



FIGURE 2.1: The Great Vowel Shift in English

These changes are seen in the following words:

Middle English	Chaucer	Shakespeare	Modern English	
bite(n)	/bītə/	/bəit/	/bait/	'bite' (ī > ai)
tide	/tīd/	/təid/	/taid/	'tide'
bete	/bētə/	/bīt/	/bi(:)t/	'beet' (ē > i)
mete	/mēt/	/mēt/	/mi(:)t/	'meat' (ē > ē > i)
bete 'strike'	/bāet/	/bēt/	/bit/	'beat' (ā > i)
name	/nāmə/	/nām/	/neim/	'name'
hous	/hūs/	/həus/	/haus/	'house' (ū > au)
boote	/bōt/	/būt/	/bu(:)t/	'boot' (ō > u)
boat	/bōt/	/bōt/	/bout/	'boat' (ȳ > ou)

(4) *Mamean shift*. Chain shifts of various sorts, some more complex, some involving only a couple of changes, are known from many languages, not just Indo-European. One example is the chain shift in Mamean languages (a branch of the Mayan family) in which:

- \*r > t (for example, Mam *ti:x* < \**ri:x* 'old man', the prefix *t-* < \**r-* 'his, hers, its')
- \*t > č (*čap* < \**tap* 'crab', *čeɽw* < \**teɽw* 'cold')
- \*č > ǰ [a laminal retroflex grooved affricate] (*ǰ'o:ǰ* < \**č'ohč* 'earth', *ǰ'am* < \**č'am* 'sour').

### 2.10 Exercises

#### Exercise 2.1 Sound change – Proto-Germanic to Old English

Compare the Proto-Germanic forms with their descendants in Old English

and determine what sound changes involving vowels have taken place. Write out the sound change involved, and identify (by name) the kind of change found. (Note that *ī, ȳ, ū* and *ā* are long vowels.)

#### Proto-Germanic Old English

1. *fimf	fif	'five'
2. *gans-	gōs	'goose'
3. *grinst	grīst 'a grinding'	'grist'
4. *hanh-	hōh	'heel, hock'
5. *linθj(az)-	līθe	'mild, lithe'
6. *munθ-	mūθ	'mouth'
7. *tanθ-	tōθ	'tooth'
8. *gang-	gang	'a going'
9. *grind-	grind	'grind'
10. *hlink-	hlink	'ridge, links'
11. *hund-	hund	'dog, hound'
12. *land-	land	'land'
13. *sing-	sing-	'sing'
14. *slink-	slink-	'slink'
15. *sundan	sund-	'swimming, sea, sound'
16. *swing-	swing-	'swing'
17. *θingam	θing-	'assembly, (legal) case, thing'
18. *wund-	wund	'a wound'

#### Exercise 2.2 Sound change – Sanskrit to Pali

Compare the Sanskrit forms with their descendants in later Pali; determine what sound changes have taken place. Write out the changes, and identify (by name) the kind of changes where possible.

NOTE: Sanskrit *s* = [s], *ś* = [ʃ], *ṣ* [ʂ]. Each set is in effect a separate sound change exercise, though some changes may be illustrated in the examples of more than one set.

#### Set I

Sanskrit	Pali	
1. śāśa	sasa	'hare'
2. kēśa	kesa	'hair'
3. dēśa	desa	'country'
4. dōsa	dosa	'fault'
5. dāśa	dasa	'slave'
6. śisya	sissa	'pupil'
7. sāśya	sassa	'grain'

Set II

Sanskrit	Pali	
8. sna:na	sina:na	'bathing'
9. sneha	sineha	'friendship'
10. snihyati	sinihyati	'is fond of'
11. snigdha	siniddha	'oily'

Set III

Sanskrit	Pali	
12. āuṣadha	ōsadha	'herbs, medicine'
13. gāura	gōra	'white, light yellow'
14. kāuśika	kōsika	'owl'
15. gaura	gōra	'pale'
16. mauna	mōna	'silence'
17. augha	ōgha	'flood'
18. tāila	tēla	'oil'
19. vāira	vēra	'enmity'
20. śāila	sēla	'rocky'
21. aikya	ekka	'oneness'

