Csaba Csides

INTRODUCING ENGLISH PHONETICS AND PHONOLOGY



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Csaba Csides

INTRODUCING ENGLISH PHONETICS AND PHONOLOGY

Theory and Practice

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for Hungarian BA and MA students of English

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PREFACE

This book is designed for Hungarian BA and MA students of English at Hungarian universities. The discussion and the accompanying exercises intend to be as practical as possible and, consequently, the present textbook contains much less theoretical argumentation than a regular university textbook would. The material concentrates mainly on issues that may cause difficulty to the Hungarian learner of English.

The content can be divided into three main topics: phonetics, phonology and spelling (letter-to-sound correspondences). The treatment aims to be selective rather than exhaustive even within these three sub-fields. For example, phonetics is included only in the first two units, which discuss the English consonant and vowel systems, and explain the proper articulation of English segments one by one. Phonological regularities are discussed in more detail from Unit 3 onwards, in the hope that the proper understanding of systematic regularities underlying British English Received Pronunciation (RP) will lead to a good pronunciation. The present textbook also provides a fairly detailed discussion of letter-to-sound correspondence rules affecting vowels, while the regular sound values of consonant letters and digraphs are presented in much less detail.

The reason for accepting and using the phoneme-based Gimsonian variety of the International Phonetic Alphabet (IPA) is that the textbook strives to be practical and didactic rather than critical or theoretical.

The present coursebook concentrates on the most important segmental regularities and letter-to-sound correspondences, while suprasegmental regularities are only selectively discussed. Rhythm, intonation and sentential stress are not included in this volume, and even word-stress is only selectively discussed. The units are not equally weighted, the bulkiest ones are Unit 4 and Unit 5, which discuss phonological regularities affecting consonants and vowels, respectively. This means that these two units – and the entire material for that matter – cannot be covered on a week-to-week basis, but must be given more time and/or must be treated really selectively. It is therefore entirely up to the teacher which topics/exercises he/she chooses to present or which sections of the book he/she chooses to discuss.

The material is followed by exercises covering all the major topics presented in each respective unit. The exercises are of four different types: exercises on transcription, sound identification tests, true or false questions, and problem-

solving exercises concentrating on a regularity of English phonology or letter-to-sound correspondence. Most of these exercises also serve the purpose of pronunciation practice and are presented in a tabular form. I am convinced that phonological rules and letter-to-sound regularities are best taught through problem-solving exercises.

I would like to thank Andrea Nagy and László Kristó – the official referees of the present textbook – for their valuable remarks, comments and suggestions, which have markedly improved both the content and the presentation. I am also in hock to Katalin Hegyi, the editor of this volume, for her careful and meticulous error correction and for all her valuable comments and suggestions.

August, 2024

Csaba Csides

THE SOUNDS OF ENGLISH

Consonants	**Vowels**
Obstruents	**Short vowels**
Stops: /p/ put, pan, pin, cap, cup, etc. /t/ tap, tick, taste, hit, bit, etc. /k/ cap, tack, cool, king, crest, etc. /b/ bad, cab, bulb, rob, bowl, etc. /d/ door, dice, rod, food, darts, etc. /g/ girl, game, good, tag, flag, etc. Affricates: /tʃ/ chain, chin, check, patch, match, etc. /dʒ/ Jack, jam, joy, budge, ridge, etc. Fricatives: /f/ fool, fog, fill, face, roof, cough, etc. /θ/ theme, think, bath, myth, thin, etc. /s/ sink, sun, surf, bus, face, taste, etc. /ʃ/ shy, shrink, shop, bush, fish, etc. /v/ vase, vain, vend, move, grave, etc. /ð/ them, there, then, bathe, scathe, etc. /z/ zip, zoo, zinc, zeal, vase, raise, etc. /ʒ/ beige, vision, pleasure, measure, etc.	/ɪ/ hit, bit, sit, pin, pig, etc. /e/ bed, head, check, many, etc /æ/ cat, fat, bag, spam, rag, etc. /ʌ/ hut, but, cup, nut, none, etc. /ɒ/ hot, not, cough, loss, etc. /ʊ/ foot, put, push, pull, look, etc.
	Long vowels
	/iː/ team, beat, fleet, see, eat, each, etc. /uː/ boot, food, zoo, ooze, feud, etc. /ɔː/ fall, sport, ball, all, straw, etc. /ɑː/ mark, chance, art, spa, bra, etc. /ɜː/ thirst, fur, err, burn, earn, etc.
	Diphthongs
	/aɪ/ time, height, cry, idle, skype, etc. /aʊ/ down, town, how, out, now, etc. /eɪ/ hate, base, ate, bay, grey, etc. /əʊ/* stone, home, post, know, etc. /ɔɪ/ toy, join, boy, oil, groin, etc. /ɪə/ clear, fear, beer, ear, pierce, etc. /(j)ʊə/ sure, poor, pure, euro, etc. /eə/ stare, fare, air, spare, scarce, etc.
Sonorants	**Weak vowels**
Nasals: /m/ moon, meat, mark, room, fame, etc. /n/ night, no, null, ban, stone, fun, etc. /ŋ/ king, sing, bang, hang, strong, etc. Liquids: /l/ like, loaf, lead, pill, mill, goal, etc. /r/ room, right, rich, rake, berry, etc. Glides: /j/ yoke, yell, yes, yacht, year, etc. /w/ well, want, win, wait, wool, etc. /h/ house, huge, vehicular, humble, hen, etc.	/ə/ ago, attract, about, liver, butter, etc. /i/** funny, happy, create, react, etc. /ɪ/ elect, erase, addict, conflict, etc. /(j)u/** unite, vacuous, gradual, utensil /(j)ʊ/ petulant, communist, accurate, etc.
	* /əʊ/ is frequently transcribed as /oʊ/. This is more appropriate when transcribing General American pronunciation. ** Some authors do not use unstressed /i/ and /u/ but they use /ɪ/ and /ʊ/ in all unstressed positions.

SYMBOLS AND ABBREVIATIONS

Symbols:
[ˌ] vertical line under the phonetic symbol: syllabic consonant
[ʰ] superscript 'h': aspiration
[ɬ] dark L
[ʔ] glottal stop
σ the symbol representing a syllable (*Greek lowercase sigma*)
[ɾ] flap/tap, as in GA *city* [ˈsɪɾɪ]
[ɹ] the narrow transcription of a frictionless continuant liquid as in RP *red* or *baron*
[ɛ] the sound that occurs in Hungarian *kerek*
[ː] colon (length mark) indicating length, for example, /ɑː/ as in *spa*
[aː] the sound that corresponds to Hungarian *á* as in *hát*
[o] the sound that corresponds to Hungarian *o* as in *bot*.
[oː] the sound that corresponds to Hungarian long *ó* as in *hó*
/…/ sounds between slants represent phonemes
[…] sound between square brackets represent sounds (phones, allophones)
Ø empty phonetic content, zero allophone
* asterisk before a linguistic item: ill-formed, ungrammatical form
# a cross-hatch boundary (analytic boundary) occurs between a word and a neutral suffix
+ plus (synthetic) boundary occurs between a word and a non-neutral suffix
[̥] small circle under the phonetic symbol: devoicing
[̪] dentalized articulation
[.] dot as in *cha.os* represents syllable-boundary
é primary stressed vowel with an acute accent
è secondary stressed vowel with a grave [grɑːv] accent

Abbreviations:
a.k.a. = also known as
AmE = American English, a.k.a. General American (GA)
BrE = British English (here corresponds to RP)
C = consonant or coda (end of the syllable)
cf. = compare, see also (Latin *confer*)
e.g. = for example (*exempli gratia*)
ed. = edition, editor, edited by
et al. = and others (Latin *et alia*)
GA = General American, a.k.a. American English (AmE)
i.e. = that is (Latin *id est*)
IPA = International Phonetic Alphabet
N = nucleus (a.k.a. as peak), the centre of the syllable
O = onset, the beginning of the syllable
p. = page
pp. = pages
resp. = respectively
R = rhyme (the nucleus and the coda together)
RP = Received Pronunciation
V = vowel
viz. = namely (Latin *videlicet*)
vs. = as opposed to (Latin *versus*)

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Unit 1

PHONETICS 1: ARTICULATION AND THE ENGLISH CONSONANT SYSTEM

1.1 Introduction

The speech flow consists of strings of sounds, traditionally called segments. It is a linguistic commonplace that human language is the result of sound–meaning pairing and sounds are regarded as the building blocks of words. The discipline that deals with the identification and characterization of speech sounds is called *phonetics*. It is important to emphasize that phonetics is not a branch of linguistics, or in traditional terms, it is not an area of grammar proper. Phonetics is regarded as a natural science investigating the physical properties of speech sounds, and consequently it lies outside the domain of linguistics in the narrow sense. The linguistic side of phonetics is called *phonology*, which is a branch of linguistics studying regularities of pronunciation, technically *sound patterning*. Phonology will be discussed in detail from Unit 3 onwards, while the subject matter of Unit 1 and Unit 2 is phonetics, i.e., the first two units will focus on how speech sounds are articulated, what sort of articulatory movements are required during their production.

Phonetics is usually divided into three major areas depending on whether the analyst concentrates on the speaker, on the hearer or neither. *Articulatory* phonetics focuses on the speaker, and describes the articulatory activity carried out by the speaker while producing a given speech sound or the speech flow. *Auditory* phonetics, on the other hand, examines how the hearer perceives and interprets the sound waves that affect the eardrums during the speech process. And finally, *acoustic* phonetics is neutral between hearer and speaker, and it investigates how sound waves travel from speaker to hearer, how the air particles are displaced when sound waves travel from one position to another.

Traditional textbooks on pronunciation concentrate on articulatory phonetics, since it is probably easier to capture the characteristics of speech sounds with reference to articulation than with reference to perception. In the next section we will summarize the articulatory organs taking part in the production of speech sounds.

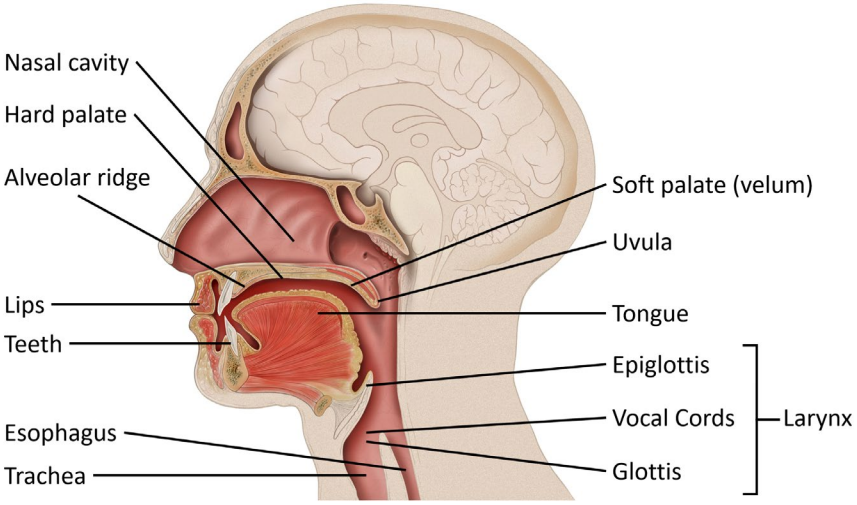
1.2 Articulatory organs

The vast majority of human speech sounds are produced with a *pulmonic egressive airstream*. This means that the speaker collects air in his lungs and pushes the air column up the *trachea*, also called the *windpipe,* until it arrives in the *larynx (voice box)*, cf. Chart (1) below. This stage is referred to as the *initiation process*. There are two elastic bands inside the larynx that are responsible for *phonation*, and these elastic bands are called *vocal cords* or *vocal folds*. Depending on the position of the vocal cords we can produce *voiced* or *voiceless* sounds. When the vocal cords are set apart, the air-column can freely flow through the *glottis* without making them vibrate, and consequently no voicing accompanies the production of the speech sound; lack of voicing results in a voiceless sound. Conversely, when the vocal cords are brought together, the airstream can escape between them only by setting them into vibration producing a voiced sound. The voiced–voiceless distinction is therefore made in the larynx with the help of the vocal cords, and it is commonly referred to as the *phonation process*. Bear in mind, however, that the glottis is not a speech organ but simply the opening between the vocal cords.

Once the air column has left the larynx, it enters the oral cavity past the *epiglottis* and through the *pharyngeal cavity (pharynx* for short*)*. The outflowing airstream can be directed into the oral cavity if the *uvula* (the rear part of the *velum* or *soft palate*) is raised and consequently it closes the passage into the nasal cavity. The *oro-nasal* process, i.e. the oral–nasal distinction is thus implemented with the help of the uvula. If the way to the nasal cavity is shut off completely, only oral sounds can be produced. Note that this is also the case when respiratory passages are shut off as a result of diseases like influenza, and the speaker produces exclusively oral sounds. When, however, the uvula is lowered, air can also enter the nasal cavity, and thus nasal consonants can be produced. It is important to bear in mind that although nasal consonants are regarded as stops, the outflowing air can continuously escape through the nasal cavity, and this is why nasal consonants can be prolonged in articulation in spite of the fact that there is a complete closure in the oral cavity. The term 'stop' therefore refers directly to a complete blockage to the airflow implemented in the oral cavity.

The articulatory organs in the oral cavity are divided into two categories: *active articulators* and *passive articulators*. Depending on the type of constriction made by the active and passive articulators, different *manners of articulation* can be identified: for example, a complete closure is responsible for a *stop*, while a radical constriction causing air turbulence is responsible for a *fricative* articulation. Furthermore, these articulatory gestures can be realised at different points of articulation called *places of articulation*. For example, the contact or the constriction can be implemented by the lips, by the lower lip and the

upper teeth, by the tip of the tongue and the teeth, by the tip of the tongue and the alveolar ridge, by the body of the tongue and the palate, by the back of the tongue and the velum, etc. Active articulators usually move during the articulation process, whereas passive articulators remain relatively stable in the process of pronunciation. In fact, only the lips, the tongue and the uvula can be regarded as active articulators, all other organs function as passive articulators. Consider now Chart (1) showing the articulatory organs and the places of articulation.



(1) Articulatory organs (https://ininet.org/speech-sound-production-21.html)

Section 1.4 below will discuss the English consonant system in detail. At the present stage of the discussion it is sufficient to note that *bilabial* consonants are articulated with the upper and the lower lip, *labio-dental* sounds with the lower lip and the upper teeth, *dentals* with the tip of the tongue and the teeth, *alveolars* with the tip of the tongue and the alveolar ridge, *palatals* with the front of the tongue and the hard palate, *velars* with the back of the tongue and the soft palate, and *glottals* in the glottis, which is not an articulatory organ but the opening between the vocal cords. Vowels – unlike consonants – are produced without a radical constriction in the oral cavity, but of course the tongue takes up different configurations: it can move forwards and backwards, up and down, in the process of articulating different vowels. Moreover, lip-rounding or -spreading may also influence the quality of vowels. The articulation and phonetic description of BrE RP vowels will be discussed in Unit 2 below.

