcere	*barkha*(*tü*)	*pharka*(*tü*)	'forgive'
piper	*bipher*	*phiper*	'pepper'
–	*dithi*	*thiti*	'tit, nipple'
corpus	*gorphutz*	*khorpitz*	'body'
catēna	*gathea*	*khatea*	'chain'

Perceptual metathesis of aspiration in Basque

- Conservative process: metathesis helped preserve many /h/s that would have been lost for prosodic reasons.

- No clear rule:
  - Lat. *arena* >> *areh̃a > ***h****area* ‘sand’ and not **arhea.
  - Lat. *annona* >> *anoh̃a > *an**h**oa* ‘ration’ and not **hanoa.
  - Exceptions: Lat. *ballaena* > *baleh̃a > *balea* ‘whale’ and not **balhea.

- Although this change and that of Andalusian can be described as perceptual metatheses (under Blevins & Garrett 2004), their mechanisms seem very different.

Perceptual metathesis of aspiration in Basque

- Repeated in (or maintained until) late stages of the language.
  - Many of the factors that facilitated the initial wave of /h/-metathesis are still part of Basque.

- The most recent cases are not as geographically widespread.
    - e.g. *loak hartu* > *lohakartu* ‘to get asleep’ in Axular (1643).

- Subsequent replications of structurally-conditioned metatheses can be expected to occur in other languages (see Sardinian later today).

Relationship to speech errors

Necessarily abrupt and irregular sound change

Relationship of metathesis to speech errors

- Metathesis has been linked to speech errors since the early Neogrammarian accounts of sound change (e.g. Paul 1880).

- Two specific types have been recently linked to speech errors:
  - Reciprocal metathesis (Egurtzegi 2014)
    - Lat. *pa**l**ū**d**em* > Late Lat. *pa**d**u**l**e > *paúl*
  - Cluster metathesis (Garrett & Johnson 2013)
    - Lat. *c**r**ocodīlum* > *cocod**r**ilo*

Reciprocal metathesis

- Two non-consecutive segments exchange their position without affecting the rest of the phonological sequence —at least in the resulting form.
- It necessarily involves the transposition of two segments
  - local metatheses permit the interpretation of “a segment moving across another”.
- It affects independent words (and not phonological contexts).
- Possible origin: Speech errors that are lexicalized and incorporated into the lexicon of a particular language.

Speech errors: *Single-word spoonerisms*

- Two segments within a word exchange position.

- Arguably the most common among segmental speech errors (Fromkin 1971; Nooteboom & Quené 2013).

- They result from the interchange between two motor plans (or, on occasions, more) from two different segments within a given word.
  - They tend to share one or more features/gestures.
  - They are usually in the same syllabic position of nearby syllables.

Consonant reciprocal metathesis in Spanish

mūrem + caecŭlum	>	*murciégalo* > *murciélago*
calabacín	>	*cabalacín*
animalia	>	*alimaña*
calavera	>	*caravela*
humareda	>	*humadera*
guijarro	>	*guirrajo*
cerebelo	>	*celebero*
Aljafería	>	*Alfajería*
neandertal	>	*neardental*
telgopor	>	*tergopol*

Vowel reciprocal metathesis in Basque

atera	>	*etara*	‘to come out’
Spanish *melancolía*	≫	*malenkonia*	‘melancholy’
alkandora	>	*alkondara*	‘shirt’
*hobaro	>	*haboro*	‘more’ (cf. *hobeto* ‘better’)
Romance *acenoria*	≫	*azenario*	‘carrot’
hedoi	:	*hodei*	‘cloud’
herdoil	:	*ordei*	‘rust’
ukitu	>	*ikutu*	‘to touch’
Latin *incude* ≫ *ingude*	>	*ungide*	‘anvil’
unide	>	*iñude*	‘wet-nurse’
lizun	>	*luzin*	‘mold, lascivious’

Spoonerisms in English

- Syllabic similarity.
- Phonetic similarity.
- Temporal proximity.
- Phonological well-formedness of both input and output.
- Lexical infrequency in the input.
- Articulatory complexity (in both).