Set IV

Sanskrit	Pali	
22. pariṣat	parisā	'assembly'
23. matimant	matimā	'wise'
24. ārakāt	ārakā	'from afar'
25. dharmāt	dhammā	'merit (ablative)'
26. arthāt	atthā	'that is'
27. bhagavant	bhagavā	'venerable'
28. mitravant	mittavā	'having friends'

(Bhat 2001: 67, 68, 70, Masica 1991: 168)

**Exercise 2.3 Sound change – Sanskrit to Prakrit**

Compare the Sanskrit forms with their descendants in later Prakrit; determine what sound changes have taken place. Write out the changes, and identify (by name) the kind of changes where possible.

NOTE: consonants with subscript dots are retroflex; Sanskrit  $s = [s]$ ,  $\acute{s} = [ʃ]$ ,  $\mathring{s} = [ʂ]$ . Each set is in effect a separate sound change exercise, though some changes may be illustrated in the examples of more than one set.

Set I

Sanskrit	Prakrit	
1. sapta	satta	'seven'
2. dugdha	duddha	'milk'
3. udgāra	uggāla	'spit out'
4. tikta	titta	'pungent'
5. mudga	mugga	'mung bean'
6. ardha	addha	'half'
7. karpata	kappada	'rag, cloth'
8. kurkura	kukkura	'dog'
9. darpa	dappa	'arrogance'
10. parṇa	paṇṇa	'leaf'
11. karma	kamma	'work'

Set II

Sanskrit	Prakrit	
12. saras	sara	'lake'
13. śara	sara	'arrow'
14. sapta	satta	'seven'
15. śakta	satta	'able'
16. sarva	savva	'all'
17. śava	savva	'corpse'
19. si:sa	sīsa	'lead'
20. śi:la	sīla	'conduct'

Set III

Sanskrit	Prakrit	
21. kāśmīra	kamhīra	'Kashmir'
22. gri:ṣma	grimha	'summer'
23. vismaya	vimhaya	'surprise'
24. ūṣman	umhā	'heat'
25. viṣṇu	viṇhu	'Visnu'
26. praśna	paṇha	'question'
27. snāna	ṇhāṇa	'bath'

(Bhat 2001: 6–7, 32, 83)

**Exercise 2.4 Sound change – Proto-Slavic to Russian**

What sound changes that have taken place in Russian since Proto-Slavic times are illustrated in the following data? Write rules to account for the palatalization of consonants, the change in the stem vowels, loss of vowels, and change in voicing of consonants. Do not attempt to write

sound change rules for the changes in the consonant clusters (*bl, tl, dl*) in examples 1, 2, and 3. More than one change has applied to some forms; for these, state the relative chronology of these changes (the order, temporal sequence) in which the different changes took place. (The breve /˘/ over vowels means 'short'.)

	<i>Proto-Slavic</i>	<i>Russian</i>	
1.	*greblǔ	gr <sup>l</sup> op	'rowed'
2.	*metlǔ	m <sup>l</sup> ol	'swept'
3.	*vedlǔ	v <sup>l</sup> ol	'led'
4.	*nesǔ	n <sup>s</sup> os	'carried'
5.	*pǐsǔ	p <sup>s</sup> os	'dog'
6.	*domǔ	dom	'house'
7.	*grobǔ	grop	'coffin'
8.	*nosǔ	nos	'nose'
9.	*rodǔ	rot	'gender'
10.	*volǔ	vol	'bull'
11.	*dǐnǐ	d <sup>i</sup> en <sup>i</sup>	'day'
12.	*konǐ	kon <sup>i</sup>	'horse'
13.	*vǐsǐ	v <sup>i</sup> es <sup>i</sup>	'all'

(Verb forms in these data = 'third person masculine past tense')

**Exercise 2.5 Sound change in dialects of Tulu (Dravidian)**

The forms in the Sapaliga dialect correspond to those of the oldest stage of the language; therefore, compare the forms in the other dialects to those of Sapaliga and determine what sound changes have taken place in each of the other dialects of Tulu. Write out and list the sound changes for each dialect, and identify (name) the kind of change involved in each instance, wherever this is possible. Do you imagine that some of the dialects went through more than one change in intermediate stages to arrive at some of the individual sounds they now have? If so, what might the intermediate stages have been?

