BBN–ANG–243 Phonological analysis
2. The vowel inventory of English

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the stressed vowels of British English

	Gimson	Lindsey	__ C	__ #	__ V
KIT	ɪ	ɪ	✓	✗	✗
DRESS	e	ɛ	✓	✗	✗
TRAP	æ	a	✓	✗	✗
STRUT	ʌ	ə	✓	✗	✗
LOT/CLOTH	ɒ	ɔ	✓	✗	✗
FOOT	ʊ	ʉ	✓	✗	✗
NEAR	ɪə	ɪː	✓	✓	✗
SQUARE	eə	ɛː	✓	✓	✗
START/BATH/PALM	ɑː	ɑː	✓	✓	✗
NURSE	ɜː	əː	✓	✓	✗
FORCE/NORTH/THOUGHT	ɔː	oː	✓	✓	✗
CURE	ʊə	ʉː	✓	✓	✗
FLEECE	iː	ɪj	✓	✓	✓
FACE	eɪ	ɛj	✓	✓	✓
PRICE	aɪ	ɑj	✓	✓	✓
CHOICE	ɔɪ	oj	✓	✓	✓
MOUTH	aʊ	aw	✓	✓	✓
GOAT	əʊ	əw	✓	✓	✓
GOOSE	uː	ʉw	✓	✓	✓

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CURE	ʊə	ʉː	✓	✓	✗	
FLEECE	iː	ɪj	✓	✓	✓	free
FACE	eɪ	ɛj	✓	✓	✓	
PRICE	aɪ	ɑj	✓	✓	✓	
CHOICE	ɔɪ	oj	✓	✓	✓	
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GOOSE	uː	ʉw	✓	✓	✓	

our enterprise is to simplify the vowel system

Lindsey's symbols

ɪ	ɛ	a		ə	ɔ		ʉ
ɪː	ɛː		ɑː	əː		oː	ʉː
ɪj	ɛj	aw	ɑj	əw		oj	ʉw

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simplified system

ɪ	ɛ	a	ə	o	ʉ
ɪː	ɛː	aː	əː	oː	ʉː
ɪj	ɛj	aw aj	əw	oj	ʉw

symmetry

SHORT/CHECKED	LONG/R		
ɪ kit	ɪː near		
ɛ dress	ɛː square		
a trap	aː start		
o lot	oː force		
ʉ foot	ʉː cure		
ə strut	əː nurse		

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ə strut	əː nurse		

symmetry

SHORT/CHECKED	LONG/R	DIPHTHONG/FREE	
ɪ kit	ɪː near	ɪj fleece	
ɛ dress	ɛː square	ɛj face	
a trap	aː start	aj price	aw mouth
o lot	oː force	oj choice	
ʉ foot	(ʉː cure)		ʉw goose
ə strut	əː nurse		əw goat

symmetry

SHORT/CHECKED	LONG/R	DIPHTHONG/FREE	
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l-vocalization

symmetry

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symmetry

SHORT/CHECKED	LONG/R	DIPHTHONG/FREE	
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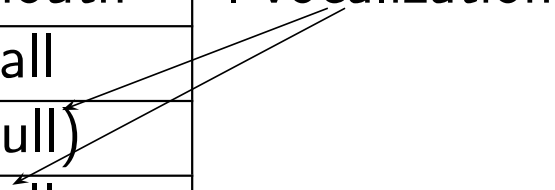
o lot	oː force	oj choice	ow ball
ʉ foot	(ʉː cure)	ʉj goose	(uw bull)
ə strut	əː nurse	əj goat	əw dull



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phonotactics

the similarity of CC and "diphthong" phonotactics

pj	*	kj
*	tw	kw

≈

ɛj	*	aj
*	əw	aw

phonotactics

the similarity of CC and "diphthong" phonotactics

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$\approx$

ɛj	*	aj
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glides in cluster and alone

pure pjoː	rape rɛjp	quad kwod	couch kawtʃ
poor poː	rep rɛp	cod kod	catch katʃ
your joː	ray rɛj	wad wod	cow kaw
click klɪk	milk mɪlk	trap trap	hunt hənt
kick kɪk	Mick mɪk	tap tap	hut hət
lick lɪk	mill mɪl	wrap rap	Hun hən

the distribution of glides

no glide after short stressed vowel

	l	r	j	w	h
# __ V	lay lɛj	ray rɛj	yea jɛj	way wɛj	hay hɛj
C __ V	clay klɛj	grey grɛj	cue kjʉw	dwell dwɛl	*
V __ V́	allay əlɛ́j	array ərɛ́j	beyond bəjónd	away əwɛ́j	ahead əhɛ́d
V́ __ V	ally álaj	arrow árəw	*	*	*

