

# THE FORTIS FALLACY

Linguistic theory, MA lecture course  
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# the aim of this talk

is to show why the sounds regularly transcribed in clusters as

**p t tʃ k f θ s ʃ**

are often better analysed (and therefore transcribed) as

**b d dʒ g v ð z ʒ**

respectively

(so *stops* [s**d**o**p**z], *sphynx* [sviŋ**k**z], *aspect* [as**b**e**g**t], *soft* [sof**d**])

# grouping sounds

## consonant vs vowel

p t tʃ k f θ s ʃ b d dʒ g v ð z ʒ m n ŋ w l r j h ɤ u i ə o e a

## obstruent vs sonorant

p t tʃ k f θ s ʃ b d dʒ g v ð z ʒ ɤ m n ŋ w l r j h u i ə o e a

## fortis vs lenis

p t tʃ k f θ s ʃ ɤ b d dʒ g v ð z ʒ m n ŋ w l r j h u i ə o e a

# voicing (= vocal fold vibration)

## spontaneous voicing

voicing occurs naturally in **sonorants**, which have relatively free airflow (eg *only* [əwnlij])

## active voicing

voicing is also possible for **obstruents** (which have considerable obstruction in the airflow), but requires a deliberate effort (eg both [b]'s in Hu *bab*, cf En *bob*, in which neither [b] is voiced)

## passive voicing

**obstruents** may be voiced by neighbouring sounds that are spontaneously or actively voiced (eg the [b] in En *amber* [ambə]); passive voicing is not available next to a fortis sound

# voicing and aspirating languages

- French, Hungarian, or Polish are voicing languages: they have **actively voiced** obstruents (the [b] in *banque* or *bank* is voiced)
- English, Welsh, or Mandarin are aspirating languages: they do not have actively voiced obstruents (the [b] in *bank*, *banc*, or *Hubei* is not voiced, cf the Hu spelling *Hupei*)
  - so what's the difference between *bay* and *pay* or *dry* and *try*?  
**aspiration** (not voicing)
  - and what's the difference between *Abe* and *ape* or *pens* [penz] and *pence* [pens]?  
the **length** of the vowel(+consonant sequence) before the plosive (not voicing)
  - and between *rabid* and *rapid* or *anger* [aŋgə] and *anchor* [aŋkə]?  
**passive** voicing ([b] or [g] is passively voiced between sonorants, [p] or [k] is not)
  - that is, in an aspirating language lenis obstruents are **not necessarily voiced**, they may as well be voiceless, if so we know they are lenis because they are (i) not aspirated, (ii) do not shorten the preceding sonorant sequence

# assimilation

- Hungarian has voice assimilation: adjacent obstruents agree in voicing, all obstruents share the voicing of the last one
  - [ne:p]+[dal] → [ne:**bdal]** ‘folk song’
  - [la:b]+[tarto:] → [la:**ptarto:]** ‘footrest’
  - [list]+[bøl] → [liz**dbøl]** ‘from flour’
- there is no assimilation before a sonorant
  - [ne:p]+[e:nek] → [ne:**pe:nek]** ‘religious folk song’
  - [ne:p]+[meʃe] → [ne:**pmeʃe]** ‘folk tale’
- English has no voice assimilation: English (an aspirating language) has no **actively voiced** obstruents (more on the plural & past suffixes below)
  - [əp]+[dejt] → [ə**pdejt]** *update*
  - [səb]+[tajp] → [sə**btajp]** *subtype*
  - [dəst]+[bin] → [də**stbin]** *dustbin*

# fortis/lenis obstruent ratios in English

	initial	medial	final	total
<b>singletons</b>				
plos.	1.3	1.5	1.2	<b>1.4</b>
fric.	6.8	2.1	0.4	<b>1.5</b>
all	<b>1.9</b>	<b>1.6</b>	<b>0.7</b>	<b>1.4</b>
<b>clusters</b>				
plos.+plos.	—	6.3	3.2	<b>4.9</b>
plos.+fric.	(2.6)	5.8	3.1	<b>3.7</b>
fric.+plos.	—	23.8	4.4	<b>15.3</b>
fric.+fric.	—	11.2	0.8	<b>1.9</b>
all	<b>(837)</b>	<b>10.5</b>	<b>3.1</b>	<b>6.2</b>

**question:** why do we find overwhelmingly fortis obstruents in clusters (but not in singletons)

# assimilating suffixes and enclitics in English?

## the D-morphs

past tense, past participle, *had*, *would*

*quizzed* [kwiz]+D → [kwiz**d**]; *missed* [mis]+D → [mist]? (*kidded* [kid]+D → [kidəd])

## the Z-morphs

plural, genitive, 3sg present, *has*, *is*

*dogs* [dog]+Z → [dog**z**]; *cats* [kat]+Z → [kats]? (*bosses* [bos]+Z → [bosəz])

## questions

- if lenis obstruents may be voiceless, how do we know if its [mist] or [mist**d**], [kats] or [kats**z**]?
- why assume a change if it is unnecessary?