Standard English		Speech error
intrepidity	→	*intripedity*
annexation	→	*ennaxation*
derelict	→	*direlect*
cheerfulness	→	*chulfeerness*
protoplasm	→	*plotoprasm*
colonial	→	*conolian*
dominoes	→	*donimoes*
knapsack	→	*knacksap*
Cellini	→	*Cenilli*
relevant	→	*revelant*
regular	→	*regural*
Italian	→	*Itanial*
munificent	→	*municifent*
Polycarp	→	*Colyparp*
comedy	→	*codemy*
elevate	→	*evelate*
rejuvenate	→	*rejunevate*
seductive	→	*desuctive*
Swedenborgian	→	*Swegenbordian*
hypnotized	→	*hyptonized*

Cluster metathesis

- The anticipation of the 2nd member of an onset cluster to another.
  - Usually a liquid is displaced to a preceding syllable.

- The etymological order of the other segments in the word is kept.

- The mechanisms behind these metatheses have been argued to involve motor plan anticipation when it results in similar phonological structures, i.e., clusters (Garrett & Johnson 2013).

Cluster metathesis in South Italian Greek

South Italian Greek liquid metathesis (apul1236; Rohlfs 1964)

Classical Greek	South Italian Greek	
gambrós	*grambó*	'son-in-law'
khondrós	*xrondó*	'thick'
pastrikós	*prástiko*	'clean'
tágistron	*trástina*	'food bag'
kapístrion	*krapísti*	'halter'
konūkula > *konūkla	*klonúka*	'distaff'
pédiklon	*plétiko*	'fetter'

Cluster metathesis in Old Sardinian

Sardinian liquid metathesis (sard1257; Geisler 1994)

Latin	Old Sardinian	
castrum	*crástu*	'fort'
cochlea	*clocha*	'snail'
complēre	*clòmpere*	'fill'
dextra	*dresta*	'right (hand)'
februārium	*frevariu*	'of February'
pigrum	*prigu*	'slow'
pūblicum	*plubicu*	'public'

- Lat. *fenestra* > Old Sard. *fenestra* > Mod. *fronèsta* 'window'
- Lat. *capistrum* > Old Sard. *capistru* > Mod. *crapistu* 'halter'

Cluster metathesis

- Target words have a specific structure, so parallels can be found in related languages.
  - Lat. *capistrum* > *crabéste* and Lat. *fenestra* > *frinéste* in Gascon.

- Similar displacements in speech errors.
  - *Bunsenbrenner* -> *Brunsenbenner* ‘Bunsen burner’

- Almost always anticipatory, although perseverative examples exist.
  - Lat. *scribanum* >> Basque *eskribaun* > *eskibraun* ‘scribe’

Rule telescoping vs. direct transposition

Metathesis as spread and deletion?

- Gilbert and Mooney (2022) and Mooney (2022) propose that metathesis can be synchronically analyzed as consecutive spread and deletion.
  - Based on cases such as Andalusian Spanish and Uab Meto metathesis.

- This analysis might be viable for specific synchronic stages of a gradually-developed metathesis, but
  - intermediate stages are not necessarily expected to phonologize.
  - observed variants can co-occur synchronically, across and within generations of speakers.

Pseudo-metathesis (Mills & Grima 1980)

- Rule telescopings involving epenthesis + deletion mimic metathesis.
- Each of the changes is independently motivated.
- They can occur long time after the preceding step was completed.
  - Intermediate steps often phonologize.
  - They can thus become stable in a given variety of the language.

Pseudo-metathesis (Mills & Grima 1980)

Northern Straits Salish

- Apparent /ə/ metathesis, better understood as a sequence of changes:
  - Stress shift, /ə/ deletion, and /ə/ epenthesis (Montler 1986: 111–30; Blevins & Garrett 1998: 540).

Najdi Arabic

- Epenthesis and deletion occurring consecutively (Ingham 1994).
  - Results in different dialectal distributions.

Pseudo-metathesis in Basque (Egurtzegi 2014)

- Apparent /e/ metathesis, found in loanwords that begin with /re-/ in Latin/Spanish and with /er-/ in Basque.

