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An Introduction to Historical Phonology 2

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The contents of the session

1. The FOOT-STRUT split one last time: patterning and explanation
2. Different types of change: underlying and surface change
3. Adding rules and reanalysis
4. Phonologisation and phonemicisation
5. Rules and words: analogy

The FOOT-STRUT split one last time: patterning and explanation

To pursue the FOOT-STRUT split one last time...

- what was its precise patterning?
- can we get *any way* towards answering why it happened?

Can we get any way towards answering *why it happened*?
= question 13

- the very existence of a dialectal split (with some dialects changing, and some not) shows that we can't fully explain it
- to explain a change = to be able to predict that it was going to happen in mid-17th century southern England
  - we couldn't hope to do that, but can we get any way towards 'explanation'?
  - there are different answers to this question – some claim we *can* get some way in this direction

For example...

... in the time running up to the innovation of the FOOT-STRUT split, Lass (1999, 87) describes a gradual lowering of aspects of the English short/lax/checked vowel system:

	1400		1550		1650	
High	i	u	i	u	i	u
High-mid	e	o		↓		
Low-mid			ɛ		ɛ	
Low	a		a		æ	↓ ɒ

There is orthoepic 'early phonetic' work from the middle of the 17th century which describes the vowels, and:

- the TRAP vowel seems best analysed as front and lowish, below [ɛ]
- the LOT vowel has "the most open and full sound of all", so was something like [ɒ]

The FOOT-STRUT split occurred around where Lass leaves off here

- the relevant segmental system into which it was innovated was something like this:

ɪ	ʊ
ɛ	
æ	ɒ

One way of perceiving of the FOOT-STRUT split is that it 'fills the gap' in the vowel system:

ɪ	ʊ
	↓
ɛ	ʌ
æ	ɒ

Could this be the 'cause' of the change? to fill the gap and produce symmetry?

- structuralist historical phonology would say so
- it's an appealing proposal – there seems to be no other obvious reason why the change should happen and it's not a very common type of change
  - but it's a strange kind of 'cause' – it's not *necessary* – northern dialects got on perfectly well without the change, and with the gap

Could we ever find a solution to the actuation problem? which would allow us to say we can 'explain' changes

- in order to be able to fully explain why changes occur in particular places and times, we need to be able to *predict* precisely when particular changes will occur
- historical phonology cannot do this, but it can engage in some sort of prediction
- Lass (1980) has made quite something of all this: "explanations of sound changes in the strict sense do not exist" (1980, 42); he derives this claim from the assumption, which he himself has since described as "a bigoted, coarsely positivist assault" (Lass 1997, 332), that only one kind of explanation is 'real explanation' – deductive-nomological explanation (Lass 1980, 9):
  - "The 'best' explanation is 'X, because it couldn't have been otherwise (because Y)' ... The explanation type that seems to come closest is the ... 'Hempel-Oppenheim' or 'Deductive-Nomological' schema, which characterises the physical sciences. It is based on deductive inference and, as its name implies, 'laws', and is 'ideal' in the sense that a well-formed explanation has the form of a deduction, and is in principle equivalent to a prediction."

There have been many responses to Lass about this...

- In one of these responses, Aitchison (1987, 12) comments that
  - "... the exact relationship between prediction and explanation is obscure, partly because of the vagueness of the terms 'predict' and 'explain'. Each of them is used to cover several different levels. Prediction can involve weak prediction (something is likely to happen), strong prediction (something will happen, though exactly when and where is unclear) and absolute prediction (something will happen, and the time and place can be specified in advance)."
  - Aitchison's points are shared by Ohala (1987), who proposes that explanation in historical phonology should be deductive-probabilistic, ie, able to account for what is likely, not what is necessary

Historical phonology often make predictions about what is *likely* to happen in terms of change in any particular phonological system

- but is this all it can do? that's not testable!
- many would claim that historical phonology should also aim to predict what cannot occur:
  - given a particular phonological system, only changes of type x should be possible
  - in that system, certain types of changes should be impossible, creating in-principle testable hypotheses

The FOOT-STRUT split *really* one last time: patterning

What was the patterning of the change?
= question 5 (and (10))

