IS VOWEL REDUCTION IN ENGLISH PHONOLOGICAL?

Péter Szigetvári, Eötvös Loránd University, szigetvari@elte.hu

GLOW46: Non-automatic alternations in phonology workshop

Vienna, 15 April 2023 

outline

- what is ‘phonological’?
- the vowel system of British English (BE)
- stress v accent, stressability, the unstressed vowels of BE
- accent change: the Rhythm Rule, compound words, new v given information, contrast
- stress change and the lack of stress change
- ‘nonautomatic’ vowel alternations in English: ablaut, umlaut, shift, **reduction**

what is ‘phonological’?

- systematic relation between ‘input’ and ‘output’
- phonetically plausible alternation
- allophonic/predictable/automatic alternation
- productive
- (almost) exceptionless
- affected by context beyond the word

BE vowel categories by distribution (stressed vowels)

vowels	_C	_#	_V	categories
KIT, STRUT, FOOT, DRESS, TRAP, LOT	✓	✗	✗	checked
NEAR, NURSE, CURE, SQUARE, START, FORCE	✓	✓	✗	R
FLEECE, GOAT, GOOSE, FACE, PRICE, MOUTH, CHOICE	✓	✓	✓	free

traditions that miscategorize the BE vowel system

(Jones 1917,) Gimson 1962, Wells 1990

1. checked vowels: ɪ e æ ʌ ɒ ʊ = short vowels
2. R vowels: ɪə eə ɑː ɜː ɔː ʊə = long vowels and centring diphthongs
3. free vowels: iː eɪ aɪ aʊ əʊ ɔɪ uː = long vowels and closing diphthongs

Windsor Lewis 1972, Giegerich 1992

1. checked vowels ɪ ɛ a ʌ ɒ ʊ = lax(?) vowels
2. R vowels: ɪə ɛə ɑ ɜ ɔ ʊə = lax(?) vowels and centring diphthongs
3. free vowels: i e aɪ aʊ o ɔɪ u = tense vowels and closing diphthongs

the vowel system of BE (based on Lindsey 2012)

category							**_C**	**_#**	**_V**
checked	i	ə	u	e	a	o	✓	✗	✗
long	iː	əː	uː	eː	aː	oː	✓	✓	✗
free/‘diphthongs’	ij	əw	uw	ej	aj aw	oj	✓	✓	✓

STRUT is ə (Fabricius 2007, Szigetvári 2018); NEAR iː, CURE uː, SQUARE eː, and FORCE oː have monophthongized during the 20th c (Jones 1918, Upton 1995, Lindsey 2012, Cruttenden 2014); FLEECE ij and GOOSE uw are ‘diphthongs’ (Sweet 1900, Jones 1918, Cruttenden 2014)

⇒ English has the **standard five-vowel inventory** complemented with schwa (short and long)

a note on transcription symbols

Lindsey (2012) uses ɪ for i, ɛ for e, ʉ for u, ɔ for *some* o's, and ɑ for *some* a's; this degree of phonetic precision is unnecessary when tense and lax, central and back vowels do not contrast; also

> 'The *shapes* of the graphic symbols scarcely deserve discussion. The reader who prefers the symbol [æ] where I use [ɛ] does not need any factual basis to justify his preference.' (Bloomfield 1935: 98)

stress is segmental

- is a lexical property of segments (*ugly* ɑ́glij v *agree* əgríj; *Carthew* ká꞉θjuw v *Corfu* ko꞉fúw; *Kennedy* kénədij v *Kentucky* kentɑ́kij)
- is stable: it generally does not appear, disappear, shift
- is a matter of vowel quality: full vowels are stressed (**s**), reduced vowels are unstressed (**w**)

accent is rhythmic

- its place mostly contextually determined (*arcade* a꞉kéjd v *archade video game* á꞉kejd vídijəw gejm), but may be lexical (**sś** v **śs**: *arcade* a꞉kéjd, *khanate* ká꞉nejt, *campaign* kampéjn, *migraine* májgrejn; **sśw** v **śsw**: *Manhattan* manhátən, *Manchester* mánʧestə; **śws** v **swś**: *pedigree* pédigrij, *Tennessee* tenəsíj)
- is mobile: may appear, disappear, shift
- targets stressed vowels (marginally unstressed vowels for contrast)