1.3 The classification of speech sounds

Speech sounds are traditionally classified into two major categories: *consonants* and *vowels*. Consonants are produced with some obstruction in the vocal tract, generally in the oral cavity, and are usually characterised in terms of three articulatory properties: *manner of articulation*, *place of articulation* and *voicing*. It is a further – functional – property of consonants that they tend to occur at the margins of syllables, i.e., they generally flank vowels in what we call the *syllable*. Vowels, on the other hand, are articulated without introducing an obstruction into the articulatory process, with the tongue simply being displaced from its neutral position. Vowels generally form syllables, and therefore, they are regarded as *syllabic* segments while consonants – in the vast majority of cases – are *non-syllabic* segments, i.e., they do not form syllables on their own. In the next section we will take stock of the English consonants and focus on the consonant system of English.

1.4 The English consonant system

The English consonant system consists of 24 consonant *phonemes*. This means that there are 24 consonantal phonological segments that can distinguish meaning. This does not mean that all the 24 consonants are distinctive in all the available phonological positions because some consonants have *defective distribution*, i.e., some consonants can occur only in a restricted set of contexts. For example, it is a well-known fact that no English word begins with the velar nasal /ŋ/, this sound being excluded from the word-initial position. A direct consequence of defective distribution is that the velar nasal has no chance to contrast with another consonant in this position. Nevertheless, word-finally the velar nasal can contrast with the alveolar nasal /n/, hence the minimal pair sin /sɪn/ and sing /sɪŋ/, or with the bilabial nasal, e.g. brim /brɪm/ vs. bring /brɪŋ/.

Consonants – as mentioned above – are traditionally classified along three dimensions: *place of articulation*, *manner of articulation* and *voicing*. Place of articulation categories refer to the point where the articulatory movement takes place, they describe the point of articulation where the active and the passive articulators implement the articulatory gesture. The manner of articulation category designates the type of the articulatory movement which is carried out during the production of the sound. And finally, voicing captures the state of the vocal cords during the production of the given consonant, i.e., it describes the *phonation* process, which takes place in the *larynx*.

Consonants are traditionally divided into two major groups: *obstruents* and *sonorants*. There is a major taxonomic difference between the two categories:

obstruents always come in voiced–voiceless pairs, whereas sonorants are always voiced. This automatically entails that sonorants are predictably voiced; the voiced–voiceless opposition is thus irrelevant or *redundant* for the category of sonorants. Besides the taxonomic differences, there is also a major phonetic difference between obstruents and sonorants: obstruents, as the term itself suggests, are produced with a major obstruction in the oral cavity. This constriction is either a complete closure stopping the outflowing air completely or a stricture which is radical enough to cause *friction* (audible turbulence in the airflow).

There are three subclasses of obstruents: *oral stops* (also called *plosives*), *fricatives* and *affricates*. *Oral stops (plosives)* are obstruents that are produced with a complete closure in the oral cavity while the speaker usually builds up air-pressure behind this stoppage. Once the complete closure is suddenly released, an audible burst of noise (a puff of air) occurs, which gives the impression of a slight explosion, hence the term *plosive*. The airflow can be shut off completely in the case of oral stops since the passage to the nasal cavity is also obstructed at the same time. British English RP has the following 6 oral stops.

(2) English plosives one-by-one

Oral stops (plosives)		
	voiceless	*voiced*
bilabial	/p/	/b/
alveolar	/t/	/d/
velar	/k/	/g/

It appears from Table (2) that there are three voiceless–voiced pairs of oral stops in English. The terms in the left-hand column designate the places of articulation of English oral stops. *Bilabial stops* are articulated by pressing the lips together and building up air-pressure behind the closure created by the upper and the lower lip before the blockage is released. In the case of *alveolar oral stops* the same type of articulatory activity is carried out by the tip of the tongue and the *alveolar ridge* (the hard bony structure situated directly behind the upper teeth). Unlike in Hungarian, where /t/ and /d/ are pronounced by pressing the tongue tip against the upper teeth, in English the tongue tip touches the alveolar ridge while pronouncing /t/ and /d/. Therefore, Hungarian /t/ and /d/ are real *dental oral stops*, while the English ones are *alveolar plosives*. Finally, *velar stops* are articulated by lifting the back of the tongue and pushing it against the *velum*, which is also called the *soft palate*. The *soft palate* – as we have already seen above – is situated right behind the *hard palate*, behind the roof of the mouth, towards the *pharynx*. Unlike the

hard palate, it is a soft fleshy area which can be felt by running the index finger backwards along the surface of the roof of the mouth towards the throat.

The next group consists of the *fricatives*. Fricatives are regarded as *continuant* sounds because the airflow can escape from the oral cavity continuously without being interrupted on its way. The manner of articulation is such that the active articulator (lower lip or tongue) approximates a certain point of articulation without creating a complete stoppage to the airflow. The stricture that results between the active and passive articulator, however, is radical enough to create audible turbulence in the airflow. Table (3) below shows the fricatives of English.

(3) English fricatives one-by-one

Fricatives		
	voiceless	*voiced*
labio-dental	/f/	/v/
(inter)dental	/θ/	/ð/
alveolar	/s/	/z/
palatal	/ʃ/	/ʒ/

As far as places of articulation are concerned, the articulation of *labio-dentals* involves the upper teeth (passive articulator) and the lower lip (active articulator). The narrow passage where the air can escape continuously out of the oral cavity is created by these articulatory organs. *(Inter)dentals* are articulated by projecting the tip of the tongue between the upper and the lower teeth creating a narrow passage there for the air to escape. *Alveolar fricatives* are produced by lifting the tongue tip close to the alveolar ridge, while the articulation of *palatal fricatives* is carried out by lifting the body of the tongue towards the hard palate, and the tongue blade approximates the sides of the alveolar ridge at the same time.

The third sub-category of obstruents is the category of *affricates*. Affricates are complex sound units that involve double articulation: they are composed of a stop phase followed by a fricative phase, and this complexity is also reflected by the choice of the complex phonetic symbols representing them. The major articulatory difference between stops and affricates is that the release stage is not an abrupt articulatory gesture in the case of affricates but rather it is a slower, 'more careful' release, which results in friction (air turbulence). Very briefly, affricates can be viewed as complex phonological segments that are composed of a stop and a fricative in that order.

(4) English affricates

Affricates		
	voiceless	*voiced*
(alveo-)palatal	/tʃ/	/dʒ/

There is a single pair of affricates in English, whose place of articulation is most precisely characterised as *alveo-palatal*. *Alveo-* because the first (stop) phase is articulated at the alveolar ridge, while the second (fricative) phase is phonetically implemented around the *palatal* region. Recall that it is a distinctive property of obstruents that they pattern into voiceless–voiced pairs, i.e., voicing is a distinctive feature of obstruents.

(5) English obstruents

Obstruents						
Manner of art. →	*stops*		*fricatives*		*affricates*	
Place of art. ↓	*voiceless*	*voiced*	*voiceless*	*voiced*	*voiceless*	*voiced*
bilabial	/p/	/b/	---	---	---	---
labio-dental	---	---	/f/	/v/	---	---
(inter)dental	---	---	/θ/	/ð/	---	---
alveolar	/t/	/d/	/s/	/z/	---	---
palatal	---	---	/ʃ/	/ʒ/	/tʃ/	/dʒ/
velar	/k/	/g/	---	---	---	---

The next large group of consonants is the class of *sonorants*. Sonorants are articulated without turbulence in the airflow, without friction. The distinctive taxonomic property of sonorants is that they are all voiced in the default case, and thus there is no voiceless–voiced opposition in this category. In other words, it is absolutely irrelevant to talk about voicing in the case of sonorants since the term 'sonorant' automatically entails that the sound is voiced. There are 7 sonorants in English, arranged into three subclasses: *nasals*, *liquids*, and *glides*. Nasals are articulated by lowering the rear part of the velum, also called the *uvula,* with the airstream thus being – at least partially – directed into the *nasal cavity*. The English nasals are shown in Table (6) below.

(6) English nasal consonants

Nasals	
bilabial	/m/
alveolar	/n/
velar	/ŋ/

According to Table (6), there are only 3 nasals in English, whose places of articulation are identical to those of oral stops. In other words, *nasal stops* and *oral stops* have the same set of places of articulation; note that in spite of the fact that the pronunciation of nasals can be prolonged, they are also regarded as stops since the term 'stop' refers only to the oral cavity, and there is complete closure in the oral cavity during the production of nasals. Prolongation of nasals – as mentioned above – is possible only because the uvula is lowered and the air can escape continuously through the nasal cavity. The blockage to the airflow in the oral cavity is created by the lips in the case of the *bilabial nasal*, by the tongue tip and the alveolar ridge in the case of the *alveolar nasal,* and by the back of the tongue and the velum when articulating a *velar nasal*. Nasals are set apart from other sonorants in that nasals are *non-continuants* while liquids and glides are *continuants*. Let us now turn our attention to Table (7) below illustrating the liquids of English.

(7) English liquids

Liquids	
alveolar-lateral	/l/
post-alveolar	/r/

There are two liquids in English, /l/ and /r/, and they are very vowel-like in terms of manner of articulation. Although the tongue tip touches slightly the central part of the alveolar ridge while we pronounce an /l/ – hence the term *alveolar* – it is also accompanied by a gesture of lowering the sides of the tongue and letting air escape therein – hence the term *'lateral'* borrowed from Latin, meaning *'pertaining to the sides'*. The pronunciation of the second liquid, /r/, can be even more complicated to the Hungarian learner since it is not a trill like in Hungarian. In Hungarian the tongue tip is slightly curled back and it touches the alveolar ridge several times during the articulatory process. In English, on the other hand, the tip of the tongue is curled back and it does not touch the alveolar ridge but simply approximates the area situated behind the alveolar ridge, hence the term *post-alveolar approximant*. The tongue looks like a spoon during articulation and the air can escape between the tip of the tongue and the post-alveolar region.

The vowel-like nature of English liquids will be amply illustrated in the following chapters through phonological evidence, cf. the phonological regularities of L-darkening, R-dropping, etc. For the time being, it is enough to bear in mind that liquids and glides together are referred to as *approximants* and these two categories are the most vowel-like consonants in terms of their phonetic properties.

Let us now turn our attention to the third category of sonorants, the glides.

(8) English glides (semi-vowels)

Glides (semi-vowels)	
palatal	/j/
labio-velar	/w/

Glides are also traditionally referred to as *semi-vowels* because they have very vowel-like articulatory characteristics. There is no contact between the active and the passive articulator during the production of a glide, and thus these sounds are really vowels in terms of articulatory gesture, hence the term *semi-vowel*. A /j/ is pronounced like a quick and short /i/, whereas /w/ is articulated like a quick and short /u/. We, however, classify them as consonants because their distribution is different from that of vowels; while vowels occur in the centre (nucleus) of the syllable, glides occur at the margins of the syllable, only in the onset in English.

We have already pointed out that there are 24 consonants in English, and we have already seen 23 (16 obstruents and 7 sonorants) out of the 24. The missing consonant is the *glottal* /h/, whose classification is probably the most problematic from a taxonomic point of view. We have seen that obstruents – besides their articulatory properties of requiring a radical obstruction to the airflow in the oral cavity – are characterised by a taxonomic criterion: they pattern into voiceless–voiced pairs. This, however, is not characteristic of /h/, which does not have a voiced pair, and consequently it does not fit the category of obstruents. Since /h/ is voiceless and sonorants are voiced, this sound does not seem to be a proper sonorant either, and therefore it appears to fall out of both categories. If it is not an obstruent, it cannot be a fricative, and if it is not a sonorant, it cannot be a glide either. All we can demonstrate is that this consonant is glottal in terms of place of articulation, since the air column leaves the oral tract through the opening between the vocal cords – called the glottis – without obstruction. The articulatory characteristics of /h/ suggest that it is either a fricative or a glide. At this point of reasoning the linguist must resort to phonological evidence, he/she must examine the distribution and the phonological behaviour of the given sound in the language under discussion. Now, if the linguist comes to the conclusion that /h/ patterns together with and behaves like other fricatives do in the system, he/she will classify the glottal /h/ as a fricative. Conversely, if he/she founds that /h/ behaves like and patterns together with glides, then obviously the linguist will squeeze the glottal /h/ into the category of glides. Without going into further details here on the manner of articulation of the glottal /h/, we simply note that distributional facts suggest that /h/ more readily patterns together with glides than fricatives in English, and therefore we will regard /h/ as a glide in this language.

Table (9) below shows the phonetic classification of English consonants. There is a special symbol in parentheses in the lowest box of the first column. The symbol /ʔ/ stands for a *glottal stop*, and it is enclosed in parentheses because the glottal stop is not a distinctive sound unit, not a *phoneme* of the English language. The glottal stop may occur in some phonological positions as a replacement of the alveolar voiceless oral stop /t/ most frequently. This happens most readily pre-consonantally and word-finally, cf. *Scotland* /ˈskɒʔlənd/, *not me* /nɒʔˈ miː/, *cat* /kæʔ/. The exact details of glottal replacement need not concern us at the present stage of the discussion, we will devote some discussion to it later in Unit 4, Section 4.9. Suffice it to say that physically speaking there is a 25th consonant, which is not a phoneme but a sub-phonemic free variant of the alveolar voiceless stop in certain phonological contexts in certain dialects of English, including BrE RP. The parentheses in Table (9) below indicate the fact that this consonant has a special (non-phonemic) status in English.

(9) Summary of English consonants

Obstruents							*Sonorants*		
Manner →	*stops*		*fricatives*		*affricates*		*nasals*	*liquids*	*glided*
Place ↓	*vless*	*voiced*	*vless*	*voiced*	*vless*	*voiced*	---	---	---
bilabial	/p/	/b/	---	---	---	---	/m/	---	---
labio-dental	---	---	/f/	/v/	---	---	---	---	---
(inter)dental			/θ/	/ð/	---	---	---	---	---
alveolar	/t/	/d/	/s/	/z/	---	---	/n/	/l/	---
post-alveloar	---	---	---	---	---	---	---	/r/	---
palatal	---	---	/ʃ/	/ʒ/	/tʃ/	/dʒ/	---	---	/j/
velar	/k/	/g/	---	---	---	---	/ ŋ/	---	/w/
glottal	(/ʔ/)	---	---	---	---	---	---	---	/h/

Table (9) above summarizes the English consonant system with respect to place of articulation, manner of articulation and voicing. Moving from the leftmost column towards the rightmost one, the successive columns contain more and more vowel-like consonants. In other words, the successive columns contain consonants that gradually increase in *sonority* from left to right. The least vowel-like (the most consonant-like) consonants are thus the voiceless oral stops, while the most vowel-like consonants are naturally the glides.