- Words beginning with a rhotic were not allowed in Basque.
  - /r/-initial borrowings were systematically adapted to the phonotactics of the language by means of a prothetic vowel: Lat. *regem* >> Basque *errege* ‘king’.

- Different prothetic vowels, although most usually /e-/.
  - e.g. *arropa* ‘clothes’, *arrasto* ‘trace’, etc.

Adaptation of loanwords beginning with /re-/ (Egurtzegi 2014)

Std. Bsq.				**Sp.**	**Gloss**
erlatibo^{LW}	<	*errelatibo*	<	*relativo*	'relative'
erlazio^{LW}	<	*errelazio*	<	*relación*	'connection, relationship'
erlijio^{LW}	<	*errelijio*	<	*religión*	'religion'
erloju^{LW}	<	*erreloju*	<	*reloj*	'clock'
ernegatu^{LW}	<	*errenegatu*	<	*renegado*	'renegade'
errie(r)ta^{LW}	<	*erreie(r)ta*	<	*reyerta*	'brawl'

Pseudo-metathesis in Basque (Egurtzegi 2014)

- This change is better understood as a sequence of
  - /e-/ prothesis in the adaptation.
  - /-e-/ deletion.

- Variants which maintain two /e/s are widely attested.
  - e.g. *errelijio*, *errelazio*, *erreloju*…

- This process could be stress-induced, but it could also be related to the same mechanisms behind perceptual metathesis.

Implications for reconstruction

- An independent sound change could develop between spread and deletion in the case of pseudo-metathesis, this is not expected for gradual metatheses such as these in Andalusian or Uab Meto.

- The apparent intermediate sound changes observed in gradual metathesis do not interact with other synchronic rules.
  - They are applied late in the derivation.
  - No interaction of Meto metathesis with other segmental rules (Mooney 2022).
  - No interaction of metathesis-based coda loss with stress assignment rules in Andalusian Spanish (Gilbert 2022).

Implications for reconstruction

- In gradual metathesis, intermediate variants are contemporary.
  - The change is completed once the variant that will prevail is phonemicized.
- Written records only show evidence of lexicalized variants.
- Lexicalized variation might last for centuries.
  - e.g. English *frost* vs. Old English *forst*, from Proto-Germanic *frustaz.

Reciprocal metathesis as direct distant transposition

- Reciprocal metathesis is a likely counter-example to many suggestions proposed in phonological theory:

  - that distant metatheses are unattested or do not exist (Mielke & Hume 2000; McCarthy 2000).
  - that direct transposition is impossible (Takahashi 2019; Gilbert and Mooney 2022; Mooney 2022).
  - that multiple local metatheses underlie non-local exchanges (Mielke & Hume 2000; Hume 2001).

Conclusions

Conclusions

- Broad definitions of metathesis have often resulted in the reconstruction of any kind of segmental transposition.
  - Not all metatheses are equally probable.

  e.g. the long-distance movement of a single oral stop is not predicted as a sound change (excluding morphological changes).
  - Some types of metathesis are bidirectional, others are unidirectional.
    - The opposite change is unattested.
    - It is also unexpected based on phonetic grounds.

- Theoretically improbable metatheses should not be used in diachronic reconstruction (at least without meaningful evidence).

Conclusions

- Local metathesis due to coarticulatory gestural overlap can be gradual and systematic.
  - Regular metathesis can develop through intermediate (non-phonologized) incremental stages.

- Error-based metatheses (perceptual or speech errors) are irregular and can be abrupt.
  - They target specific words, not phonological contexts.
  - If they develop in a large number of words, they may appear to be systematic even though they are not.
  - They can be viewed as evidence of distant metathesis and direct transposition.