(cf Gussenhoven 1991, Vanderslice & Ladefoged 1972, Schane 1979, 2007)

stressability

syllable weight

VV$ ≥ VS$ ≥ VO$ ≥ V$
(cf Hayes 1995, Zec 1995)

S = sonorant consonant, O = obstruent

sonority

a ≥ e o ≥ i u ≥ r ≥ l ≥ m n ≥ s f t p k…
(cf Kenstowicz 1997, de Lacy 2006)

stressability in BE

set	members	status
long vowels	iː əː uː eː aː oː	only stressed
nonhigh vowels	e a o (ej aj aw oj)	only stressed
nonlow vowels	i ə u (ij əw uw)	either stressed or unstressed
consonants	j w r l m n s t…	only unstressed

NB1 ij əw uw stressed: *lea, low, loo*; unstressed: *volley, yellow, value*

⇒ simplest explanation: these are short vowel + glide sequences

NB2 r may be stressed in rhotic varieties (*bird* bɹ̍d)

excursus: stress as ‘supersyllabicity’?

set	members	moraic	syllabic	stressed
long vowels	eː aː oː iː əː uː	always	always	always
nonhigh vowels	e a o	always	always	always
schwa	ə	always	always	sometimes
high Vs = glides	i=j u=w	sometimes	sometimes	sometimes
liquids, nasals	r l m n ŋ	sometimes	sometimes	never
obstruents	v ð z ʒ f θ s ʃ b d ʤ g p t…	sometimes	never	never

the unstressed ‘diphthongs’ of BE: ij əw uw

	_C	_#	_V
ij	—	*valley* válij	*atrium* éjtrijəm
əw	*obey* əwbéj > əbéj	*yellow* jéləw	*Genoa* ʤénəwə
uw	*volume* véljuwm > véljum	*value* váljuw	*usual* júwʒuwəl

- ij əw uw do not occur/are lost preconsonantally, although all (other) vowels occur _C
- HAPPY ‘tensing’ (Wells 1982) inserts j exactly where it is not moraic, _# and _C
- w is lost iff moraic: word-final w is extrametrical, prevocalic w is not moraic
  such an explanation would not be available if ij əw uw were diphthongs

accent change 1: the Rhythm Rule (RR)

form in isolation	RR applies	RR does not apply
direct dajrékt	~ question dájrekt kwéʃʧən	
direct dirékt		~ question dirékt kwéʃʧən
correct kərékt		~ question kərékt kwéʃʧən
pontoon pontúwn	~ bridge póntuwn bríʤ	
lagoon ləgúwn		~ bridge ləgúwn bríʤ
academic akədémik	~ year ákədemik jíː	
kangaroo kaŋgərúw	~ court káŋgəruw kóːt	

RR detects stress

form in isolation	RR applies	RR does not apply
princess prinsés	~ Di prínses dáj	
sincere sinsíː		~ guy sinsíː gáj
Dundee dəndíj	~ City dəndij sítij	
contain kəntéjn		~ cities kəntéjn sítijz
unique juwnájk	~ function júwnijk fəŋkʃən	
unique junájk		~ function junájk fəŋkʃən

NB1 sinsíː or sənsíː, but prinsés, *prənsés: i~ə is a clear indication of a weak vowel