Unit 2

PHONETICS 2: ARTICULATION AND THE ENGLISH VOWEL SYSTEM

2.1 Introduction

The sound system of a natural language is generally divided into two major categories: consonants and vowels. This unit concentrates on the phonetics of English vowels, i.e., we will examine how British English RP vowels are articulated by the speakers of this dialect. The traditional wisdom is that besides articulatory differences there are also distributional divergences between consonants and vowels. While consonants tend to occur at the margins of the *syllable*, vowels reside in the centre of the *syllable*, traditionally referred to as the *nucleus* or *peak*. Furthermore, while consonants are not obligatory constituents of the syllable, there are practically no syllables without vowels in the default case, and this is why vowels are called syllabic segments. In a number of languages – including Hungarian – only vowels can be syllabic segments, in other words, the number of syllables is identical with the number of vowels. One can tell the number of syllables in a given word or text simply by counting the number of the vowels. For example, the word *lágytojás* 'soft-boiled egg' contains three vowels, each constituting a syllable peak.

The situation is rather different in English – and in a number of other Germanic languages – where under special circumstances (to be discussed in later units of the present book) consonants can also become syllabic. As an example, consider *bottle* and *button,* whose final consonant can form the second syllable when the second – unstressed – vowel remains unpronounced: *bottle* /ˈbɒtl̩/ and *button* /ˈbʌtn̩/. This type of syllabic consonant formation depends on a number of phonological and extra-phonological factors, like speech rate, style, stress pattern and the type of consonants flanking the nucleus where the syllabic consonant is ultimately pronounced. Alternatively, of course, the same lexical items can also be pronounced with the unstressed vowel followed by the non-syllabic consonant, e.g. *bottle* /ˈbɒtəl/ and *button* /ˈbʌtən/, especially in slow, careful, pedantic pronunciation.

Syllabic consonants may sound strange to the Hungarian ear, especially to older native speakers of Hungarian. Until recently Hungarian did not tolerate the use of syllabic consonants, which is also manifest in the adaptation of Ger-

man loanwords like *zokni*, German *Socken* /ˈzokn/, or Hungarian *nudli*, German *Nudle* /ˈnuːdl/. The general strategy to avoid syllabic consonants was to insert an extra /i/ sound to retain the disyllabic nature of these words without a syllabic consonant. This strategy was and probably is adopted in proper names especially by elderly Hungarian speakers; think of the old-fashioned pronunciation of the name of the famous Hungarian architect Ybl /ˈiːbl/ Miklós as /ˈiːbli/ Miklós, or the name of supermarket chains like Meinl /ˈmaɪnl/ as /ˈmeɪnli/ or Lidl /ˈliːdl/ as /ˈlidli/. Younger generations, of course, have started pronouncing syllabic consonants in these words, and thus syllabic consonants have started creeping into Hungarian in spite of the fact that many speakers still pronounce *google* /ˈguːgl̩/ as /ˈgugli/. We will return to syllabic consonant formation later in Section 5.10 below.

2.2 The phonetics of English vowels

After this short theoretical excursus on syllabic consonants, let us return to the phonetics of vowels. Vowels – as opposed to consonants – are pronounced without an obstruction to the airflow, and they are all continuant sounds since the air column can continuously flow out through the oral cavity without turbulence in the airflow that could generate friction.

Vowels are usually classified according to a number of criteria: besides *quantity*, which has to do with duration, and *quality*, which refers to the position of the tongue, we concentrate on features like the position of the lips, the movement of the tongue, and the intensity of articulation both in terms of loudness and in terms of articulatory activity.

In the next subsections we take stock of these classificatory dimensions; in 2.2.1 below we will discuss vowel length.

2.2.1 Quantity: the length of English vowels

The English vowel system – like many other vowel systems in natural languages – can be divided into two groups on the basis of duration: *long vowels* versus *short vowels*. The received wisdom is that the pronunciation of the former takes up roughly twice as much time as the pronunciation of the latter. Long vowels are thus pronounced with longer duration, and they are more susceptible to diphthongization than short vowels. Besides these phonetic (articulatory) differences, there are also significant phonological discrepancies between the two sets: their distribution is different before consonant clusters and word-finally, and the two groups also behave differently with respect to stress assignment. The phonological properties of long vs. short vowels will be

discussed later in the relevant units of the present book. Let us now see the long–short distinction in detail in Table (1) below.

(1) Long vowels and short vowels of BrE RP

Quantity in BrE RP	
Long vowels	Short vowels
/iː/, /uː/, /ɔː/, /ɜː/, /ɑː/, /aɪ/, /aʊ/, /ɔɪ/, /eɪ/, /əʊ/, /ɪə/, /ʊə/, /eə/	/ɪ/, /ʊ/, /e/, /ʌ/, /æ/, /ɒ/, (/ə/)

It appears from Table (1) that there are 13 long vowels in the RP accent of English (5 long *monophthongs* and 8 *diphthongs*), and 7 short vowels out of which 6 can function as full vowels. The symbol /ə/ is deliberately enclosed in round brackets, since this is the only vowel which never functions as a full vowel, never appears in a stressed syllable. In other words, it is not a *full* vowel but a *reduced* vowel, also known as the *primary weak vowel* of English.

2.2.2 The movement of the tongue: monophthongs vs. diphthongs

We presented the IPA symbols representing the long vs. short vowels of RP in Table (1) above. The long vowels are arranged into three lines, and this arrangement is intended to reflect some of the articulatory characteristics of the members of this set. Some of the long vowels – as it was mentioned above – are monophthongs, i.e., the tongue takes up a certain position at the beginning of the articulatory process, and this position is maintained throughout the pronunciation of the vowel. In other words, the tongue does not move from one position to another during the articulation of monophthongs. We find monophthongs both in the long and in the short set. In the second and the third lines of the left-hand box of Table (1) there are diphthongs, whose articulation involves movement of the tongue, i.e., the tongue has to travel from one point to another during the articulation of diphthongs. As it appears from Table (1), diphthongs always count as long vowels. In the second line we find 5 *closing diphthongs*; the mouth is continuously closing during the production of these diphthongs, and of course the tongue is rising at the same time. These diphthongs all end in a high vowel, a vowel pronounced with a high tongue position (/ɪ/ or /ʊ/). The third line contains the 3 *centring diphthongs* of BrE RP, whose articulation starts somewhere at the periphery of the vowel space, and the tongue progressively moves towards the centre, towards the neutral position. These diphthongs are technically known as centring diphthongs because they end in a non-high, non-front, non-back, non-low, central vowel (/ə/). Let us now concentrate on the monophthong–diphthong dichotomy in Table (2) below.

(2) The movement of the tongue

Monophthongs vs. Diphthongs in BrE RP	
Monophthongs	Diphthongs
/ɪ/, /ʊ/, /e/, /ʌ/, /æ/, /ɒ/, (/ə/) /iː/, /uː/, /ɔː/, /ɜː/, /ɑː/	/aɪ/, /aʊ/, /ɔɪ/, /eɪ/, /əʊ/, /ɪə/, /ʊə/, /eə/

According to Table (2) there are 12 monophthongs in BrE RP, 11 *strong/full* monophthongs and one *weak/reduced* monophthong. The high short monophthongs /ɪ/, /ʊ/ also pattern together with the weak /ə/ in that they can also function as weak/reduced vowels. There are 5 long monophthongs and the rest are all short. There are also 8 diphthongs, 5 closing diphthongs and 3 centring diphthongs.

2.2.3 The movement of the lips: rounded vs. unrounded vowels

Vowels are also traditionally classified according to the position of the lips: this classification is usually binary. Some of the vowels are pronounced with *unrounded/spread* lips, while others are articulated with *rounded* lips. This classification makes sense only in the case of monophthongs, since diphthongs can be both rounded and unrounded depending on whether we examine the first or the second half of the diphthong.

Interestingly, English rounded vowels are all back vowels, we have no front rounded vowels in English. This leads to a conclusion, technically also known as a *redundancy statement*: all round vowels are back, or to put it differently, if something is round in BrE RP, it is also necessarily back. Note that the reverse statement is not true since not all back vowels are round. The reason for this is that we find the long unrounded low vowel /ɑː/ in the back region. This feature distinguishes the Hungarian vowel system from the English one, since in Hungarian there are front rounded vowels, both short ö /ø/, ü /y/, and long ő /øː/, ű /yː/.

(3) BrE monophthongs according to lip-rounding

Unrounded vs. Rounded vowels in BrE RP	
Unrounded	Rounded
/ɪ/, /e/, /ʌ/, /æ/, (/ə/) /iː/, /ɜː/, /ɑː/	/ʊ/, /ɒ/, /uː/, /ɔː/

According to the position of the lips, there are 7 full unrounded monophthongs and 4 rounded ones. Out of the 7 full unrounded monophthong vowels 4 are short vowels and 3 are long.

2.2.4 Stress: full vs. reduced vowels

Stress is said to be a suprasegmental feature because the proper description of regularities related to stress usually involves the examination of a series of segments or a sequence of syllables. English stress will be discussed in the closing units of this book, and therefore we will only introduce the basic difference between full and reduced vowels here.

English stress is radically different from the Hungarian stress pattern, and therefore both the production and the perception of English stress may cause a great deal of difficulty to the Hungarian learner. Hungarian stress is static, which means that stress usually falls on the same – normally the first – syllable of the word. Furthermore, vowels in unstressed syllables sound roughly the same as in stressed syllables because there is no *vowel reduction* in unstressed syllables. The situation in English is markedly different for several reasons. First, English stress is kinetic, i.e., moveable from one syllable to another depending, for example, on the suffix attached to the word. Second, vowels tend to *reduce* in unstressed syllables: this means that the distribution of vowel types in unstressed syllables is severely reduced: only /ɪ/, /ʊ/, /ə/ can occur in unstressed syllables. Vowel reduction enhances the perceptual difference between stressed and unstressed syllables, since it provides an additional cue to differences in loudness and pitch. Table (4) illustrates the full vs. reduced difference.

(4) Full versus reduced vowels in BrE RP

Full vs. reduced vowels	
Full vowels	Reduced vowels
/ɪ/, /ʊ/, /e/, /ɒ/, /æ/, /ʌ/, /iː/, /uː/, /ɔː/, /ɜː/, /ɑː/, /aɪ/, /aʊ/, /ɔɪ/, /eɪ/, /əʊ/, /ɪə/, /ʊə/, /eə/	/ɪ/, /ʊ/, /ə/

Table (4) shows that there are 19 full vowels in English and 3 reduced vowels. It is also apparent from the table that the 2 high short monophthongs /ɪ/ and /ʊ/ can function both as full and as reduced vowels. Schwa /ə/ can only occur in completely *unstressed* (weak) syllables. Later we will see that the situation is somewhat more complicated, since we will distinguish two types of stressed syllables, but these details need not concern us at this point.

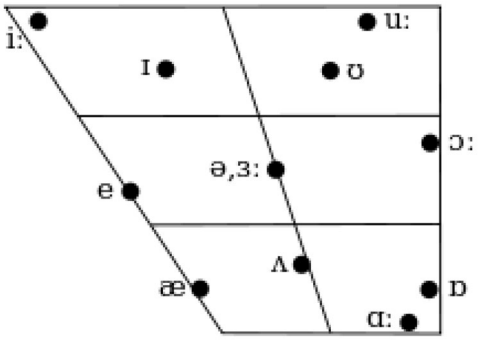
2.2.5 Quality: the position of the tongue

We have already mentioned above that besides quantity, vowels are also characterised by quality, i.e., by the position of the tongue. When we characterise

a vowel system according to tongue position, we distinguish two different types of movement of the tongue: the horizontal and the vertical movement. According to the horizontal dimension, we cut the vowel space into three regions: front, central and back. Front vowels are pronounced with a protruded tongue position, i.e., the tongue is displaced from its neutral positions forward, towards the teeth and lips. Back vowels are articulated with a retracted tongue position, and therefore the tongue is closer to the pharynx, it is drawn back from its neutral position. According to the vertical dimension there are high, mid and low vowels, i.e., we again cut the vowel space into three regions. During the pronunciation of a high vowel the tongue is raised from its neutral position towards the roof of the mouth, towards the palate. This tongue-raising is automatically accompanied by a closing movement of the mouth, since these two gestures are concomitant articulatory activities. Low vowels are produced with a lowered tongue position and an open oral cavity. It is not surprising then that low vowels are frequently referred to as open vowels, while high vowels are also often called closed vowels.

The above description, of course, depicts an idealised picture about the vowel space as the tongue usually moves both horizontally and vertically at the same time, and – depending on the given vowel system – a very slight displacement of the tongue can result in the production of a different vowel. Moreover, tongue position is always accompanied by further articulatory gestures like lip-rounding in the proper identification of the target vowel. Nevertheless, the *vowel chart* – also known as the *vowel trapezium* – has become a reliable device amongst phoneticians to show the location of the vowel under discussion. The monophthong system of BrE RP is given in the form of a vowel chart in (5) below. Diphthongs are naturally missing from the chart because during the articulation of diphthongs the tongue moves from one position to another.

(5) Tongue position: the vowel chart



(6) Tongue position: quality

The vowels of English according to quality						
	Front		Central		Back	
	Long	Short	Long	Short	Long	Short
High	/iː/, /ɪə/	/ɪ/			/uː/, /ʊə/	/ʊ/
Mid	/eɪ/, /eə/	/e/	/ɜː/, /əʊ/	/ə/	/ɔː/	
Low		/æ/	/aɪ/, /aʊ/	/ʌ/	/ɑː/, /ɔɪ/	/ɒ/

By examining Table (6) above, we can immediately draw the conclusion that diphthongs are always classified according to their first half. For example, the centring diphthong /ɪə/ is classified as a high front vowel because its first member, that is, /ɪ/ is a high front vowel. It is also evident from the table that there is a structural symmetry in the BrE RP vowel system in the high region; there is a short–long pair of monophthongs both in the high-front and also in the high-back region. Besides this symmetrical arrangement, we also find a pair of centring diphthongs whose starting point can be found in the high-front and the high-back regions respectively. The high central boxes are empty in (6) above because there are no high-central vowels in BrE RP.

In the mid area there are two diphthongs in the front region, a closing one and a centring one, and these diphthongs are accompanied by the short monophthong /e/. The mid-back area contains a single vowel, the long monophthong /ɔː/, while the mid-central region hosts the long monophthong /ɜː/, the closing diphthong /əʊ/ and also the primary weak vowel /ə/.