# an old problem: why is [p] not aspirated in *spin*?

## syllable-based explanation

- fortis plosives are aspirated only syllable initially
- but if the [t] is aspirated in *winter*, why is it not in *after*? (is it syllabified *a.fter*?)

## an alternative explanation

- the plosives after fortis fricatives are always lenis: *spin* [s**b**in], *after* [af**d**ə]
- a fortis (= aspirated) plosive only occurs after a fortis fricative across a morpheme boundary: *kiss Kate* [kis#kej**t**], *mistime* [mis#taj**m**] (vs *mistake* [misdejk]), *rooftop* [ruwf#top]
- a fortis plosive may also occur after a lenis fricative: *Aztec* [aztek], *cosplay* [kozplej], *lieutenant* [levtenənt]
- a lenis obstruent is voiceless next to a fortis obstruent (recall, passive voicing is not available next to fortis)

# types of fricative+plosive clusters

- lenis+lenis: *husband* [həzbənd], *wisdom* [wɪzdəm], *Glasgow* [glazgəw]
- lenis+fortis: *gazpacho* [gazpatʃəw], *Aztec* [aztek], *lieutenant* [levtenənt]
- fortis+lenis: *aspen* [aspən], *after* [afdə], *Afghan* [afgan], *Oscar* [osgə]
- **fortis+fortis does not exist within a morpheme!**

**question:** why?

# a general assumption: no fortis+fortis clusters in En

the \**fortis+fortis* constraint holds of **all obstruent clusters**

## plosive+plosive

- lenis+lenis: *abdomen* [abdəmən], *Magda* [magdə], *object* [objekt]
- lenis+fortis: *captain* [kaptən], *rupture* [rəptʃə], *active* [aktiv], *lecture* [lektʃə]
- fortis+lenis: *anecdote* [anɪkdəwt], *Updike* [əpdajk]

## plosive+fricative

- lenis+lenis: *observe* [əbzə:v], *exam* [ɪgzam], *luxurious* [ləgzʊ:rijəs]
- lenis+fortis: *absent* [absənt], *Bergson* [bə:gsən], *action* [agʃən], *Agfa* [agfə]
- fortis+lenis: *cats* [katz], *Leipzig* [ləɪpzig]

## fricative+fricative

- lenis+lenis: *evzone* [evzəwn], *transvestite* [tranzvesdajt]
- lenis+fortis: *Rumsfeld* [rəmzfeld], *twelfth* [twelvθ]
- fortis+lenis: *sphere* [svi:], *surfs* [sə:fz]

# advantages

- fortis+fortis clusters do not overwhelm others
- we understand why plosives are not aspirated after [s] (and [f])
- Z- and D-suffixes have only two allomorphs: [z]~[əz] and [d]~[əd]
- other alternations also disappear: *lose* [luwz]~*lost* [lozt], *leave* [lijv]~*left* [levt], *twelve* [twelv]~*twelfth* [twelvθ]

# phonetic evidence

recent phonetic measurements (G. Kiss & Szigetvári 2020) show that the pre-[t] part is slightly longer and the [t] is slightly more aspirated in *acting* than in *packed in*; this fact is consistent with the analyses presented here: [agtiŋ] vs [pakdiŋ] (but **not** with standard transcriptions: [aktiŋ] and [paktiŋ])

# so why do we transcribe lenis obstruents as fortis?

- English is an aspirating language: there is no active voicing, obstruents are only passively voiced by adjacent sonorants
- Hungarian (and many other languages, speakers of which are users of English dictionaries) is a voicing language: there are actively voiced obstruents
- accordingly, English [b d dʒ g v ð z ʒ] stand for consonants that are not **necessarily** voiced, while Hungarian [b d ɟ g z ʒ] stand for actively voiced consonants
- so if *stops* were transcribed as [sdopz], many learners of English would be tempted to pronounce it [zdobz] (many learners of English pronounce *stopped* as [stobd], because of the influence of the **spelling**, but at least the transcription is [stopt])