NB2 most conventions use different symbols for stressed and unstressed ə: dʌndíj v kəntéjn, but few for stressed and unstressed i: prɪnsés v sɨnsír (and u: *put* pʊt v *volume* váljəm; Bolinger 1986)

generalizations about RR

- accent only moves left: **sś ś** > **śs ś**, **swś**(**w**) **ś** > **śws**(**w**) **ś** (NB **sśw ś** > **śsw ś** is rare: *unite states* `júwnajt stéjts` v *United States* `juwnájtid stéjts`)
- accent only moves to a stressed vowel: **wś ś** ⊁ **ẃs ś**
- unstressed (= reduced) vowels do **not** get stressed (= full) during RR: **w** ⊁ **s**
- stressed (= full) vowels do **not** get unstressed (= reduced) during RR: **s** ⊁ **w**
  ⇒ stress (= vowel quality) is unaffected in this process, this is not stress shift

accent change 2: compound words

in isolation	as second member of compound
man mán	snowman snáwman
bird bə́ːd	blackbird blákbəːd
colour kə́lə	watercolour wóːtəkələ
dispenser dispénsə	soap dispenser sə́wp dispensə
generator ʤénərejtə	poetry generator páwitrij ʤenərejtə

NB *postman* is **not** a compound, in it mən is a suffix: there is a very limited set of such suffixes, this is not a general pattern in compounding (also cf *Blackwell* blákwəl, *Upton* áptən, etc)

accent change 3: new v given information

- *James can fetch the children*
  - ʤejmz kən feʧ ðə ʧíldrən
  - ʤejmz kən féʧ ðə ʧildrən
  - ʤejmz kán feʧ ðə ʧildrən
- *Bond. James Bond.* bónd | ʤéjmz bond (v *James Bond* ʤejmz bónd)

NB moving the accent elsewhere does not influence stress (= vowel quality) **except** in *some* function words which normally cliticize with a reduced vowel (eg, *can* kán, kən)

accent change 4: contrast

1. *Jane was accepted (not excepted)* ʤejn wəz ákseptid (cf əkséptid)
2. *they want Lennon (not Lenin)* ðej wont lenón (cf lénən)
3. *it's not working but it's workable* its not wáːkiŋ | bət its wəːkábəl (cf wáːkəbəl)
4. *she's not an employee but an employer* ʃijz not ən emplojíj | bət ən implojáː (cf implójə)

NB this is the only case where accent may land on a lexically unstressed vowel, in this case vowel quality *may* change, (1) and (2) (to hint at the spelling?), but it does not in (3), and there is phonotactic repair in (4): *V́#

accent change: conclusion

- the movement of accent does not affect stress (= vowel quality) in most cases
  - accent moves to a (lexically) stressed vowel in RR
  - the vowel left unaccented remains stressed in RR and compounds
- stress (= vowel quality) may change in two **limited** cases
  - lexically specified function words lose stress when not accented, ie, when cliticized
  - lexically unstressed vowels may be accented for contrast, potentially involving vowel change (this is marginal, spelling pronunciation)

stress change

full vowel	reduced vowel
edit édit/édət	edition idíʃən/ədíʃən
poetic pəwétik	poet páwit/páwət
acid ásid/ásəd	acidic əsídik
quadrantal kwodrántəl	quadrant kwódrənt
column kóləm	columnar kəlámnə
symphonic simfónik	symphony símfənij

no stress change

base	suffixed form
edit édit	editing éditiŋ
license lájsəns	licenses lájsənsiz
unceremonious ənserimáwnijəs	unceremoniousness ənserimáwnijəsnəs
bachelor báʧələ	bachelorhood báʧələhud
quadruplicate kwodrúwplikejt	quadruplicated kwodrúwplikejtid

differing stress patterns

sśw	wśw
monadic monádik	monastic mənástik
colitis kolájtis	otitis ətájtis
phlogistic floʤístik	sphragistic sfrəʤístik

śs	św
robot ráwbot	turbot tə́ːbət
condom kóndom	custom kástəm

allormophic changes

- postlexical/level-2/analytic affixation only induces phonological allomorphy
- lexical/level-1/nonanalytic affixation also induces suppletive allomorphy

(cf Kaye 1995)

three cases of stress change (= vowel reduction)