As the change is a split, we would expect some phonological conditioning

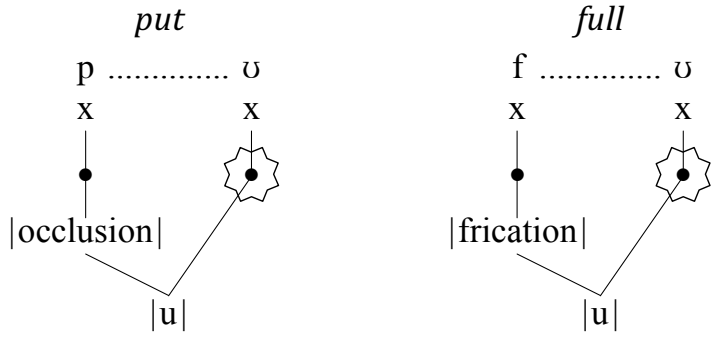
	PD Yorkshire	**PD RP**
lung	[lʊŋ]	[lʌŋ]
blush	[blʊʃ]	[blʌʃ]
cup	[kʰʊp]	[kʰʌp]
gulf	[gʊɬf]	[gʌɬf]
love	[lʊv]	[lʌv]
bush	[bʊʃ]	[bʊʃ]
put	[pʰʊt]	[pʰʊt]
full	[fʊɬ]	[fʊɬ]
wolf	[wʊɬf]	[wʊɬf]
pull	[pʰʊɬ]	[pʰʊɬ]

- it could be inhibited when the /ʊ/ was directly adjacent to certain consonants
- for example: labial consonants like /p, b, f, w/
- for the most part, whenever the change did not occur, /ʊ/ followed a labial

At some point in the 17th century, the innovation ʊ > ʌ occurred

- at that point, there was something like complementary distribution, so the change involved the addition of $\upsilon \rightarrow \Lambda$ / [COR, DOR] __ {[¬LAB] __ , ¬U __}

This makes sense if 'sharing' subsegmental material makes a segment stronger, and thus able to resist the innovation of a process



But the change *is* now a split – this in fact entails that two changes are involved

- there is at least one minimal pair now:

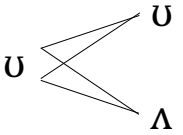
put	*putt*
[pʊt]	[pʌt]

- several words now have [ʌ] following a labial:

fudge	[fʌd͡ʒ]
putt	[pʰʌt]
but	[bʌt]

How can we understand the changes involved in the FOOT-STRUT split?

We have described the foot-strut split as:

- ʊ > ʊ : ʌ
- 

- ʊ → ʌ / [COR, DOR] _

How does this fit in with what we know about phonology...?

	feet	*feel*	*feeling*
UR	/fiːt/	/fiːl/	/fiːl+ɪŋ/
syllabification	. fiːt.	. fiːl.	.fiː.lɪŋ.
l-velarisation	—	fiːɬ	—
HVB	—	fɪəɬ	—
SR	[fiːt]	[fɪəɬ]	[fiːlɪŋ]

Immediately pre-change, the phonology is straightforward:

	bush	*lung*
UR	/bʊʃ/	/lʊŋ/
SR	[bʊʃ]	[lʊŋ]

Immediately post-change, we can understand the situation like this:

- this involves the addition of a rule to the phonology of the dialects in question

	bush	*lung*	
UR	/bʊʃ/	/lʊŋ/	
F-S split	—	lʌŋ	ʊ → ʌ / [COR, DOR] _
SR	[bʊʃ]	[lʌŋ]	= predictable distribution of [ʌ]

The second stage of the change gives as 'post-change 2' situation:

- this involves a reanalysis of URs and the loss of the rule – this in the segmental split

	bush	*lung*	
UR	/bʊʃ/	/lʌŋ/	
SR	[bʊʃ]	[lʌŋ]	= unpredictable distribution – nothing controls [ʌ]

This allows us to understand data like this:

- there is at least one minimal pair now:

put	*putt*
[pʊt]	[pʌt]

- several words now have [ʌ] following a labial:

fudge	[fʌd͡ʒ]
putt	[pʰʌt]
but	[bʌt]

How can this data occur if there was a rule along the lines of ʊ → ʌ / [COR, DOR] __ ?

- how can we account for what seem like exceptions?
- *fudge* is easily ticked off...
  - it was first attested with certainty in 1770 (possibly earlier but this does not seem sure or common, according to the *Oxford English Dictionary*)
  - this means that the word, and the phonological form [fʌd͡ʒ] was invented (and hence entered the language) 'after the change was finished'
  - = after the reanalysis of ʌ into URs = after the second stage of the change
  - at this point, [ʌ] was free to occur after any kind of consonant

- *putt* also has a straightforward explanation
  - *putt* 'try to hit a golf ball into the hole by striking it gently so that it rolls across the green'
  - golf is a Scottish invention
  - the historical phonology of Scots is not the same as that of English
- *putt* was borrowed in English from Scots 'after the change was finished'
  - its first possible attestation in English is 1690, the second is 1754

What happened in Scots?