NOTE: <c> = [č] (IPA [tʃ]); consonants with dots beneath = retroflex.

	<i>Sapaliga</i>	<i>Holeya</i>	<i>Setti</i>	<i>Jain 1</i>	<i>Jain 2</i>	
1.	tare	care	sare	hare	are	'wear off'
2.	tali	cali	sali	hali	ali	'sprinkle'
3.	tavḍu	cavḍu	savḍu	havḍu	avḍu	'bran'
4.	tōji	cōji	sōji	hōji	ōji	'appear'

	<i>Sapaliga</i>	<i>Holeya</i>	<i>Setti</i>	<i>Jain 1</i>	<i>Jain 2</i>	
5.	tini	cini	sini	hini	ini	'eat'
6.	tude	cude	sude	hude	—	'river'
7.	tōḍu	cōḍu	sōḍu	hōḍu	ōḍu	'stream'
8.	tane	cane	sane	hane	ane	'conceiving (of cattle)'
9.	tappu	cappu	sappu	happu	appu	'leaf'
10.	tay	cay	say	hay	ay	'die'
11.	tavte	cavte	savte	havte	avte	'cucumber'
12.	tuttu	cuttu	suttu	huttu	uttu	'wear'
13.	tumbu	cimbu	sumbu	humbu	umbu	'carry on head'
14.	tū	cū	sū	hū	ū	'see'

(Bhat 2001: 51)

**Exercise 2.6 Sound change – Brule Spanish**

Brule Spanish is the dialect of Ascension Parish, Louisiana. Spanish speakers from the Canary Islands settled there in the late 1700s. Compare the Brule Spanish forms in the following data with the corresponding forms in Standard (American) Spanish, written in phonemic notation (standard spelling given in parentheses). Assume Standard Spanish is the older stage from which Brule Spanish has derived. That is, look for changes only in Brule Spanish – find these changes by comparing Brule Spanish with Standard Spanish. Determine what sound changes have taken place in Brule Spanish and write rules to represent them. Do not attempt to determine what happened in cases involving differences in *o/u, e/i, s/z* or *v/b*. (Based on data from Holloway 1997.)  
NOTE: in these data, intervocalic /r̄/ is [r] (voiced alveolar trill) and /r/ is [r̥] (voiced alveolar flap/tap); there is no contrast between these sounds initially and finally, and though initial /r/ is trilled, it is represented as <r> in these data. y represents IPA [j].

	<i>Brule Spanish</i>	<i>Standard (American) Spanish</i>	
1.	'lalgo	'long'	'largo (largo)
2.	mal'tiyo	'hammer'	mar'tiyo (martillo)
3.	'valba	'Spanish moss'	'barba (barba) 'beard'
4.	'syemple	'always'	'syempre (siempre)
5.	tem'plano	'early'	tem'prano (temprano)
6.	'kwælpo	'body'	'kwerpo (cuerpo)
7.	sæl'vyeta	'table napkin'	ser'byeta (servieta)
8.	'kwælvo	'crow'	'kwerbo (cuervo)
9.	pæl'sona	'person'	per'sona (persona)