There is a single vowel in the low-front region, the short monophthong /æ/, which is pronounced with an open oral cavity and a protruded tongue position. The low central area hosts two closing diphthongs (/aɪ/ and /aʊ/) whose first element does not appear as an independent vowel symbol in phonetic transcriptions. Besides these two diphthongs, there is also a short unrounded monophthong in this area, /ʌ/. Finally, the low back region contains the closing diphthong /ɔɪ/, the long monophthong /ɑː/, and the short monophthong /ɒ/.

2.2.6 Tense vowels vs. lax vowels

The terms *tense* and *lax* are sometimes used as phonetic labels while on other occasions they occur as phonological terms. Since the equivalent Hungarian terms *feszes* and *laza* are not used in traditional Hungarian pedagogical parlance, these terms can cause a lot of confusion to Hungarian students of English phonetics and phonology. A number of textbooks written on English phonetics and phonology use these terms as articulatory categories that refer to the tension of the articulatory muscles during the pronunciation of certain

vowels. These textbooks generally claim that tense vowels are articulated with more intensive activity of the articulatory muscles, they tend to be longer than the corresponding lax vowels and they are susceptible to diphthongization. We will not follow this tradition in the present textbook but will instead treat these (tense/lax) categories as functional/phonological labels.

There are languages – including Hungarian – where short and long pairs are pronounced with roughly the same position of the tongue – except Hungarian *e* and *é* and *a* and *á* where besides the quantitative difference – *é* and *á* are long and *e* and *a* are short – the qualitative (tongue height) difference is also fairly noticeable – the former two sounds being pronounced with higher tongue position. In English, however, the corresponding short–long pairs of vowels are also quite different in terms of quality. The high front /iː/ and /ɪ/ and the high back /uː/ and /ʊ/, for example, display a quantitative difference on the one hand: the former are long, which is indicated by the *colon* [ː] (*length mark*) and the latter are short. The short members of the pairs, however, are pronounced with a lower and more central tongue position, which gives the impression of a relatively relaxed mode of pronunciation, hence the term *lax vowels*.

The major reason why we use the terms *tense* and *lax* in our course on English phonetics and phonology is that English long vowels do not seem to pattern neatly together with respect to certain phonological regularities. In other words, when it comes to phonological behaviour and distributional properties, some English long vowels tend to pattern together with short vowels: to mention but a single example of this situation let us invoke the so-called *Trisyllabic Laxing* rule to be discussed in Unit 6 below. Moreover, besides phonological regularities, *letter-to-sound correspondences* also provide evidence that non-high long vowels of English seem somehow to behave like short vowels. These questions will be amply discussed in later units below, so without going into further details here, we simply note that the terms *tense* and *lax* will be used in the present book as functional labels rather than phonetic ones.

(7) Tense vowels and lax vowels

Functional classification of vowels in BrE RP	
Tense vowels	Lax vowels
/aɪ/, /aʊ/, /ɔɪ/, /eɪ/, /əʊ/, /ɪə/, /ʊə/, /eə/, /iː/, /uː/, (/ɔː/)	/ɪ/, /e/, /ʌ/, /æ/, /ʊ/, /ɒ/, /ɜː/, /ɑː/, (/ɔː/)

According to Table (7), all the diphthongs are tense vowels, whereas all the short vowels are lax. Long monophthongs, however, are divided between the two categories: the two high long monophthongs /iː/ and /uː/ appear to function as tense vowels while the non-high long /ɜː/ and /ɑː/ are analysed as lax vowels.

The only vowel that shows a vacillating behaviour is the non-high /ɔː/, which sometimes behaves as tense, sometimes as lax. It is important to emphasize at this point that the tense–lax distinction will become clearer once we have examined some of the phonological regularities in the units that follow.

2.2.7 Homophones

We have seen the English consonant system in Unit 1 and the English vowel system in the present Unit. We have also pointed out that the primary function of phonemes is to distinguish lexical items. Sometimes, however, identical sequences of sounds can have different meaning, i.e., two different words may be pronounced in exactly the same way. Such identical strings of sounds are referred to as *homophones*. It is equally important that one should not be misled by the spelling, since homophones are sometimes spelt very differently. Consider the homophones in Table (8) below.

(8)

Homophones		
Spelling 1	*Spelling 2*	*Pronunciation*
weight	wait	/weɪt/
chews	choose	/tʃuːz/
principle	principal	/ˈprɪnsip(ə)l/
ceiling	sealing	/ˈsiːlɪŋ/
horse	hoarse	/hɔːs/
discreet	discrete	/dɪˈskriːt/

2.2.8 Summary

As far as the sound system of BrE RP is concerned, we have seen that there are 20 distinctive vowel sounds in this dialect. In other words, there are 20 vowel phonemes in BrE RP. We have also seen that besides the 20 vowel segments there are also 24 consonant phonemes in English, and this means that the phonemic system of BrE RP contains 44 distinctive sound segments altogether.

Unit 3

PHONOLOGY 1: PHONOLOGICAL REGULARITIES, BASIC CONCEPTS

3.1 Sounds, phonemes, allophones

As opposed to phonetics, which is a natural science, phonology is part of *philology*, it is part of linguistics, traditionally speaking: of "grammar". Phonology does not concentrate on the physical properties of speech sounds, instead it examines how sounds behave in a given language, i.e., how they pattern, what sort of regularities they undergo in different *phonological environments*. In other words, phonology investigates the function and value of speech sounds in the system of a language.

Since words are composed of sounds, the *lexicon* (stock of words) of a language is also made up of sounds, technically called *segments*. The primary function of segments is to distinguish one word (lexical item) from another. More precisely, phonological segments have a *distinctive function*, inasmuch as segments are building blocks of the lexicon. Distinctive segments are officially referred to as *phonemes*, i.e., phonemes are phonological units that are capable of distinguishing one word from another. Phonemes, however, may be pronounced (*phonetically realised*) differently in different *phonological positions*. The realisation of a phoneme is a *phone*, an actual speech sound.

Speech sounds that the hearer is likely to regard as the 'same' may be pronounced rather differently in different phonological contexts. Depending on whether a given phonological unit or 'segment' occurs, for example, before a stressed or an unstressed vowel, before a consonant or a vowel, in the vicinity of another segment, word-initially, medially or finally, etc., it might be pronounced, *'physically realised'* fairly differently. Sometimes this difference in terms of physical properties may be difficult to detect to the untrained ear, because both the speaker and the hearer may regard them as the 'same sound'. The reason for this is that this difference in pronunciation does not lead to a difference in meaning, and therefore neither the speaker nor the hearer notices the very often minute physical details. Speech sounds that have no distinctive function are traditionally called '*allophones*', a technical term which derives from the Greek words 'allo' meaning *other* and 'phone' meaning *sound*. Allophones are thus actually pronounced, *contextually dependent* variants of a

phoneme. Since the physical realisation (pronunciation) of a phoneme is contextually generated, an allophone that occurs in a given context may not occur in another context. This, of course, also entails that allophones (contextually determined variants) of a phoneme exclude each other from the same phonological environment, i.e., they occur in a *complementary distribution*. Where one allophone can occur, the other one cannot, and vice versa. Allophones of a phoneme thus occur in *mutually exclusive phonological environments*.

One consequence of the above reasoning is that allophones – unlike phonemes – are never distinctive. The simple reason for this is that in order to be able to distinguish meaning, phonemes must be capable of occurring in identical phonological contexts. For example, the first segment of *pit* [pɪt] is a phoneme because it distinguishes this word from the sound sequence *kit* [kɪt]. The segments /p/ and /k/ are said to be phonemes because they can distinguish meaning, and they can distinguish meaning precisely because they can occur in identical phonological contexts. This is the classic procedure for identifying the phonemes of a language, and it is widely known as the *minimal pair test*. We set up minimal pairs in order to isolate distinctive sound units of a language: minimal pairs are sequences of segments that are identical except for one segment in the same phonological position. Note that not only consonants can function as phonemes – as it was already illustrated by the *pit* and *kit* examples above – but also vowels; cf. the minimal pair *hot* [hɒt] and *hut* [hʌt]. To illustrate the point further, consider the Hungarian minimal pairs *fut* 'run' and *fűt* 'heat (v)', where the vowels, or *kap* [kɒp] 'receive' and *lap* [lɒp] 'sheet', where the initial consonants function as distinctive segments.

However, since allophones (physical realisations) of a phoneme exclude each other from identical contexts, they can never be distinctive, they can never distinguish meaning. For instance, there are no minimal pairs with the 'clear l' and the 'dark l' allophones of BrE RP. In BrE RP there are two allophones of the phoneme /l/, i.e., this abstract sound segment can be pronounced in two different ways depending on the phonological context. According to what is traditionally referred to as the *L-darkening* rule – to be discussed in further detail below in Unit 4 – the phoneme /l/ is pronounced as a clear [l] before a vowel and before /j/. Conversely, the same phoneme is pronounced as a dark [ɫ] before a consonant and before a pause. The latter allophone is realised by lifting the back of the tongue towards the velum, which is accompanied by lip rounding, hence the technical term 'velarized [ɫ]'. This allophone might sound a little bit strange to the Hungarian ear and may be difficult to implement to the untrained tongue. The simultaneous velarization and lip rounding might give the impression that an [o]-like sound is being pronounced, and in fact very often this seems to be the case. We might then speculate whether the phonological unit represented as /l/ is already on its way to become a vowel in certain phonological positions. If this proves to be a correct observation in the long

run, we can then talk about a process of *vocalisation,* whereby a consonant becomes a vowel in a given phonological environment, which is a frequently attested diachronic sound change in natural languages.

In sum, since the two respective allophones of the phoneme [l] may not occur in identical phonological contexts, there will never be minimal pairs such as *milk* [milk]* and *milk* [mɪłk], simply because the former pronunciation is incorrect, technically speaking *ungrammatical*. Recall that only a dark [ł] can occur before a consonant and before pause. Complementary distribution is thus responsible for the non-distinctive nature of allophones.

3.2 Once a phoneme, always a phoneme

It is frequently asked whether the number of minimal pairs found with a given phoneme influences the phonological status of the phoneme. The answer to this question is no. The reason for this is that phonemes (distinctive sound segments) might have *restricted distribution* in the given language. For example, it is well known that the velar nasal /ŋ/ may not occur at the beginning of a word in English, and as a result, it cannot be contrastive in that position. Similarly, since the glottal /h/ is absent from word-final position, it cannot contrast with another consonant in that position. Since both the above-mentioned consonants have defective distribution – i.e., they cannot occur in all conceivable phonological positions – it automatically reduces their capacity to participate in producing a large number of minimal pairs. Nevertheless, it has become a phonological commonplace that if there is at least one minimal pair for a given segment in a given language, that segment must be regarded as a phoneme in that language. This is the '*once a phoneme always a phoneme*' principle

Note that defective distribution has nothing to do with the phonetic implementation of phonemes, but it is merely the question of phonotactic constraints. Phonotactics is a set of constraints which prescribes the distribution of segments and segmental combinations in a given language. For example, it is widely known that the sequence /kn/ cannot occur word-initially in English; even if we encounter the *kn* combination in the spelling of words such as *know, knife, knock*, we never pronounce the letter *k* in that combination, in spite of the fact that the spelling suggests so. Instead, we pronounce these words with an initial /n/, a situation which is rather different in Hungarian. Consider the Hungarian word *knédli*, where both the initial consonant letters are pronounced as actual sounds. Note that phonotactic constraints are absolutely independent statements on the combinability of sounds in a given language, and they have nothing to do with the allophonic distribution of various phonemes.

One further note on the status of /ŋ/ and /h/ is due at this point. If these two phonemes occur in mutually exclusive contexts – /ŋ/ syllable- and word-finally, while /h/ syllable- and word-initially – shall we regard them as allophones of a given phoneme? Phonologists usually give a phonetic answer to this question, and they resort to the notion of *phonetic similarity*. They claim that besides complementary distribution allophones of the same phoneme must be phonetically similar, they must resemble each other. Since /ŋ/ and /h/ do not share any phonetic properties, they cannot be regarded as variants of the same *underlying* phonological unit.

3.3 Free variation

It must be noted in passing that sometimes a contrast is actually just a matter of *free variation*. In the case of free variation, a given word may be pronounced in two different ways, using two different, otherwise phonemic segments. However, what seems to be a 'phonemic' difference at first blush, does not lead to a difference either in grammar or in meaning, hence the choice in pronunciation depends solely on the speaker. By way of illustration, consider some of the most famous free variants such as *vitamin* /ˈvaɪtəmɪn/ vs. *vitamin* /ˈvɪtəmɪn/, *ego* /ˈiːgəʊ/ vs. *ego* /ˈegəʊ/, *patriot* /ˈpeɪtrɪət/ or *patriot* /ˈpætrɪət/, *apricot* /ˈeɪprɪkɒt/ or *apricot* /ˈæprɪkɒt/, *cyclic* /ˈsaɪklɪk/ or *cyclic* /ˈsɪklɪk/, etc.

Interestingly, the alternation represented by the free variants can also be observed elsewhere in the grammar of English. More precisely, the stressed vowels that participate in the respective free variants above also occur as regular stem-vowel alternants, to be discussed in Unit 5 below.

3.4 Sub-phonemic variants

There are two types of variation below the phonemic level: these variants are referred to as *sub-phonemic* because they do not lead to a difference in meaning, i.e., the respective sounds do not have a distinctive function. The first type is *allophonic variation,* whose status was already discussed above in Section 3.1. Besides *allophonic variation* there is a second type of sub-phonemic difference, called *sub-phonemic free variation*. Sub-phonemic free variation is different from the kind of free variation discussed above in Section 3.3, since in simple free variation the sounds that are used freely in alternative forms of pronunciation without causing difference in grammar or meaning have otherwise phonemic status in the given language. Sub-phonemic free variation in English can be illustrated by the phenomenon widely known as *glottalization* or more precisely *glottal replacement.* Without going into the sociocultural,

dialectal and stylistic details of the phenomenon at this point, it is important to emphasize that in some dialects of English – including London Cockney – the voiceless alveolar stop can be replaced by the glottal stop – introduced in Unit 1 – in some phonological contexts. Sometimes this takes place when /t/ occurs in syllable-final position, and especially when it is followed by a consonant, for example, *Scotland* /ˈskɒtlənd/ is very often pronounced as *Scotland* [ˈskɒʔlənd]. This kind of variation is free because the choice of the alternant depends on the dialect or the speaker, and it is sub-phonemic because the alternants do not cause a change in grammar or meaning.