The long path of coda /s/ in Andalusian Spanish

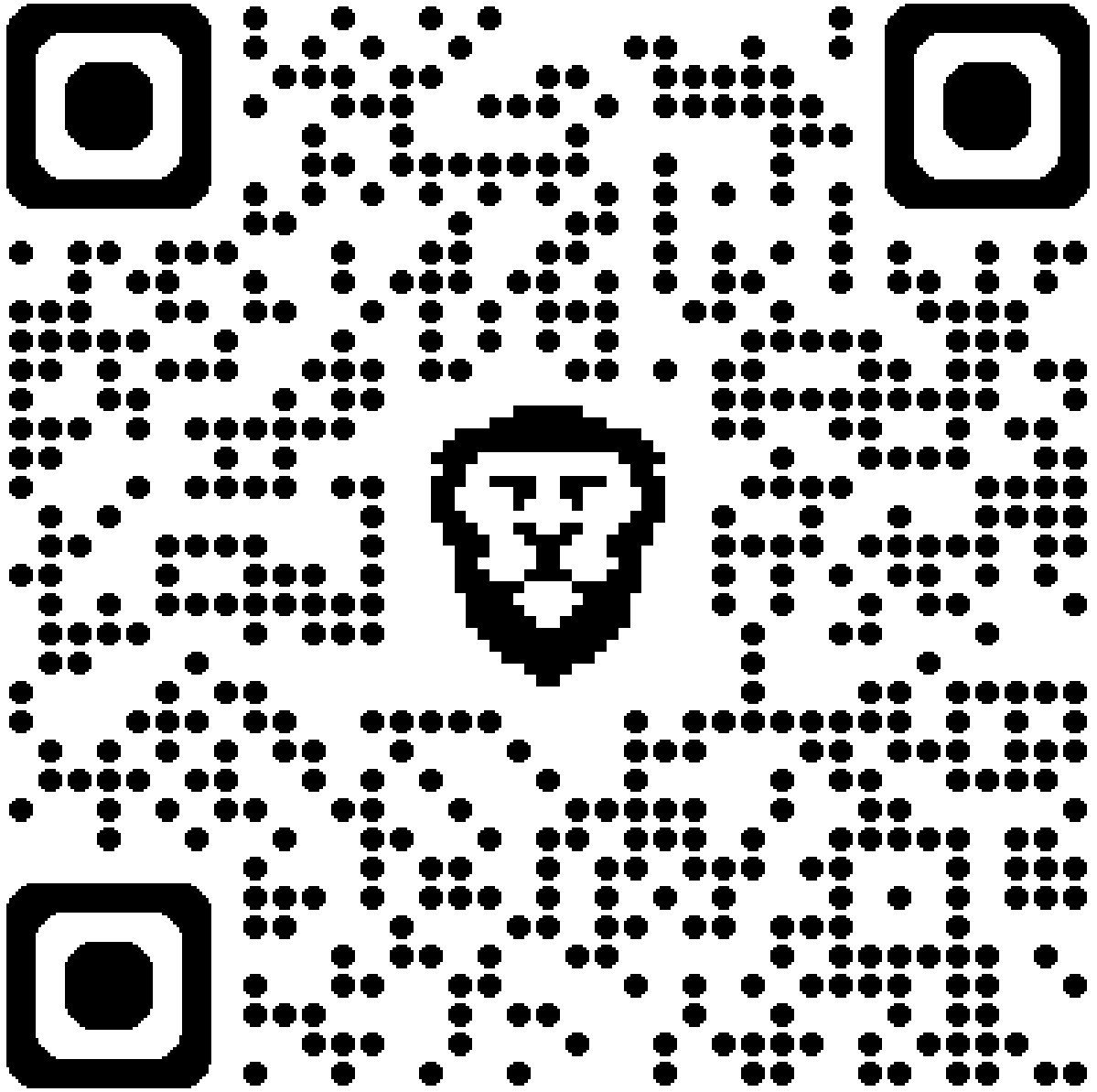
- Disregarding gradual change in metathesis could lead to the erroneous reconstruction of /st/ > /ts/ in Andalusian Spanish.

- Multiple categories in the typologies of metathesis show comparable mechanisms.

Today's paper:

Egurtzegi, A. 2025. Metathesis. In Ledgeway et al. (eds.), *The Wiley Blackwell Companion to Diachronic Linguistics*. Wiley-Blackwell.