- Scots underwent a change which looks a bit like the FOOT-STRUT split, but was actually entirely unrelated
  - the FOOT-STRUT split stopped at the isogloss half way up England

- Maguire (2012) sets out the relevant change in the history of Scots:

The Scots Short Vowel Shifts

- In many varieties of Broad Scots, short vowels underwent a number of changes which appear to involve chain shifting
- High short vowels lowered (shared by almost all varieties)

– e.g. [ɛ̈] in *bit*, *in*, *milk*, [ʌ̈] in *butter*, *cup*, *hut*

This change affected two vowels:

- /ʊ/ and /ɪ/

The change was unconditioned

- all words were affected
- there is now no /ʊ/ in Scots
- all words that had [ʊ] now have [ʌ]
  - *bush* [bʌʃ]
  - *woman* [wʌmən]
  - *put* [pʌt]

Scots *put* [pʌt] was borrowed into English as *putt* after the reanalysis of ʌ into URs = after the second stage of the change

- *but* is less straightforward...
  - this word has 'always' been in English (OE *butan*)
  - there is no 'borrowing' explanation to account for it
  - it *is* grammatical/functional word, not a 'lexical' word like *full, putt, wool, love*
    - could function words behave differently?
    - could there be a phonological subgeneralisation that accounts for it?

Why does this matter...?

- we will see in later sessions that this is arguably very important
  - is phonological change exceptionless?

Change at different phonological levels = different 'types' of change

We have seen that the diachronic arrow > has a problem:

- it does not by differentiate between segments of different phonological statuses
  - what about the distinction between underlying ('phonemic', contrastive) phonology and surface ('allophonic', predictable) phonology?
  - can change occur at both levels?
  - we *could* explore this on the basis of the FOOT-STRUT split, but let's move on...

Let's return to this change:

- muːsi >...> maɪs 'mice'
  - this data is rather famous in historical phonology, and has been discussed many times
  - the changes involved will allow us to consider change at multiple levels, and the notion of phonologisation

As we have seen, multiple stages were involved in this change, including at least:

muːsi > myːs > miːs > maɪs

- we will only consider the first of these – and we will see that even more was involved

One of the main changes involved in this data is often called *i*-umlaut

- this is a major change that affected a number of vowels in the transition from West Germanic to Old English, approximately between the second and fifth century CE
- we only consider WGmc /u, uː/ – other vowels were also affected in the change
- crucially, as just described, this change affected segments, not words
  - the ancestor of *mice* was only affected because it had /uː/

Pr-Gmc	**OE (spelling and transcription)**		
trumjan	*trymman*	[trymːan]	'strengthen'
kuni	*cynn*	[kynː]	'race, geneation'
muːsiz	*mys*	[myːs]	'mice'

The change affected vowels like the back high vowels

- these vowels harmonised with a following [i] or [j]
- the long and short vowel changes are really part of the same change
  - u(ː) > y(ː) / _ (C) i,j
    - this can be understood as: [+back, +high] > [–back] / _ (C) [–back, +high]

As when we considered the introduction of the FOOT-STRUT split, we can understand this as the innovation of a rule

- u(ː) → y(ː) / _ (C) i, j

When *i*-umlaut was first innovated, the distribution of [u] and [y] was *predictable*

- [y] occurred when an /i/ or /j/ followed; [u] occurred elsewhere
- the phones are phonetically/featurally similar
  - there is thus every reason to assume that *i*-umlaut was innovated as a phonological rule
- however, the /i, j/ were later lost due to separate changes
  - with this, the *i*-umlaut rule could no longer be synchronically active, and there would be a reanalysis which created of new underlying segments, like /y, yː/
  - there were thus new contrasts: /u : y/ and /uː : yː/

		'mouse'	'mice'
(i)	PGmc	/muːs/ → [muːs]	/muːs+iz/ → [muːsiz]
(ii)	introduction of umlaut (+ loss of *-z*)	/muːs/ → [muːs]	/muːs+i/ → [myːsi]
(iii)	loss of *-i* + reanalysis = contrast!	/muːs/ → [muːs]	/myːs/ → [myːs]

Let's go through this slowly...

- stage (i) = Proto-Germanic = nothing to say...