3.5 Structure-dependence of phonological regularities

Some phonological regularities operate 'blindly', taking only the phonetic surroundings into account. More precisely, there are phonological alternations that completely disregard the grammatical aspects of the context. One such *automatic regularity* is the L-darkening rule of English – already mentioned above and discussed in further detail Unit 4 below. Thus, when the /l/ phoneme stands before a consonant or a pause (word-finally), it is pronounced as a dark [ɫ] (*fall* [fɔːɫ], *milk* [mɪɫk], *kill* [kɪɫ], *kill him* [ˈkɪɫ hɪm]), while in all other contexts it is phonetically realised as a clear [l] (*link* [lɪŋk], *lily* [ˈlɪli], *kill it* [ˈkɪl ɪt]). In other words, the distribution of the respective allophones is conditioned solely by the phonological context and no grammatical information, like the presence of a *word boundary* (#), is taken into consideration. The rule works automatically without being blocked by grammatical entities. To put it differently, the operation of the rule is *sensitive exclusively to phonological information*, since terms like 'consonant', 'vowel' and 'pause' are regarded as phonological entities, phonological pieces of information. To take another example, consider Hungarian voice assimilation processes: it is widely known that Hungarian obstruents – with minor exceptions not discussed here – trigger and undergo strict *regressive voicing assimilation* when they are adjacent. This means that sequences of obstruents always agree in terms of voicing, i.e., sequences of obstruents are either all voiced or voiceless. There are two possibilities: the adjacent obstruents agree in terms of voicing lexically, cf. *deszka* 'plank', *mester* 'master', *üst* 'pot', *gazdag* 'rich', *edz* 'train (v)', *nedv* 'fluid', etc., or if they disagree, a voicing assimilation process takes place as in *futball* 'football' /tb/ > /db/, *abszurd* 'absurd' /bs/ > /ps/. The voice assimilation process is *regressive,* i.e., it is always the rightmost one that triggers and the leftmost one that undergoes voicing assimilation, i.e., the voice value of the right-hand consonant determines the voice value of the left-hand one. Interestingly, the process also works across morpheme and word boundaries: after suffixation the final consonant of the stem assimilates its voice feature to the initial

consonant of the suffix, cf. *részben* 'partially' /reːs+bɛn/ > *rézben* /ˈreːzbɛn/, *üvegtől* 'from the glass' /ˈyvɛg+tøl/ > *üvektől* /ˈyvɛktøːl/. Moreover, the same process is attested in compound words: *vasgolyó* 'iron ball' /ˈvɒʃ+ˈgojoː/ > *vazsgolyó* /ˈvɒʒgojoː/, *lágytojás* 'soft-boiled egg' /ˈlaːɟ+ˈtojaːs/ > *látytojás* /ˈlaːctojaːʃ/ and across words: *nagy kecske* 'big goat' /ˈnɒɟ ˈkɛtʃkɛ/ > *naty kecske* /ˈnɒc kɛtʃkɛ/, *hat barom* 'six beasts' /ˈhɒt ˈbɒrom/ > *had barom* /ˈhɒd bɒrom/. This means that the Hungarian voice assimilation process is not sensitive to the internal grammatical structure of the sequence, and takes only phonological information into consideration, such as the voice value of the immediately adjacent obstruent.

The situation is radically different in the case of *structure-dependent* phonological regularities such as English Trisyllabic Laxness (TSL) or Hungarian Vowel Harmony (VH). Structure-dependence means that the operation of a certain phonological regularity is dependent on the internal grammatical (morphological) structure of the words. While there is stem vowel shortening (later to be referred to as Trisyllabic Laxing) in *vanity* /ˈvænɪti/, for example, cf. *vain* /veɪn/, there is no such shortening in *laziness* /ˈleɪzɪnəs/, cf. *lazy* /ˈleɪzi/. This discrepancy must then be attributed to the different internal structure of the respective lexical items. These regularities thus take *extra-phonological information* into account, such as the boundary type occurring between the *stem* and the *suffix*. This means that phonological regularities are not of the same type: typologically speaking there are regularities that operate across all sorts of boundaries and they are not constrained by morphological/syntactic boundary markers. These rules are traditionally referred to as *postlexical rules* and L-darkening and Hungarian voice assimilation certainly belong here. On the other hand, regularities that are sensitive to the internal structure of lexical items and whose operation may be blocked by internal boundary markers are referred to as *structure-dependent* or *lexical rules*. English Trisyllabic Laxing, for example, belongs to this latter type, cf. Unit 6 below.

3.6 Segmental and suprasegmental phonological regularities

Phonological regularities are frequently divided into *segmental* and *suprasegmental* rules depending on the scope of the regularity. Segmental rules – as the name suggests – describe regularities that affect segments in the presence of a neighbouring – usually adjacent – segment. For example, the English L-darkening rule, or the Hungarian Voice Assimilation rule are segmental regularities because a segment is affected in the immediate vicinity of another segment. Suprasegmental rules, on the other hand, refer to sequences larger than a segment or sometimes larger than the word; *stress*, *rhythm* and *intonation* typically belong here. It has been widely assumed by phonologists of

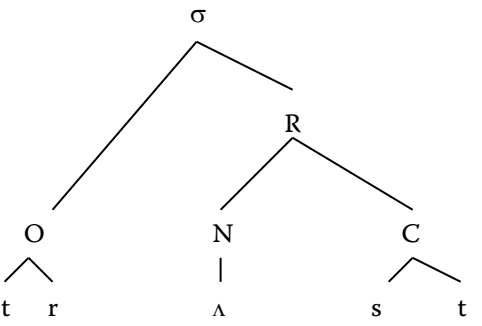
various theoretical affiliations that the English stress system is best characterized by reference to syllable weight. A distinction between *heavy* and *light* syllables (cf. Section 10.2) was introduced into the theoretical vocabulary, and the number of syllables from the end of the word is also counted. In order to predict the location of stress, sequences of segments and syllables have been taken into account, and therefore, the scope of the study of stress patterns extends beyond the segment. Moreover, it is self-explanatory that for the discussion of phenomena like sentence stress, rhythm or intonation our attention has to be extended beyond the segmental level. Some suprasegmental regularities of English – notably words stress – will be discussed in the final units of this book.

3.7 The syllable as a phonological concept

Although its theoretical status has been questioned by some recent phonological theories, the *syllable* as a widely used technical concept has been around for quite some time in phonological reasoning. Without going into the details of various views at this introductory level, let us see the *constituents of the syllable*.

The ultimate constituents of the syllable are the *onset* (O), the *nucleus* (N) and the *coda* (C). The nucleus and the coda together constitute the *rhyme* (R), an immediate constituent of the syllable. The syllable itself is usually symbolised with a Greek letter, the *lowercase sigma* (σ). This kind of division is shown in the form of a tree diagram for the word 'trust' in (1) below.

(1)



As it appears from the syllabic organisation of *trust* in (1) above, the onset and the coda are reserved for consonants, while the nucleus, which is the centre of the syllable, is reserved for vowels. In fact, a number of languages allow only vowels in the nucleus, while others make provisions for *syllabic consonants*, i.e., consonants occupying the nuclear position of the syllable. Moreover, the structure illustrates that the nucleus and the coda together form an

intermediate constituent, called the rhyme, suggesting that the relationship between the nucleus and the coda is more intimate than that between the nucleus and the onset, for example. We will see later in this book that the rhyme indeed plays a crucial role in determining the *primary stress* of English words. Furthermore, *phonotactics* is another area of phonology where this kind of syllabic constituency can be justified. In particular, while there are stringent *phonotactic constraints* inside each constituent and between the nucleus and the following coda, we very rarely find any phonotactic interaction between the onset and the following rhyme, and thus the onset seems to be a constituent entirely independent of the rhyme.

There are a number of arguments in favour of the syllable as a theoretical construct, although recent phonological theories have questioned the validity of these arguments. And indeed, one can hardly find phonological regularities that cannot be described without making reference to the *syllable node*. Without going into the details of theoretical debates over the syllable, we will use the traditional syllabic division illustrated in (1) above because it can be quite useful for didactic purposes.

3.8 Spelling and pronunciation

When doing linguistics, it is extremely important to make a clear-cut distinction between spelling and pronunciation. Pronunciation is the result of a subconscious linguistic knowledge acquired in the ideal case amongst native speakers of the same language or dialect. Spelling, on the other hand, is purely a matter of *social convention*, i.e., it is an agreement between the members of a given society to record the speech flow in one way or another. Although the study of writing systems (orthographies) is extremely interesting both from a cultural and from a historical point of view, it must be emphasized that written language is secondary to the spoken one when it comes to the study of languages. The correspondence between *spelling* and *pronunciation* does not belong to the core areas of linguistics, like phonology, morphology and syntax, for example. This, however, does not mean that this area of research – besides its cultural and historical aspects – is not interesting from a pedagogical, didactic point of view.

We regard spoken language as our primary target of research, since any illiterate person or infant is a completely proficient native speaker of his language roughly after the age of 4. The most important task of the linguist is to describe the innate, subconscious knowledge of the native speaker, which he uses in everyday communication regardless of whether he or she is a literate person. For us, literate learners of a foreign language, however, it can be very instructive to examine the relationship between spelling and pronunciation. This is all the

more so, since, as we will see it in Unit 7, there is a logical connection between the *graphic position* of vowel letters and their pronunciation, and this refutes – at least partly – the belief that English spelling is so chaotic that it is better not to study the connection between its orthography and pronunciation.

3.9 Underlying and surface, phonemic and phonetic

There are technical terms frequently used but rarely explicated in phonological jargon. Let us, first of all, look at the difference between *underlying representation* and *surface representation*. The underlying representation of a lexical item is said to contain only unpredictable pieces of information, i.e., bits of knowledge that have to be memorized by brute force. It is generally recognized amongst linguists that the *storehouse of unpredictable pieces of information* is the *mental lexicon*, and therefore the underlying representation is frequently also referred to as the *lexical representation*. The lexical representation of a word thus must contain the form and the meaning of the word; both the form and the meaning are absolutely necessary for something to be called a word. The form is a *string of phonemes*, while the meaning is the *concept* attached to the phonemic sequence. It is important to emphasize at this point that besides the sound string and the meaning there may be further bits and pieces of information that are unpredictable and thus have to be memorized for a given lexical item. For example, the *lexical category* of the word, any *irregularity* (like irregular plural formation, exceptions to regular past tense, etc.) also count as individual properties of words. As far as pronunciation is concerned, phonological regularities (like L-darkening, aspiration, voice assimilation) that are predictable by a rule are – by definition – not *idiosyncratic* (individual) features of words, and thus they do not have to be memorised separately for each and every lexical item. These regularities are rule-governed, which means that a single statement caters for all the cases where the relevant sound string is present. Since rule-governed regularities are predictable, there is no place for them in the lexicon, but they belong to the grammar book. Regularities – as the term suggests – characterize the recurrent properties of the language in general and not individual lexical items.

Since there is no logical connection between the sound string and the concept that it signifies, the phonemic sequence must be entered into the lexicon because it is an idiosyncratic property of the word. There is no particular reason why the concept of *table*, for example, should be linked to the phonemic string /ˈteɪbəl/, or that of *cat* should be connected to /kæt/. The fact that the union between the phonemic string and the concept it signifies is completely *arbitrary* is frequently demonstrated by *cross-linguistic* evidence. The same concept in different languages is represented by different, unrelated strings of phonemes:

for example, English *dog* is *Hund* in German, *sobaka* in Russian, *cane* in Italian and *kutya* in Hungarian. There is no way in which any logical connection between these sound strings or any of the sound strings and the concept could be discovered. This kind of phonemic sequence will also be referred to in this book as the *phonemic representation* or the *underlying representation*. By the term 'underlying' we mean the string that underlies the actual surface or *phonetic representation*, i.e., the ultimately pronounced string of sounds. In other words, only the phonemic string is memorized by the speaker and thus only this sequence is recorded in the lexicon. The connection between the *phonemic* (lexical, underlying) *representation* and the *phonetic* (surface) *representation* is established by *phonological rules*. To take a very simple example, consider now the already mentioned L-darkening rule. When we examine an English dictionary, we never encounter the dark [ɫ] symbol in the phonemic transcription of words. The reason for this is quite simple: L-darkening is an automatic phonological regularity, which characterizes all the lexical items of the language in which the relevant phonological environment is present. More accurately, this phenomenon characterizes the sound system of the language as a whole, and therefore it is a grammatical rule that belongs to the grammar book and has nothing to do with the lexicon. It is a regularity of the language and not an individual (idiosyncratic) property of a lexical item (or some lexical items) that should be memorized by brute force.

Since phonemes may have several realisations depending on the phonological context, there are necessarily more sounds (phones) then phonemes. There is, however, a requirement on the phonetic realisation of phonemes. Allophones that belong to the same phoneme must be *phonetically similar*, and this is why phonetically unrelated phones may not be regarded as realisations (allophones) of the same phoneme. Although /ŋ/ and /h/ are in complementary distribution in English, they may not be regarded as allophones of the same phoneme due to lack of phonetic similarity.

As it is already quite clear to the attentive reader, there are different means of representing phonemic and phonetic transcriptions. Phonemic transcriptions (underlying representations) are enclosed between *slashes* / /, while phonetic transcriptions appear between *square brackets* [ ]. Similarly, phonemes are enclosed between slashes / /, while allophones occur between square brackets [ ]. A consequence of this traditional notational convention is that phonetic transcriptions will include both *predictable* and *unpredictable* pieces of information about the pronunciation of a given lexical item.

Unit 4

PHONOLOGY 2: RULES AFFECTING ENGLISH CONSONANTS

4.1 Introduction

This unit concentrates on some basic phonological regularities of Standard British English RP. The primary aim of this unit is to put the theoretical concepts discussed in Unit 3 into practice here. The vast majority of phonological regularities discussed in this Unit affects English consonants and operate mainly with phonological pieces of information, i.e., in the overwhelming majority of the cases it is enough to properly describe the phonological context in which the rule operates. But what do we mean by the concept of *phonological information*? Well, phonological information includes properties like *consonant, vowel, stress, pause, stressed vowel, unstressed vowel,* etc., anything which relates to pronunciation. This also means that regularities such as these are not constrained by morphological or syntactic boundaries, and therefore they may also operate on units larger than the word.

4.2 L-darkening

L-darkening is one of best documented automatic regularities of the English language. There are some differences in the exact operation of the rule across dialects, but the basic observation is that the phoneme /l/ is physically realised (pronounced) rather differently in different phonological environments. The received wisdom is that there are at least two allophones of the phoneme /l/: the clear [l] and the dark [ɫ], the latter having a specific symbol in the IPA. The clear [l] generally sounds like the Hungarian /l/, and therefore it poses no special difficulty to the Hungarian learner of English. It is a normal alveolar-lateral [l], which is phonetically implemented by raising the tip of the tongue and touching the central area of the alveolar ridge, while the sides of the tongue are lowered, and hence the air can continuously escape through both sides of the oral cavity. The dark [ɫ] allophone, however, is a *velarized* /l/ because the back of the tongue is raised towards the velum when producing this allophone.