<i>Brule Spanish</i>		<i>Standard (American) Spanish</i>
10. æl'mano	'brother'	er'mano (hermano)
11. 'mwæltɔ	'dead'	'mwerto (muerto)
12. 'naa	'nothing'	'nada (nada)
13. 'too	'all'	'todo (todo)
14. ve'nao	'deer'	be'nado (venado)
15. ru'iya	'knee'	ro'diya (rodilla)
16. pa're	'wall'	pa'red (pared)
17. 'pare	'father'	'padre (padre)
18. 'mare	'mother'	'madre (madre)
19. 'pyera	'stone, rock'	'pyedra (piedra)
20. ko'myeno	'eating'	ko'myendo (comiendo)
21. 'kwano	'when'	'kwando (cuando)
22. 'one	'where'	a'donde (adonde)
23. kul'tinah	'curtains'	kor'tinas (cortinas)
24. 'gatoɦ	'cats'	'gatos (gatos)
25. dyoh	'God'	dyos (Dios)
26. 'noĉeh	'nights'	'noĉes (noches)
27. rah'kano	'scratching'	ras'kando (rascando)
28. ehko'peta	'shotgun'	esko'peta (escopeta)
29. 'kohta	'coast'	'kosta (costa)
30. peɦ'kao	'fish'	pe'skado (pescado)
31. ko'zyeno	'sewing'	ko'syendo (cosiendo)
32. u'za	'to use'	u'sar (usar)
33. ka'miza	'shirt'	ka'misa (camisa)
34. be'zeɦo	'calf'	be'se'ɦo (becerro)
35. ka'za	'to marry'	ka'sar (casar(se))
36. di'sir	'to say'	de'sir (decir)
37. vih'tir	'to dress'	be's'tir (vestir)
38. pi'aso	'piece'	pe'daso (pedazo)
39. ru'iya	'knee'	ro'diya (rodilla)
40. u'yir	'to hear'	o'ir (oir)
41. yu'vyeno	'raining'	yo'byendo (lloviendo)
42. vih'pero	'beehive'	abis'pero (avispero)
43. ma'riyo	'yellow'	ama'riyo (amarillo)
44. ma'ɦa	'to tie up'	ama'ɦar (amarrar)
45. 'one	'where'	a'donde (adonde)
46. 'legle	'happy'	a'legre (alegre)

<i>Brule Spanish</i>		<i>Standard (American) Spanish</i>
47. bi'hon	'bumblebee'	abe'xon (abejón)
48. fei'ta	'to shave'	afei'tar (afeitar)
49. 'viya	'city'	'biya (villa) 'town'

**Exercise 2.7 Sound change – Balto-Finnic**

Determine what sound changes affecting the vowels have taken place in Finnish and Estonian. Write the rules which specify these changes and under what conditions they took place. Identify (name) the changes, where possible.

NOTE: ä = [æ], ö = [ø], ü = [y], õ = [i̯]. Double vowels (for example *aa*, *oo*, and so on) are long vowels. Orthographic <b, d, g> in Estonian are represented here phonetically as [p, t, k] respectively, although these sounds are between voiced and voiceless, described sometimes as 'semi-voiceless' or 'half-voiced'.

<i>Proto-Balto-Finnic</i>	<i>Finnish</i>	<i>Estonian</i>	<i>gloss</i>
1. *maa	maa	maa	'land'
2. *noori	nuori	noor	'young'
3. *kooři	kuori	koor	'bark, peel'
4. *hooři	huoli	hool	'care, worry'
5. *jooři	juoni	joon	'line, direction'
6. *leemi	liemi	leem	'broth'
7. *mees	mies	mees	'man'
8. *meeli	mieli	meel	'mind'
9. *keeli	kieli	keel	'tongue, language'
10. *reemu	riemu	rõõm [ri:m]	'joy'
11. *meekka	miekka	mõõk [mi:k:]	'sword'
12. *peena	piena	põõn [pi:n]	'slat, rail, cross-piece'
13. *veeras	vieras	võõras [vi:ras]	'foreign'
14. *luu	luu	luu	'bone'
15. *hiiri	hiiri	hiir	'mouse'
16. *kyynära	kyynära	küünar	'ell (measure)'
17. *töö	työ	töö	'work'
18. *möö-	myö-	möö-	'along, by'
19. *kala	kala	kala	'fish'
20. *lapa	lapa	laba [lapa]	'blade'
21. *kylä	kylä	küla	'village'