UR	/muːs/	/muːs+iz/
SR	[muːs]	[muːsiz]

- stage (ii) = the introduction of the *i*-umlaut rule (plus unrelated loss of [-z])
  - NB: this involves surface change with no underlying change
  - the distribution of [uː] and [yː] is predictable

UR	/muːs/	/muːs+i/	
i-umlaut	—	myːsi	u(ː) → y(ː) / _ (C) i, j
SR	[muːs]	[myːsi]	

- stage (iii) = loss of [-i], reanalysis and loss of the *i*-umlaut rule
  - NB: this involves underlying change with no surface change
  - the distribution of [uː] and [yː] is no longer predictable, so must be underlying
  - this introduces a 'phonemic split' into the language: /uː/ > /uː : yː/

UR	/muːs/	/myːs/
SR	[muːs]	[myːs]

Let's focus on stages (ii) and (iii)

- stage (ii) = the introduction of the *i*-umlaut rule (plus unrelated loss of [-z])
  - the distribution of [uː] and [yː] is predictable

UR	/muːs/	/muːs+i/	
i-umlaut	—	myːsi	u(ː) → y(ː) / _ (C) i, j
SR	[muːs]	[myːsi]	

- stage (iii) = loss of [-i], reanalysis and loss of the *i*-umlaut rule
  - the distribution of [uː] and [yː] is no longer predictable, so must be underlying

UR	/muːs/	/myːs/
SR	[muːs]	[myːs]

The difference between (ii) and (iii) is sometimes known as phonologisation

- it is better, though, to call it phonemicisation because *phonologisation* implies that something come under phonological control, and that does not need to involve the 'phonemic' or underlying level – isn't stage (ii) phonological, too?

Phonologisation and phonemicisation

Kiparsky (2015) points out some problems with the notion of phonologisation (=phonemicisation, 'underlyingification'):

> it leaves two questions unanswered. First, when the conditioning environment goes away (as here by reduction of the full vowels to -e or to -ə), why do its effects remain?[4] Secondly, why does the loss of a conditioning environment not *always* cause phonologization? Why do the conditioned allophones sometimes just go away?[5] Let's call them the PHONOLOGIZATION PROBLEM and the NON-PHONOLOGIZATION PROBLEM, respectively.

As he notes, these problems have long been recognised:

> [4] "Why did the front vowels not become back again, why did the frontness stay, once the influence of /i j/ was removed?" (Liberman 1991: 126).
>
> [5] "Why do allophones sometimes remain and other times revert?" (King 1971: 4).

Why did the loss of conditioning environment not lead to the loss of [yː]?

UR	/muːs/	/muːs+i/		UR	/muːs/	/muːs/
i-umlaut	—	myːsi	>	SR	[muːs]	[muːs]
SR	[muːs]	[myːsi]				

- did yː become underlying while it was still predictable...?

As Kiparsky (2015) underlines, phonologisation of this type does not always occur

- here is a slightly truncated example
  - velar palatalisation is a long-standing, semi-universal process: k, g → c, ɟ / __ i, ɪ, e, ɛ
  - at a stage of Middle English, this would have given derivations like the following

	gull	*girl*	
UR	/gul/	/girl/	
velar palatalisation	—	ɟirl	= predictable distribution of [ɟ]
SR	[gul]	[ɟirl]	

- in Early Modern English, pre-r vowels centralised, this included ir > ɜː
  - this removed the environment for velar palatalisation to apply, like the loss of -i removed the environment for *i*-umlaut
  - this did not lead to the phonologisation/phonemicisation of /g : ɟ/ (*/gul, ɟɜːl/)
  - = the NON-PHONOLOGISATION PROBLEM
  - why did the loss of conditioning environment lead to the loss of [ɟ]?
- ɟ clearly did not become underlying while it was still predictable...?

We will leave this as a cliff-hanger:

- if this is right, phonologisation/phonemicisation can occur, but does not have to occur

Rules and words: analogy

Let's return to some of the first data that we saw:

[koren]	>	[t͡ʃoːsen]	English	'chosen'
[hilpθ]	>	[hɛlps]	English	'helps'

One crucial point is that the above diachronic correspondences are of a fundamentally different kind to the following:

[muːsi]	>	[maɪs]	English	'mice'
[pund]	>	[p͡fund]	High German	'pound'
[gʷénh₂-]	>	[ben]	Irish	'woman'
[keture]	>	[t̪͡ʃʷetiri]	B/C/M/S~SerBo-Croat	'four'

As we noted when we first saw them, all of these diachronic equations are true, but most of them are missing the point

- because the changes involved didn't just affect individual words

In Old English, the past participle of 'choose' was *(ge)coren* [koren]