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C __ V	clay klɛj	grey grɛj	cue kjʉw	dwell dwɛl	pay phɛj?
V __ V́	allay əlɛ́j	array ərɛ́j	beyond bəjónd	away əwɛ́j	ahead əhɛ́d
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only after R vowels (long vowels and unstressed ə)

Darwin dáːwɪn, Malawi məláːwɪj, narwhal náːwəl, Ottawa ótəwə, yahoo jáːhʉw, Monahan mónəhən, sawyer sóːjə

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possible explanation: "diphthong" = short vowel + glide

neon níjon, crayon krɛ́jon, lion lájən, royal rójəl, vowel váwəl, Noah náwə, fuel fjʉ́wəl

epenthesis

consonant clusters may be split by epenthesis

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- F mɛtr > E mɪjtə(r), OF simpl > E sɪmpəl, F prizm > E prɪzəm

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- matches matʃ+z > matʃəz, fitted fɪt+d > fɪtəd

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sire sájr > sájə(r), fear fíjr > fíjə(r), sour sáwr > sáwə(r)

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no epenthesis if the cluster is not word final

metric mɛ́trɪk, simplest símpləst, Miley Cyrus májlɪj sájrəs

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so why does everybody talk about diphthongs?

history, spelling, tradition

the Middle English long vowels are the Modern English diphthongs

price priːs	mouth muːθ	price prajs	mouth mawθ
fleece fleːs	goose goːs	fleece flijs	goose gʉws
meat mɛːt	goat gɔːt	meat mijt	goat gəwt
face faːs		face fɛjs	

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price prajs mouth mawθ
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meat mijt goat gəwt
face fɛjs

ME long–short alternations are ModE diphthong–short alternations

keep kɪjp—kept kɛpt, grave grɛjv—gravity gravətɪj, mime majm—mimic mɪmɪk, south sawθ—southern səðən, holy həwlɪj—holiday holɪdɛj, fool fʉ̟wl—folly folɪj

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tradition

ɛj is called long A, a is called short A, etc

stress

do diphtongs behave like VC?

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- agree əgríj vs punish pə́nɪʃ

stress

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- agree əgríj vs punish pə́nɪʃ
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but. . .

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but...

- carry kárıj, omit əmít

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- decade dɛ́kɛjd, defense dəfɛ́ns

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so...

stress does not provide conclusive evidence for the diphthong analysis

flapping

t is pronounced as r between vowels

problem: if diphthongs are VC, we do not expect flapping after them

flapping

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flapping also occurs after some consonants

		GeneralAm	NZ basilect	NZ acrolect
fatter	fatə	✓	✓	✓
farter	faːtə	✓	✓	✗(!)
fighter	fajtə	✓	✓	✗(!)
Fanta	fantə	✓	✗	✗
faster	fastə	✗	✗	✗
factor	faktə	✗	✗	✗

geminates

English has no morpheme-internal geminates

geminates only occur across a morpheme boundary: *un#nerved* ánnə́ːvd, *homemade* háwmmɛjd, *black#currant* blákkə́rənt, *dis#satisfied* díssátɪsfajd

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is there jj or ww?

dasyure dásɪjjoː, diuresis dájjəríjsəs, maieutic mɛjjʉ́wtɪk, pyuria pajjóːrɪjə, Shijiazhuang ʃíjjaːdʒwáŋ, sukiyaki sʉ́wkɪjjáːkɪj, Taiyuan tájjʉwán, triune trájjʉwn, Beowulf bɛ́jəwwʉlf, Hluhluwe ʃlʉʃlʉ́wwɛj, powwow páwwaw

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geminates only occur across a morpheme boundary: *un#nerved* ánnə́ːvd, *homemade* háwmmɛjd, *black#currant* blákkárənt, *dis#satisfied* díssátɪsfajd

is there jj or ww?

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wj alleluia álələʉ́wjə, bouillon bʉ́wjon, cocoyam kə́wkəwjam, Gruyere grʉ́wjɛː, Kikuyu kɪkʉ́wjʉw, thuya θjʉ́wjə, yoyo jə́wjəw

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simplest analysis

FLEECE, GOOSE, GOAT are KIT, FOOT, STRUT followed by a glide

long vowels

the observation

NZ Acrolect has *fatter* fárə vs *farter* fáːtə

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perhaps

ː=h or r, but we then have "geminates": *Tahiti* taːhíjtɪj, *Sahara* səháːrə

the vowel system of British English

	-∅	-ː	-j	-w
a-	TRAP	PALM	PRICE	MOUTH
ɛ-	DRESS	SQUARE	FACE	(BELL)
ɪ-	KIT	NEAR	FLEECE	(MILK)
ɒ-	LOT	THOUGHT	CHOICE	(GOLF)
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- there's no hiatus in English, "free vowels" are VC