This tongue-raising gesture is accompanied by a secondary articulation of lip rounding, and therefore [ɫ] very often sounds quite like the vowel [o].

The respective allophones of the phoneme /l/ are, of course, in complementary distribution, which means that they occur in mutually exclusive contexts. In BrE RP the clear [l] occurs before a vowel and before the semi-vowel /j/, whereas the dark [ɫ] occurs before a consonant and before a pause. This kind of distribution is usually formalised according to the traditional re-write rule format in the following manner.

(1) $/l/ \rightarrow [l] \; / ___ \begin{Bmatrix} V \\ /j/ \end{Bmatrix}$

(2) $/l/ \rightarrow [ɫ] \; / ___ \begin{Bmatrix} C \\ \| \end{Bmatrix}$

According to the rule in (1), the phoneme /l/ is pronounced as a clear alveolar lateral [l] before a vowel and before /j/, while the same phoneme is realised as a dark, velarised [ɫ] before a consonant (C) and before pause (||). Pause is represented by two vertical lines '||' in the IPA and it literally means absolute silence for at least a millisecond. Bear in mind that in phonological formalisms of the type in (1) and (2), the big slash corresponds to the expression 'in the following context(s)', whereas the braces indicate 'either, or' choice. We can demonstrate the operation of the rules in (1) and (2) with the examples in (3) and (4) below.

(3)

The distribution of clear [l] in BrE RP			
(a)	(b)	(c)	(d)
like	*flick*	*melon*	*kill you*
loft	*cyclone*	*shallow*	*cool ice*
legitimize	*splash*	*illegal*	*still in the corner*
librarian	*reply*	*value*	*will answer*

It appears from (3) that the clear [l] can occur word-initially, word-medially and word-finally provided that it is followed by a vowel or a /j/. It does not matter whether the vowel or /j/ following the [l] is in the same word or if it is part of a following word. In other words, this regularity is not sensitive to the internal grammatical structure of the word, and therefore it is not structure-dependent. The vowel or the /j/ can even come as the initial segment of the following word provided that we do not keep a pause before that word. There are two conditions then for the clear [l] to occur in BrE RP: the first condition is that it must be followed by vowel or a /j/, and the second condition is that

there should be no pause after the /l/. Consider now the distribution of dark [ɫ] in (4) below.

(4)

The distribution of dark [ɫ] in BrE RP			
(a)	(b)	(c)	(d)
old	*royalty*	*whales*	*he won't kill*
silk	*walnut*	*filed*	*file resignation*
herald	*Milton*	*killed*	*whole nation*
calls	*Alsatian*	*called*	*no self-control*

According to the data in (4) above, the presence of a consonant or a pause automatically conditions the occurrence of the dark [ɫ] allophone, and in this respect the pause patterns together with consonants. There are cases, however, that seem to defy the L-darkening rule at first sight. Consider the examples in (5) below.

(5)

Syllabic [l̩] is always dark		
travel	*travelling*	*travel abroad*
marvel	*marvellous*	*marvel at*
awful	*awfully*	*awful and bad*

In the examples of (5) above the /l/ remains dark [ɫ] in spite of the fact that it is followed by a vowel. These examples, of course, seem to upset the rule we have just established at first sight. The reason for this, however, is quite simple: the word-final /l/ in the base forms can be – and in casual fast speech is indeed – pronounced as a syllabic [l̩], i.e., the /l/ forms a syllable of its own. In other words, the stems can be pronounced in two alternative forms: with a schwa and a non-syllabic consonant in the final syllable in slow, careful, pedantic pronunciation, and with a syllabic consonant at a normal or fast speech rate or colloquial speech style.

(6)

Syllabic [l̩] and non-syllabic [l]		
	slow, careful	normal, fast, casual
travel	/ˈtrævəl/	[ˈtrævl̩]
marvel	/ˈmɑːvəl/	[ˈmɑːvl̩]
awful	/ˈɔːfəl/	[ˈɔːfl̩]

It appears from the data in (6) that the unstressed vowel of the second syllable drops out in fast, casual pronunciation and the second syllable is realised only by a syllabic consonant. This means that there will only be a single vowel in these base forms but these forms will still consist of two syllables. A consonant which realises a syllable on its own is called a *syllabic consonant*. This might be a little bit strange to speakers of various languages since not all the languages seem to have syllabic consonants. As it was already mentioned back in Section 2.1, Hungarian, for instance, for a long time in its history did not tolerate syllabic consonants. This is why earlier borrowings from German into Hungarian are all pronounced with a non-syllabic consonant followed by a vowel, i.e., a syllabic consonant is turned into a non-syllabic consonant followed by an [i], for example, German *Socken* 'socks' /zokn̩/ is *zokni* /zokni/ in Hungarian, and German *nudel* 'pasta' /ˈnuːdl̩/ becomes Hungarian *nudli* /ˈnudli/. Syllabic consonants have been creeping into Hungarian for a couple of decades now, especially in proper names, both personal and brand names. The pronunciation of the original syllabic *l* in proper names vacillates between syllabic and non-syllabic articulation depending on the speaker. There seems to be a generation gap between those who pronounce syllabic *l*'s on the one hand and those who pronounce a non-syllabic *l* with a following [i]. For example, the name of the famous Hungarian architect Miklós Ybl is still pronounced ['ibli] by some speakers of older generations. Similarly, elderly speakers pronounce the name of the German supermarket chain Lidl as ['lidli], while younger speakers find no difficulty in pronouncing ['lidɫ]. Moreover, Google is pronounced ['gugli] by some speakers, while others pronounce it ['guːgɫ].

Syllabic consonants like the ones illustrated in (6) are quite widespread in Germanic languages, including English. There are a number of factors, of course, that may influence syllabic consonant formation involving stress and the type and sonority value of the consonant preceding the consonant to become syllabic. The exact details of syllabic consonant formation need not concern us at this point, we will return to this question in Unit 5, Section 5.10. Suffice it to say that syllabic /l/ is always dark and therefore, the forms of the second and the third column of (5) above will be pronounced as in (7) below.

(7)

Syllabic [l̩] before a vowel	
travelling ['trævl̩ɪŋ]	*travel abroad* ['trævl̩ əˈbrɔːd]
marvellous ['mɑːvl̩əs]	*marvel at* ['mɑːvl̩ ət]
awfully ['ɔːfl̩ɪ]	*awful and bad* ['ɔːfl̩ ənd bæd]

The phonetic transcriptions in (7) illustrate that a syllabic /l/ is always a dark [ɫ] even if it is followed by a vowel. As a result of the above modification, we might reformulate the L-darkening rule along the following lines: the phoneme /l/ is pronounced as a dark [ɫ] if it is followed by a consonant or a pause, or if it is syllabic.

When it comes to concrete examples, one must be very cautious in deciding whether a given word is pronounced with a clear [l] or a dark [ɫ]. The reason for this is that sometimes neither allophone occurs although the spelling suggests the presence of some kind of /l/ in the word. A number of English lexical items have lost their *l*'s during their history, e.g. *folk* [fəʊk], *half* [hɑːf], *yolk* /jəʊk/, *calm* /kɑːm/, *palm* /pɑːm/, *stalk* /stɔːk/, etc. The absence of /l/ in these lexical items is entirely unpredictable.

Note also that the operation of the L-darkening rule does not depend on the stress pattern of the word, neither is it influenced by the spelling. The latter fact is especially evident if we note that the /l/ phoneme is sometimes spelt with a single /l/ and sometimes with a double /l/. In actual pronunciation even words that contain a double *l* in spelling are pronounced with a single [l] sound.

The reason for this is that there are no *true geminates* in English, i.e., there are no adjacent identical consonants between two *analytic boundaries*. In other words, there are no *geminate consonants* word-internally in English. This, of course, does not mean that there are no geminates at all in English since there are *fake geminates,* i.e., two adjacent identical consonants separated by an analytic boundary: for example, the word *un#necessary* is pronounced [ʌnˈnesəsəri], with a long [n]. This consonant doubling, however, is the result of the accidental juxtaposition of two identical consonants, hence the term 'fake geminate'. On domains and boundaries see Unit 6 below.

Hungarian seems to be rather different in this respect, since Hungarian has *true geminates*, i.e., two adjacent identical consonants within the domain of the word; cf. *kotta* 'musical notes', *summa* 'sum', *vessző* 'comma'. All these true geminates are of course pronounced long, i.e., the pronunciation of a geminate consonant takes up roughly twice as much time as the pronunciation of a single consonant. This kind of situation sheds light on another interesting difference between Hungarian and English. This difference is related to the orthographic conventions of the two languages rather than pronunciation: namely, while consonant letter doubling in Hungarian indicates that the given consonant is to be pronounced long, the same strategy in English serves the purpose of showing that the preceding vowel is pronounced short. This is especially apparent when we compare e.g. *comma* /ˈkɒmə/ with *coma* /ˈkəʊmə/, the latter being pronounced with a long vowel while the former one with a short vowel. The same is true of word pairs such as *latter* /ˈlætə/ and *later* /ˈleɪtə/. Later, in Unit 7 we will see that each single vowel letter has two basic sound values, and we will return to this question at that point of the discussion.

It follows from the above discussion that the /l/'s in italics in the sentence of (8) below are all dark [ɫ]'s, while all others are clear.

(8) He wi*ll* kill a*ll* his family.

The dark /l/ thus sounds almost like the vowel /o/. This is due to the already mentioned velarization and simultaneous lip rounding. Viewed from a historical linguistic perspective, this feature of pronunciation may be the result of an ongoing context-dependent sound change, referred to as vocalisation.

4.3 R-dropping

The next regularity of BrE RP that we will discuss in this unit is traditionally referred to as the R-dropping rule. It is widely known that English dialects can be grouped into two different classes on the basis of the distribution of the historical /r/. There are dialects like Scottish English, or General American (GA), in which /r/ is pronounced in all the positions where it historically occurred. In other words, we pronounce all the *r*'s that occur in the spelling, and thus spelling seems to be a fairly reliable guide to the distribution of the historical *r* in English. The exact phonetic implementation of this r-type need not concern us here. These dialects are commonly labelled *rhotic* accents; the technical term refers to the Greek name of the letter *r*, which is *rho*. By contrast, dialects that delete the historical *r* in some phonological positions are called *non-rhotic* accents or dialects, meaning that these accents do not pronounce all their *rhos*; BrE RP, Canadian English, Australian English all belong to this latter group. Consider now the BrE RP pronunciation of the words in (9) below.

(9)

The distribution of /r/ in RP 1	
Environment	/r/ *pronounced*
# _V	*read, wrong, rifle, redeem*
C_V	*crime, betray, screech, pretend*
V_V	*carry, parade, clearance*
V_(#)V	*poorest, furry, clearing, humorous*
V_#V	*fair enough, clear out, over all*

It appears from the table that historical /r/ in RP occurs in a wide range of contexts. By examining the environments in (9), we can draw the conclusion that the left-hand context is absolutely irrelevant for R-dropping. What is

important is that a pronounced vowel should follow the /r/ regardless of whether that vowel occurs in the same word, at the beginning of a following suffix, or across a word boundary, provided that no pause is kept between the /r/ and the following vowel. This means that the regularity is not constrained by morphological boundary markers, and it is sensitive only to the phonological context; i.e., the only important factor is that there is a pronounced vowel after the /r/. It has already been mentioned above in connection with L-darkening that rules that operate 'blindly' – only with reference to the phonological environment – are called *postlexical rules* since they are applicable beyond the domain of the word, across word boundaries. This means that the *R-dropping rule*, like the *L-darkening rule*, is a postlexical regularity of English phonology.

Consider now the words in (10) and study the environments in which historical /r/ remains unpronounced in RP.

(10)

The distribution of /r/ in RP 2	
Environment	/r/ *silent*
V_C	*torch, pardon, curtain, port*
V_|	*door, star, defer, admire, adore, store*
V_#C	*fair comment, clear-cut, overtime*

The table in (10) shows that there are two environments in which the historical /r/ remains silent in BrE RP; before a consonant and before a pause; no matter if the consonant is situated in the same morpheme or across a word boundary. The fact that R-dropping takes place before a consonant and before a pause means that this rule is quite similar to the L-darkening rule. In BrE RP historical /r/ remains silent in exactly those environments where an /l/ becomes dark, i.e., *dark l* and *silent r* have parallel distribution. We have also mentioned in connection with the L-darkening rule that there is a hypothesis which predicts that the dark [ɫ] is already on its way towards vocalisation. If this prediction proves correct, then we might claim that liquids tend to disappear in front of consonants and pauses in BrE RP. The distribution of pronounced versus silent /r/ is formulated in the form of the R-dropping rule in (11a) and (11b) below.

(11) (a) /r/ → [r] / ___ V

(b) /r/ → [Ø] / ___ $\left\{ \begin{matrix} C \\ \| \end{matrix} \right\}$

Having formulated the R-dropping rule, let us examine now the status of word-final /r/, commonly called Linking-R.

4.4 Linking-R

Words ending in a historical *r* seem to appear in two alternative forms (*allomorphs*) in actual pronunciation: one without the historical *r*, while the other one with the historical *r*. As a result, word-final *r* has been regarded as a linking element, which is realised only when the next word begins with a vowel and the speaker does not keep a pause between the two words. Thus, all the words that end in a historical *r* will be realised with an /r/ when the next word begins with a vowel. Consider the data in (12) below illustrating the phenomenon of Linking-R.

(12)

Linking-R in BrE RP			
never	/ˈnevə/	*never again*	/ˈnevər əˈgen/
Peter	/ˈpiːtə/	*Peter and Margaret*	/ˈpiːtər ən ˈmɑːgrət/
hear	/ˈhɪə/	*hear a word*	/ˈhɪər ə ˈwɜːd/
over	/ˈəʊvə/	*over and over*	/ˈəʊvər ənd ˈəʊvə/

Different dictionaries show this allomorphic variation using different symbols. They either put an asterisk at the end of the morpheme where a Linking-R is possible, /ˈnevə*/, or indicate the presence of the Linking-R by putting the /r/ in parenthesis, /ˈnevə(r)/. Yet another way of indicating the presence of a Linking-R is showing it as a superscript symbol, /ˈnevəʳ/. We will not use any of these methods when transcribing the word in isolation, and therefore the word *never* will be transcribed simply as /ˈnevə/. However, in uninterrupted fluent speech we must decide whether the word that ends in a Linking-R is followed by a vowel or a consonant, and we must transcribe the word accordingly, with or without the Linking-R. As a result, the sentence *Peter and his brother are never sober* will be transcribed as /ˈpiːtər ənd hɪz ˈbrɒðər ɑː ˈnevə ˈsəʊbə/.