- in Present-Day English, it is *chosen* [t͡ʃo:sen]
- is this (in part) due to a change of this type? r > z / V_V
  - this would be very odd – what about all the exceptions:

    narrow OE *nearo*

    weary OE *werig*

    etc, etc...
- is this a change that only occurred in one word?
  - yes! but it is a change of a different type to those that we have been considering
  - it does not involve the addition of a rule

The change is due to analogical levelling

- in order to understand this, we need to consider the paradigm that the word was part of when the change occurred
  - in some forms of the verb that is now *choose* the non-initial consonant was /r/ in OE
  - it is now /z/ because of analogical paradigm levelling
  - = because of the influence of other forms of the same morpheme:

	OE	**ModE**	
infinitive	*ceosan*	*choose*	
1st-person singular past	*ceas*	*chose*	
2nd-person singular past	*cure*	*chose*	the /r/ in OE is actually due to an
3rd-person singular past	*ceas*	*chose*	ancient change which included
plural past	*curon*	*chose*	s > r / V__V
present participle	*ceosende*	*choosing*	
past participle	*(ge)coren*	*chosen*	

- there was a sibilant in most forms (including the most common forms) so a sibilant was assumed to be the 'right consonant to use' in past forms, too
  - the sibilant was analogised into the past participle in order to regularise the paradigm
  - this is thus not a 'sound change' – it is not a regular phonological change

This is not a regular change – it has not happened in all verbs that used to have an alternation between /r/ and /z/

- forms of the verb that is now *be* had the same alternation in OE, but this paradigm has not levelled:

	OE	ModE
1st-person singular past	*wæs*	*was*
2nd-person singular past	*wære*	*were*
3rd-person singular past	*wæs*	*was*
plural past	*wæron*	*were*

Analogy is inherently tied to specific words (or morphemes)

- we expect analogy to occur in one word/morpheme and not in all that have the same phonological environment

What about this case...?

[hilpθ] > [hɛlps] English 'helps'

The same kind of story hold here:

- this is not due to a change of the type i > ɛ

To understand this, we need to consider the paradigm of the verb in OE Wyatt (1926)

I. Strong

	PRESENT	PAST
	Indicative	
Sing. 1.	helpe, *help*	healp
2.	hilpst	hulpe
3.	hilpð	healp
Plur.	helpað	hulpon
	Subjunctive	
Sing.	helpe	hulpe
Plur.	helpen	hulpen
	Imperative	
	help (*sg.*), helpað (*pl.*)	
	Infinitive	
	helpan, *dat.* tō helpanne	
	Participles	
	helpende	geholpen

The Present-Day English form [hɛlps] owes is vowel to paradigm levelling

- the majority of forms of the verb had a mid vowel, so that was assumed to be the 'right vowel to use' in 2nd and 3rd person forms, too

Analogy can lead to many kinds of changes

- some are described under the label four-part analogy
- in such changes, word-forms can be replaced on the basis of patterns in a language
  - for example, an Middle English plural for 'cow' was *kyn/kine* [kiːn, kaɪn]
  - in Present-Day English, it is *cows* [kaʊz]
- is this due (in part) to a change like this? n > z / __#
  - what about all the exceptions: *man*, *ten,* etc etc?

No! This is also due to analogy, as exemplified here (from Hock 2003)

a : a′
b : X = b′

dog : *dog-s*
cat : *cat-s*
. . . : . . .
cow : X = *cow-s* (replacing earlier *kine*)

This gives us a distinction between:
(i) purely phonologically conditioned change = 'normal' phonological change = 'sound change'
– such changes have been called 'N-changes' ('neogrammarian', 'natural' changes)

(ii) change in phonological forms which is not phonologically conditioned: analogy, borrowing
– such changes have been called 'A-changes' ('analogy', 'alles andere')

On this course, we will largely focus on N-changes, as does most historical phonology, but some discussion of A-changes will also crop up, and it is crucial to bear in mind as an analytical option when working out the patterning of a change.

Osthoff & Brugmann (1878), founding the neogrammarian school of historical linguistics, famously assumed that there are these two fundamental types of change, and that they have different characteristics

- 'sound change' is:
  - absolutely regular in the speech of individuals and speech communities = exceptionless
  - 'mechanical' – 'automatic' in some sense
  - about sound only, not meaning
- this is the *normal*, basic type of phonological change: *exceptionless* and conditioned only by *phonetic-phonological* factors

- 'analogy' is:
  - idiosyncratic, sporadic
  - not mechanical or automatic
  - about forms linked to meanings (morphological or syntactic)
  - a fundamentally 'psychological' process