1. some function words (kən v kán): lexically specified (*on* on, *ən, *off* of, *əf; *of* ov/əv)
2. contrast (ákseptid, lenón): ‘spelling pronunciation’ (marginal)
3. lexical/level-1/synthetic affixation: not affected beyond the level of the word

conclusion

- stress in English is lexical
- stress change (= vowel reduction) is not ‘automatic’ alternation

spelling disguises allomorphy

the spelling hides most of the differences between the two stem allomorphs in, eg, *catholic* ~ *catholicism* (cf *catholicness*)

```
k á θ ə l i k n ə s
↑ ↑ ↑ ↑ ↑ ↑ ↑
k á θ ə l i k
↓   ↓   ↓ ↓
k ə θ ó l i s i z ə m
```

‘nonautomatic’ vowel alternations in English

- ablaut (*sing* `siŋ` ~ *sang* `saŋ`)
- umlaut (*full* `ful` ~ *fill* `fil`)
- shift (*hide* `hajd` ~ *hid* `hid`)
- reduction (*prosody* `prosədij` ~ *prosodic* `prəsodik`)

thanks to

- y’all for attending
- the organizers for organizing
- the anonymous reviewers for reviewing
- the Budapest Laryngeal Team for further criticism
- NKFIH #139271 and #142498 for sponsorship
- Yuki Hattori for Marp, Christian Robertson for Roboto, Renzhi Li for `Iosevka`
- George Soros for opposing authoritarianism

references

Bloomfield, Leonard. 1935. The stressed vowels of American English, Lg 11/2: 97–116 ★ **Bolinger,** Dwight. 1986. Intonation and its parts: Melody in spoken English. London: Edward Arnold ★ **Cruttenden,** Alan. 2014. Gimson's Pronunciation of English (8th ed.). London & New York: Routledge ★ **Fabricius,** Anne. 2007. Variation and change in the TRAP and STRUT vowels of RP: A real time comparison of five acoustic data sets. JIPA 37: 293–320 ★ **Gimson,** Alfred C. 1962. Introduction to the pronunciation of English. London: Edward Arnold ★ **Gussenhoven,** Carlos. 1991. The English Rhythm Rule as an accent deletion rule. Phonology 8: 1–35 ★ **Hayes,** Bruce. 1995. Metrical stress theory: principles and case studies. Chicago: University of Chicago Press ★ **Jones,** Daniel. 1917. An English pronouncing dictionary. London: J. M. Dent & Sons ★ **Jones,** Daniel. 1918. An outline of English Phonetics. Leipzig: Teubner ★ **Kaye,** Jonathan. 1995. Derivations and interfaces. London & New York: Longman. 289–332 ★ **Kenstowicz,** Michael. 1997. Quality-sensitive stress. Rivista di Linguistica 9/1: 157–188 ★ **de Lacy,** Paul. 2006. Markedness: Reduction and preservation in phonology. CUP ★ **Lindsey,** Geoff. 2012. The British English vowel system. https://www.englishspeechservices.com/blog/british-vowels/ ★ **Schane,** Sanford. 1979. Rhythm, accent, and stress in English words. LI 10: 483–502 ★ **Schane,** Sanford. 2007. Understanding English word accentuation. Lang Sci 29: 372–384 ★ **Sweet,** Henry. 1900. A new English grammar: Logical and historical. Oxford: Clarendon Press ★ **Szigetvári,** Péter. 2018. Stressed schwa in English. The Even Yearbook 13: 81–95 ★ **Upton,** Clive (pronunciation editor). 1995. Concise Oxford English Dictionary (9th ed.). OUP ★ **Vanderslice,** Ralph and Peter **Ladefoged.** 1972. Binary suprasegmental features and transformational word-accentuation rules. Lg 48: 819–838 ★ **Wells,** John C. 1982. Accents of English. CUP ★ **Wells,** John C. 1990. Longman pronunciation dictionary. Harlow: Longman ★ **Windsor Lewis,** Jack. 1972. A concise dictionary of British and American English. London: OUP ★ **Zec,** Draga. 1995. Sonority contraints on syllable structure. Phonology 12: 85–129