Open access here:
https://egurtzegi.github.io/papers/MetathesisDiaComEgurtzegi.pdf

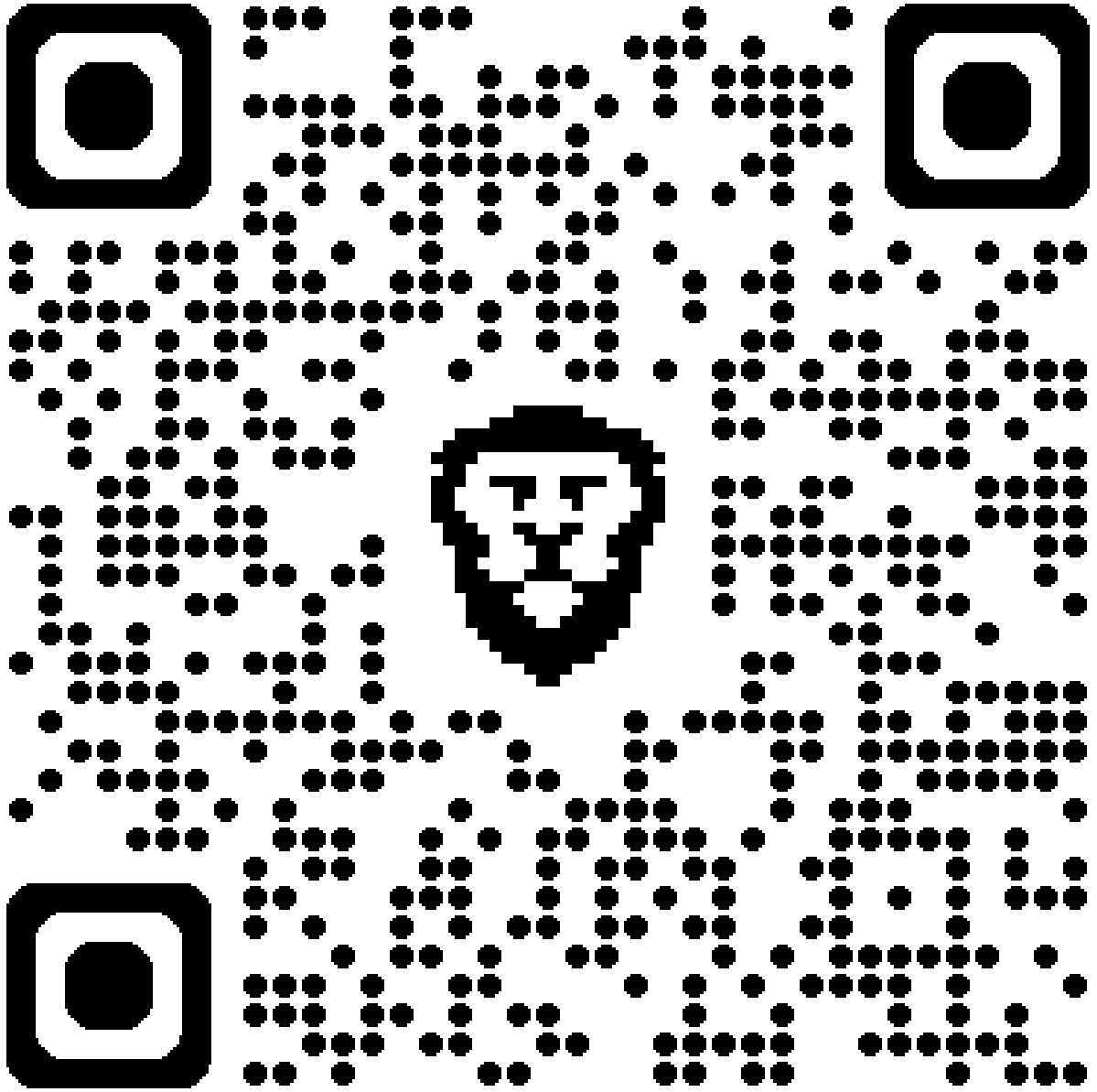


All papers are freely accessible here: egurtzegi.github.io/publications

Next paper:

Egurtzegi. 2017. Phonetically conditioned sound change: Contact induced /u/-fronting in Zuberoan Basque. *Diachronica* 34.3, 331-367.

Open access here:
https://egurtzegi.github.io/papers/Egurtzegi-u-fronting-preprint.pdf



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