4.5 Intrusive-R

Intrusive-R is fairly different from the Linking-R phenomenon in that the Intrusive-R may not be regarded as a historical element, and it is never indicated in the spelling. Furthermore, it is important to emphasize that Intrusive-R is optional and Linking-R is obligatory. Consider the examples in (13) below, paying due attention to the vowel preceding the Intrusive-R. Note that since the pronunciation of an Intrusive-R is an optional feature of RP pronunciation, the phonetic symbol showing this phenomenon is enclosed in parentheses

(round brackets). Although this phenomenon is optional, the tendency is to pronounce the Intrusive-R, especially amongst younger speakers.

(13)

Intrusive-R in BrE RP	
a.	*law (r) and order*
b.	*a famous spa (r) in Budapest*
c.	*idea (r) of it*
d.	*skua (r) and pike*
e.	*Tina (r) and Margaret*
f.	*the bra (r) on the table*

The examples in (13) illustrate the phenomenon of the Intrusive-R, which may occur in the position indicated by the parenthesized *r*. None of the words that precede the Intrusive-R contain an /r/ at the end of the word at any level of analysis, and they never contained one in the history of English. Words that allow an Intrusive-R to follow them, however, end in a special class of vowels that we will refer to as the *intrusive set*. Consider the intrusive set below in (14).

(14)

The intrusive set
/ɔː/, /ɑː/, /ɪə/, /ʊə/, /ə/

Table (14) contains 5 vowels, two long monophthongs, /ɑː/, /ɔː/, two centring diphthongs, /ɪə/, /ʊə/, and the weak schwa /ə/. This means that if an English word ends in any of the above vowels and the next word begins with a vowel, an Intrusive-R may occur between the two vowels. Interestingly, two vowels are conspicuously missing from the table: /ɜː/ and /eə/. The reason for this is quite simple: these two vowels may occur only if there is an /r/ after them in lexical representation. These two vowels thus always occur before an /r/ at some level of the analysis, and this means that their original source is always some form of *r*-influence. The vowel /eə/ is always the result of *breaking*, whereas the vowel /ɜː/ is always the result of *broadening*, both of which will be discussed in the next unit. The only exception to this is *colonel* whose pronunciation is /ˈkɜːnəl/. This is why /ɜː/ and /eə/ do not belong to the intrusive set since they may be followed only by a Linking-R at the end of the word.

The common articulatory property of the vowels in (14) is that they all end in a non-high vowel. In other words, they are either all non-high vowels

themselves or they are diphthongs ending in a non-high vowel. The five closing diphthongs are automatically excluded from the intrusive set since their second half is the high vowel (/ɪ/ or /ʊ/). Moreover, the long and short high monophthongs, i.e., /iː/, /uː/, /ɪ/, /ʊ/ are also excluded, no Intrusive-R is possible after them. It is also worth bearing in mind that the latter two may only occur word-finally in an unstressed syllable since no English word may end in a short, stressed vowel. This latter fact is responsible for the absence of the remaining four short monophthongs from word-final position. Since /æ/, /e/, /ʌ/ and /ɒ/ never appear in a completely weak syllable, i.e., they always function as strong vowels, and since an English word can never end in a stressed short vowel, these four short monophthongs are automatically excluded from absolute word-final position in English, and hence they have no chance to be followed by an Intrusive-R.

It is also worthy of note that the Intrusive-R is regarded as a *hiatus filler*, also known as a *hiatus breaker*. The situation when two adjacent vowels are not separated by a consonant is called a *hiatus*. In other of words, a hiatus is the lack of a consonant between two consecutive vowels. This 'empty space' is very often filled in by an intruding sound segment, and in the present case it is the Intrusive-R. In Hungarian this hiatus filler is usually the segment /j/, which appears, for example, after the high front vowel /i/ and before another vowel, cf. *fiú* [fijuː].

4.6 Yod-dropping

The vowel /juː/ is regarded as a complex vowel in BrE RP by many phonologists. There are a number of arguments supporting this claim: these arguments are partly distributional, partly behavioural in nature. On the other hand, there are also phonologists who regard the same sound as a sequence of two consecutive segments, namely a /j/ followed by an /uː/. These theoretical details will not be discussed in this introductory coursebook, but we will simply concentrate on a phenomenon commonly referred to as *Yod-dropping*.

The received wisdom is that the yod element of the complex vowel /juː/ is dropped after certain consonants or consonantal combinations. In actual pronunciation then a number of lexical items contain an /uː/ which otherwise in the lexical representation contain a /juː/. It is important to bear in mind, however, that a number of lexical items contain an /uː/ both in the lexical representation and also at the phonetic level. In the latter case there is nothing to be deleted since there is no yod in the phonemic representation of these words. But how can the two sets of words be distinguished from each other? Well, it is generally claimed that the spelling of the word provides a fairly reliable guide as to the lexical representation of the word. If the given vowel is spelt with an *o*, *oo*, or *ou,* the word has no yod in its lexical representation, and therefore there

is nothing to be dropped, and as a result, the Yod-dropping rule cannot apply to these sequences. In other words, the word has a yodless pronunciation but not a yodful one. Consider the words in (15) below, all having a phonemic /uː/.

(15)

Words with lexical /uː/		
Possible pron.	Yodless pronunciation	Yodful pronunciation
/uː/ or /ʊə/	*food, mood, moor, hoop*	
	lose, move, tomb, prove	
	coupon, soup, tourist, pour	

Besides the yodless forms illustrated in (15) above, there are also yodful forms that may retain or lose the yod element of the complex vowel /juː/ depending on the phonological context. This phonological context can be identified by making reference to the segment(s) preceding the yod. Note that the yodful forms always have the following letters or letter combinations (digraphs) in the spelling: *u, eu, ew, ue, ui*. Consider now the data in (16) below.

(16)

Words with lexical /juː/		
Possible pron.	Yodful pronunciation	Yodless pronunciation
/(j)uː/ or /(j)ʊə/	*cube, tune, pure, tube, tuna*	*ruby, include, blue, sure, closure*
	feud, new, few, neuter	*chew, blew, flew, crew, brew*
	cue, suit, Buick, nuisance	*juice, recruit, fruit, bruise*

The items in the shaded area are the result of *Yod-dropping*, while the ones in the left-hand column seem to escape the Yod-dropping rule. This suggests that Yod-dropping takes place after certain consonants or consonantal combinations but not after others. Now let us see the environments in which Yod-dropping takes place.

4.6.1 Obligatory Yod-dropping

There are two different types of Yod-dropping in BrE RP: *obligatory Yod-dropping* versus *optional Yod-dropping*. Whether the rule is obligatory or optional depends solely on the phonological context. Consider first the examples in (17) below, illustrating cases of obligatory Yod-dropping.

(17)

Obligatory Yod-dropping		
(a) /juː/ > [uː] /{ʃ, ʒ, tʃ, dʒ}__	(b) /juː/ > [uː] / r __	(c) /juː/ > [uː] / Cl __
ensure	rumour	glue
chewing	bruise	exclude
mature	recruit	clue
jubilee	Andrew	plutocrat
parachute	perusal	ablution
assured	intrusive	fluently

By examining the examples in (17), we can draw the conclusion that the yod element of the complex vowel /juː/ is dropped after palatal fricatives and affricates, column (a); after the post-alveolar approximant /r/, column (b); and after a consonant plus alveolar lateral (/l/) combination, column (c). This generalisation is valid especially for the BrE RP dialect since other accents allow a more extensive manifestation of the same regularity. In General American (GA), for example, Yod-dropping is obligatory after all *coronal* consonants. Coronal consonants include dentals, alveolars and palatals, while they exclude labials and velars. As a result, the items affected by optional Yod-dropping – to be discussed in the next subsection – in BrE RP are affected by obligatory Yod-dropping in *General American*.

4.6.2 Optional Yod-dropping

Yod-dropping is optional after certain consonants in BrE RP: this means that the complex vowel /juː/ in the lexical items affected by optional Yod-dropping can be pronounced in two different ways; with or without the yod. Consider the examples in (18) below.

(18)

Optional Yod-dropping in stressed syllables	
(a) /juː/ > [(j)uː] / $\left\{\begin{matrix}\text{V}\\\#\end{matrix}\right\}$ l__	(b) /juː/ > [(j)uː] /{s, z}__
solútion	assúme
illúsion	súicide
lúcid	presúme
evolútion	Súsan
lúcrative	séwage
lúrid	pursúit

It appears from Table (18) that optional Yod-dropping takes place after an /l/ which begins a stressed syllable and also after the alveolar fricatives /s/ and /z/ that begin a stressed syllable. This means that after these sounds there are two alternative pronunciations: one with a yod and the other one without it, the choice depending mainly on the speaker. Younger generations tend to follow the modern tendency of dropping the /j/ even if it can optionally be retained.

4.6.3 Lack of Optional Yod-dropping in unstressed syllables

There is a phonological feature that blocks the operation of the rule of Optional Yod-dropping, i.e., yod is obligatorily pronounced in the lexical items of (19) below. Stress is indicated by the acute accent in the examples below.

(19)

The blocking of Optional Yod-dropping
cápsule, ínsulate, vólume, válue, vóluble, ánnual, vénue

The feature that blocks the operation of Optional Yod-dropping is lack of stress. In unstressed (weak) syllables then the yod element of the complex vowel /juː/ must obligatorily be pronounced as in the examples of (19) above. Interestingly, even General American tolerates the pronunciation of the yod element in unstressed syllables (though not in *capsule*) and this is why we have included the last two examples in Table (19) above.

4.6.4 Evidence for yod: Palatalization

A frequently cited phonological phenomenon invoked as an argument in favour of the complex vowel /juː/ is the rule of *Palatalization*. Palatalization is a phonological process whereby a non-palatal consonant becomes palatal in the vicinity of a palatal consonant or vowel. Consider the pairs of lexical items in (20) below.

(20)

Palatalization of alveolar stops and fricatives			
press – pressure	/s/ > /ʃ/	fact – factual	/t/ > /tʃ/
expose – exposure	/z/ > /ʒ/	fraud - fraudulent	/d/ > /dʒ/

The examples in (20) illustrate Palatalization, and show that alveolar fricatives become palatal fricatives, whereas alveolar stops become palatal affricates under the influence of a following palatal /j/. This /j/ forms part of the complex vowel /juː/ spelt with *u* in the examples of (20). In order to see how Palatalization was treated in classical, rule-based phonological theories, consider the derivations given in (21) below. The Pre-R Breaking and R-dropping in *-ure*, aspiration of /p/ in *pressure* and vowel reduction are not shown separately in this table because we concentrate only on Palatalization and Yod-dropping here.

(21)

Palatalization of alveolar fricatives: derivations		
Lexical representation /s/+/j/ and /z/+/j/	/pres+jʊə/	/ekspəʊz+jʊə/
Stress	/ˈpresjə/	/ɪkˈspəʊzjə/
Palatalization	/ˈpreʃjə/	/ɪkˈspəʊʒjə/
Yod-dropping	/ˈpreʃə/	/ɪkˈspəʊʒə/
Phonetic representation	[ˈpreʃə]	[ɪkˈspəʊʒə]

The alternative forms *press – pressure*, for example, were derived from a common "underlying" source through a series of rules illustrated in (21) above. After the stem and the putative suffix are conjoined and stress is assigned to the first syllable, the palatal /j/ turns the alveolar /s/ and /z/ into /ʃ/ and /ʒ/ respectively. Following this operation, the /j/ that has caused the change disappears entirely by being deleted from the post-palatal position. Vowel reduction is not listed separately in the table below because here we concentrate only on Palatalization and Yod-dropping.

(22)

Palatalization of alveolar stops: derivations		
Lexical representation	/fækt+jʊəl/	/frɔːd+jʊlənt/
Stress	/ˈfæktjʊəl/	/ˈfrɔːdjʊlənt/
Palatalization	/ˈfæktʃjʊəl/	/ˈfrɔːdʒjʊlənt/
Yod-dropping	/ˈfæktʃʊəl/	/ˈfrɔːdʒʊlənt/
Phonetic representation	[ˈfæktʃʊəl]	[ˈfrɔːdʒʊlənt]

As it appears from (22), the same set of rules is found in the derivation of (22) as that in (21) above. The only difference lies in the fact that since there are no palatal stops in English, alveolar stops are turned into palatal affricates as a result of Palatalization. The reason for this is that it is precisely the affricates that are the closest to stops in terms of manner of articulation.

The derivations above illustrate that the regularity referred to as Yod-dropping is very closely connected to the rule of Palatalization of alveolar fricatives and stops. Moreover, Palatalization counts as a piece of evidence in favour of regarding the sound value of the letter *u* as a complex vowel /juː/ in actual pronunciation.

4.7 Palatalization

We have introduced the rule of Palatalization in Section 4.6.4 above in connection with Yod-dropping. It appears that the alveolar obstruents /s, z, t, d/ may be affected by a following yod /j/ and may turn into palatal, palato-alveolar /ʃ, ʒ, tʃ, dʒ/. This is an assimilation process whereby the palatal /j/ drags the preceding alveolar consonant towards the palatal area and then normally disappears altogether. As we have seen in Section 4.6.4 above, *pressure* /ˈpreʃə/, comes from /ˈpres+jə/, where the /j/ turns the /s/ into /ʃ/ before disappearing altogether. Only the *u* /juː/ in the spelling indicates the remnants of the original /j/. We may distinguish two different types of Palatalization: lexical and optional. We turn our attention to the former in Section 4.7.1 below.

4.7.1 Lexical Palatalization

The domain of Lexical Palatalization is the word when alveolar obstruents – spelt with the letter *t, d, s, x,* and *c* – followed by an underlying yod /j/ – spelt with letters *i* or *u* – turn into a palatal obstruent as discussed in 4.6.4 above. This type of Palatalization is obligatory, independently of speech style. Examples are, *mission, vision, pressure, measure, social,* etc. Bear in mind, however, that there are some constraints on Lexical Palatalization, notably consonants are not palatalized word-initially or before a stressed vowel. This means that the Palatalization site must be preceded by a stressed vowel. There are three exceptions to this generalization: *sugar, sure* and *mature.* It is also important to emphasize that *i* and *u* cause Palatalization only if they represent an underlying /j/. Consider now Table (23) below summarizing types of Lexical Palatalization. Some of the data are taken from Nádasdy (2006:66) supplemented by further examples.