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<i>Proto-Balto-Finnic</i>	<i>Finnish</i>	<i>Estonian</i>	<i>gloss</i>
22. *ikä	ikä	iga [ika]	'age'
23. *isä	isä	isa	'father'
24. *joki	joki	jõgi [jiki]	'river'
25. *kivi	kivi	kivi	'stone'
26. *lumi	lumi	lumi	'snow'
27. *läpi	läpi	läbi [läpi]	'through, hole'
28. *suku	suku	sugu [suku]	'family'
29. *ilma	ilma	ilm 'world'	'weather, world'
30. *jalka	jalka	jalg [jalk]	'foot, leg'
31. *kalma	kalma	kalm	'grave (mound)'
32. *nälgä	nälgä	nälg [nælk]	'hunger'
33. *härkä	härkä	härg [hærk]	'ox, bull'
34. *silmä	silmä	silm	'eye'
35. *marja	marja	mari	'berry'
36. *karja	karja	kari	'cattle'
37. *orja	orja	ori	'slave'
38. *lintu	lintu	lind [lint]	'bird'
39. *hullu	hullu	hull	'crazy'
40. *mänty	mänty	mänd [mænt <sup>tj</sup> ]	'pine'
41. *synty	synty	sünd [syn <sup>tj</sup> ]	'birth'
42. *hanki	hanki	hang [han <sup>k</sup> ]	'crust of snow'
43. *kurki	kurki	kurg [kurk]	'crane'
44. *nahka	nahka	nahk	'leather'
45. *lehmä	lehmä	lehm	'cow'
46. *lehti	lehti	leht	'leaf, sheet'
47. *hauta	hauta	haud [haut]	'grave'
48. *lauta	lauta	laud [laut]	'board'
49. *lava	lava	lava	'platform, frame'
50. *haava	haava	haav	'wound'
51. *hintä	hintä	hind [hint]	'price'
52. *into	into	ind [int]	'passion'
53. *halko	halko	halg [halk]	'piece/block of wood'
54. *kylmä	kylmä	külm	'cold'

*Sound Change*

<i>Proto-Balto-Finnic</i>	<i>Finnish</i>	<i>Estonian</i>	<i>gloss</i>
55. *hullu	hullu	hull	'crazy'
56. *hiki	hiki	higi [hiki]	'sweat'
57. *kylki	kylki	külg [kylk]	'side'
58. *kirppu	kirppu	kirp [kirp:]	'flea'
59. *verkko	verkko	võrk [virk:]	'net'
60. *onsi	onsi	õõs [i:s]	'a hollow place'
61. *kansi	kansi	kaas	'cover'
62. *kynsi	kynsi	küüs	'fingernail, claw'
63. *mesi	mesi	mesi	'honey'
64. *kuusi	kuusi	kuus	'six'
65. *kusi	kusi	kusi	'urine'
66. *mato	mato 'worm'	madu [matu]	'snake'
67. *elo	elo	elu	'life/building'
68. *hako	hako	hagu [haku]	'evergreen sprig, brushwood'
69. *ilo	ilo 'joy'	ilu	'beauty'
70. *himo	himo	himu	'lust, desire'
71. *iho	iho	ihu	'skin, hide'
72. *vesa	vesa	võsa [visa]	'sprout, brush, weed'
73. *helma	helma	hõlm [hilm]	'skirt, frock'
74. *terva	terva	tõrv [tivr]	'tar'
75. *velka	velka	võlg [vilk]	'debt'
76. *perna	perna	põrn [pirn]	'spleen'
77. *leuka	leuka	lõug [liuk]	'jaw, chin'
78. *tosi	tosi	tõsi [tisi]	'true'
79. *solki	solki	sõlg [sil <sup>k</sup> ]	'buckle, brooch'
80. *sormi	sormi	sõrm [sirm]	'finger'
81. *pohja	pohja	põhi [pihi]	'bottom, base'
82. *poski	poski	põsk [pisk]	'cheek'
83. *korpi	korpi	kõrb [kirp]	'dark woods, wilderness'
84. *metsä	metsä	mets	'woods'
85. *leppä	leppä	lepp [lep:]	'alder'