(23)

Lexical Palatalization					
Letter	*Before*	/ʃ/	/ʒ/	/tʃ/	/dʒ/
s	i	pension	vision		
		controversial	fusion		
		mission	occasion		
	u	sensual	casual		
		pressure	visual		
		censure	measure		
x	i	anxious			
		connexion			
	u	luxury			
		sexual			
c, sc	i	ancient			
		social			
		conscious			
		luscious			
	u				
t	i	nation		question	
		potion		Christian	
		partial		digestion	
	u			future	
				punctual	
				factual	
				puncture	
				culture	
d	i				soldier
	u				gradual
					educate

It must be noted in connection with Table (23) that there are no examples covered by the shaded area. Moreover, /ʒ/ appears when the letter *s* stands between vowels and /dʒ/ appears only when the spelling has *d*, and /tʃ/ appears only when the spelling has *t*. The sequence *ti* is generally pronounced /ʃ/ but *sti* is pronounced /stʃ/ and *x* is palatalized to /kʃ/.

4.7.1.1 Lexical Palatalization before *i*

It appears from Table (23) that Palatalization is caused by *i* when it is unstressed and followed by another vowel letter, e.g., *pension, vision.* This kind of configuration will be referred to as the C*i*V environment in the present textbook in connection with Trisyllabic Laxing and Vowel Shift in Unit 6, for example. The letter *i* in this position is also referred to as a glide-*i*, which can be pronounced in different ways. It may be pronounced as a separate syllable /i.əm/ as in *barium* /ˈbeəri.əm/, as a consonant /j/, that is, a glide as in *companion* /kəmˈpænjən/, or it may remain unpronounced after having triggered Palatalization. In the latter case it is absorbed by the resulting palato-alveolar consonant. This kind of absorption was already discussed in Section 4.6.4, see Tables (21) and (22) above.

Bear in mind, however, that there is no Palatalization if the vowel letter *i* happens to be stressed as in *society* /səˈsaɪəti/, or if the *i* is not followed by another vowel, as in *provocative* /prəˈvɒkətɪv/. The reason for this is that in these cases the *i* is not a glide but a vowel forming a syllable on its own, and it has no effect on the preceding consonant. It is also worthy of note that *i* rarely palatalizes a preceding *d,* as in *soldier* /ˈsəʊldʒə/, therefore *d* usually remains unaffected by a following *i,* as in *idiot* /ˈɪdɪət/ or /ˈɪdjət/ and not */ˈɪdʒət/, *commodious* /kəˈməʊdɪəs/ or /kəˈməʊdjəs/ but not */kəˈməʊdʒəs/.

Palatalization may also be optional in the case of certain lexical items such as *so**ci**ology* /səʊsɪ- ~ səʊʃɪ-/, Chris**ti**an /-stɪən ~ -stʃən / or *Indonesia* /-niːzɪə ~ niːʒə/. There are also exceptions to Lexical Palatalization: in other words, there exist (usually rare) words where Palatalization fails to take place and the unpalatalized consonant is pronounced. These are *axiom* /ˈæksɪəm/, *patio* /ˈpætiəʊ/, *Parisian* /pəˈrɪziən/, *bestial* /ˈbestiəl/, *gymnasium* /dʒɪmˈneɪziəm/ and *bastion* /ˈbæstiən/.

4.7.1.2 Lexical Palatalization before *u*

The vowel letter *u* triggers Palatalization if it is unstressed and is followed by another vowel letter, e.g., *cas**ua**l, virt**ue*** or by one consonant letter plus a vowel letter, e.g., *leas**ure**, fort**una**te, lux**ury**.* These two configurations represent graphically free positions, i.e., the unstressed vowel letter *u* is said to occupy a graphically free position, cf. Unit 7, Subsection 7.5.2 on graphic positions of vowel letters.

It follows from the discussion above that Palatalization does not take place if the letter *u* represents a stressed vowel, e.g., *ensue* /ɪnˈsjuː/. There are some exceptions, notably *sure, sugar, mature*, certainly /məˈtjʊə/ would sound very old-fashioned and obsolete. On the other hand, in some lexical items both the palatalized and the unpalatalized pronunciations are attested, e.g., *opportunity* is pronounced both /ˌɒpəˈtjuːnəti / and /ˌɒpəˈtʃuːnəti/. Furthermore, Palatali-

zation is also unattested when the vowel letter *u* is situated in a graphically covered position, e.g., *consultation* /ˌkɒnsəlˈteɪʃən/, *stratum* /ˈstreɪtəm/. On covered graphic positions, cf. Unit 7, Subsection 7.5.2 below.

Note also that Palatalization is optional in some words, i.e., both forms are equally acceptable and attested. For example, *educate* can be pronounced both as /ˈedjʊkeɪt/ and /ˈedʒʊkeɪt/, while *issue* may be pronounced as /ˈɪsjuː/ as well as /ˈɪʃuː/. Interestingly, in the former the unpalatalized pronunciation is more frequent, while in the latter the palatalized version. Similarly, *aperture* is normally pronounced /ˈæpətʃə/ but /ˈæpətjʊə/ is also occasionally heard, while *furniture* is pronounced only with the palatalized variant. Since there is no space to discuss all the details of Lexical Palatalization in this introductory phonetics and phonology textbook, let us turn our attention to Optional Palatalization.

4.7.2 Optional Palatalization

Optional Palatalization affects alveolar obstruents (/s, z, t, d/) before a /j/ regardless of the spelling of /j/. Optional Palatalization has a wider range of application than Lexical Palatalization. It is always optional and characteristic of faster casual speech styles. Consider the examples in (24).

(24)

Spelling	*Unpalatalized slow, formal*	*Palatalized fast, causal*	*Effect*
this year	/ˈðɪs jɪə/	/ˈðɪʃɪə/	/s+j/ > /ʃ/
whose unity	/ˈhuːz ˈjuːnəti/	/ˈhuːˈʒuːnəti/	/z+j/ > /ʒ/
can't you see	/ˈkɑːntjʊ ˈsiː/	/ˈkɑːntʃʊˈsiː/	/t+j/ > /tʃ/
find your purse	/ˈfaɪnd jə ˈpɜːs/	/ˈfaɪndʒə ˈpɜːs/	/d+j/ > /dʒ/

The /j/ usually disappears as a result of Optional Palatalization just as in Lexical Palatalization. However, after /ʃ/ and /ʒ/ it may be retained. Consequently, *this year* and *whose unity* may be pronounced in three different ways. Consider (25) below, where all the three forms are acceptable, the choice usually depends on the speaker.

(25)

Spelling	*Unpalatalized slow, formal*	*Palatalized fast, causal*	
this year	/ˈðɪs jɪə/	/ˈðɪʃɪə/	/ˈðɪʃjɪə/
whose unity	/ˈhuːz ˈjuːnəti/	/ˈhuːˈʒuːnəti/	/ˈhuːˈʒjuːnəti/

Optional Palatalization is not necessarily postlexical, it may also take place within the word, and it affects alveolar obstruents that remain unaffected by Lexical Palatalization, i.e., whose lexical form is unpalatalized, especially in slow, careful speech styles. In colloquial speech styles, especially at a fast speech rate lexically unpalatalized items may also become palatalized. Consider the examples in (26) below.

(26)

Spelling	*Lexical form*	*Palatalized form*
Tuesday	/ˈtjuːzdeɪ/	/ˈtʃuːzdeɪ/
intuition	/ˌɪntjʊˈɪʃn/	/ˌɪntʃʊˈɪʃn/
assume	/əˈsjuːm/	/əˈʃuːm/
guardian	/ˈgɑːdjən/	/ˈgɑːdʒən/
gymnasium	/dʒɪmˈneɪzjəm/	/dʒɪmˈneɪʒəm/

As it appears from the discussion above, Palatalization affects the alveolar obstruents (/s, z, t, d/) followed by a /j/, which, in turn, may disappear from the pronunciation. Bear in mind that /n/, unlike in many Slavic languages, does not become palatalized since it is not an obstruent. Lexical Palatalization is triggered by glide-*i* (*facial*) or by an unstressed *u* in a free graphic position (*fortune*) cf. Unit 7 below. Lexical Palatalization is mostly obligatory, although some lexical items may constitute an exception, e.g., *module.*

Palatalization is more frequent in colloquial speech styles at a fast speech rate than in formal speech styles at a slow speech rate. Consider the examples below and note that Palatalization takes place only in the above-mentioned cases.

(27)

Unpalatalized	*Palatalized*
universal	controversial
fatal	spatial
status	statue
Christine	Christian
society	social
Tuesday	Portugal

4.8 Assimilation

Assimilation is a phonological process whereby a consonant becomes more like a neighbouring one. Some assimilation rules are common to English and Hungarian, for example, the place (of articulation) assimilation of a nasal to a following obstruent: *teen party* is pronounced *team party* [ˈtiːm pɑːti] in English, while *kénpor* is pronounced *kémpor* [keːmpor] in Hungarian. Voice assimilation works differently in English and Hungarian, consequently we will concentrate on it in the following subsection.

4.8.1 Voice assimilation

In Hungarian there is strict regressive voice assimilation since the later consonant always influences the preceding one(s). In other words, when two or more consonants become adjacent, the last (rightmost) one determines the voiced or voiceless nature of the preceding ones. Consider the examples in Tables (28) and (29) below.

(28)

Hungarian regressive devoicing		
fáztam /z+t/	>	/st/ “fásztam”
megfoszt /g+f/	>	/kf/ “mekfoszt”
révkalauz /v+k/	>	/fk/ “réfkalauz”

(29)

Hungarian regressive voicing		
húsgolyó /ʃ+g/	>	/ʒg/ “húzsgolyó”
képzavar /p+z/	>	/bz/ “kébzavar”
keresztbe /st+b/	>	/zdb/ “kerezdbe”

Voice assimilation operates quite differently in English, since only regressive devoicing is possible, i.e., the pattern illustrated in (28) above. Even in this case the leftmost consonant of the clusters becomes only partially de-voiced, and therefore its voiced character is preserved to a certain degree. The fact that these consonants are only partially devoiced is also illustrated by the fact that they never become glottalized and they do not shorten the preceding vowel. Consider the items in (30) below where the little circle under the consonant in question indicates partial devoicing.

(30)

English regressive devoicing		
who's trouble /z+t/	>	[z̥t]
live camera /v+k/	>	[v̥k]

This partial devoicing means that *live streaming* does not become identical with *life streaming* since the phonemic opposition is preserved and the contrast is not completely neutralized. This is not the case in Hungarian, where *hatban* and *hadban* must be pronounced the same. Bear in mind that voice assimilation is therefore never indicated in phonemic transcription.

As opposed to regressive (partial) devoicing, regressive voicing does not exist in English, and this might cause some problems to Hungarian native speakers studying English. Instead of regressive voicing, which is attested in Hungarian, cf. (29) above, progressive (partial) devoicing takes place when the first consonant is lexically voiceless and the second is voiced. A typical mistake made by Hungarian native speakers is that they tend to apply regressive voicing instead of progressive devoicing. Consider the examples in (31) below.

(31)

English progressive partial devoicing			
Spelling	*Phonemic transcript*	*Phonetic transcript*	*Hung. mistake*
matchbox	/ˈmætʃbɒks/	[ˈmætʃb̥ɒks]	[ˈmædʒbɒks] *
update	/ˈʌpdeɪt/	[ˈʌpd̥eɪt]	[ˈʌbdeɪt] *
teqball	/ˈtekbɔːl/	[ˈtekb̥ɔːl]	[ˈtegbɔːl] *
anecdote	/ˈænɪkdəʊt/	[ˈænɪkd̥əʊt]	[ˈænɪgdəʊt] *

This type of mistake is especially evident in the case of the first example of Table (31) since *matchbox* (when it designates a small toy car in Hungarian) is abbreviated as *medzsó* /mɛdʒɔː/ by Hungarian children, which suggests that the voiced alveo-palatal affricate has been lexicalized by Hungarian native speakers.

4.8.2 Voice assimilation of inflectional suffixes *-s* and *-ed*

The suffixes *-s* and *-ed* are affected by complete voicing assimilation, which is determined by the last segment of the word they are attached to. This assimilation is progressive since the stem-final segment determines the voice feature of the suffix, and it takes place regardless of the function of these suffixes. It takes place equally if the suffix *-s* marks the plural of a noun, the possessive form of a noun or the third person singular form of a verb. The *-s* can also

function as the contracted "weak" form of *is* and *has*. Consider the table in (32) below.

(32)

Function	*Example*	*Pronunciation*
plural of noun	*two dreams*	all /driːmz/
third person sing. verb	*she dreams*	
possessive of noun	*the dream's*	
contracted form of *is*	*This dream's unbelievable*	
contracted form of *has*	*The dream's come true*	

Table (33) below shows the phonologically conditioned pronunciations of *-s*. Note that the term *sibilant* comprises the alveolar and palatal fricatives /s, z, ʃ, ʒ/ and the alveo-palatal affricates /tʃ, dʒ/.

(33)

The pronunciation of the suffix -s		
-s = /z/ After voiced segments except sibilants	*-s* = /s/ After voiceless consonants except sibilants	*-(e)s* = /ɪz/ After sibilants
sees /siːz/	takes /teɪks/	matches /ˈmætʃɪz/
knows /nəʊz/	hates /heɪts/	kisses /ˈkɪsɪz/
kings /kɪŋz/	books /bʊks/	places /ˈpleɪsɪz/
sings /sɪŋz/	drinks /drɪŋks/	hedges /ˈhedʒɪz/
John's /dʒɒnz/	Mike's /maɪks/	George's /ˈdʒɔːdʒɪz/
Fred's /fredz/	Pete's /piːts/	Rice's /ˈraɪsɪz/

The pronunciation of the past tense *-ed* suffix is also phonologically conditioned. Consider the examples listed in (34) below.

(34)

The pronunciation of the suffix -ed		
-ed = /d/ After voiced segments except /d/	*-ed* = /t/ After voiceless consonants except /t/	*- ed* = /ɪd/ After /t/ and/d/
robbed /rɒbd/	baked /beɪkt/	wanted /ˈwɒntɪd/
spared /speəd/	rushed /rʌʃt/	headed /ˈhedɪd/
fried /fraɪd/	danced /dɑːnst/	ended /ˈendɪd/
lived /lɪvd/	pushed /pʊʃt/	divided /dɪˈvaɪdɪd/
phoned /fəʊnd /	watched /wɒtʃt/	contracted /kənˈtræktɪd/

It is worthy of note that both the *-s* and the *-ed* suffixes have three allomorphs (alternative forms). The voiced consonants /z/ and /d/ have the widest distribution. However, the suffixes are pronounced voiceless /s/ and /t/ if the word ends in a voiceless consonant, unless this consonant is similar in place and manner to the consonant of the suffix. If the word ends in a consonant similar in place and manner to that of the suffix, the linking vowel /ɪ/ appears between the stem-final consonant and the consonant of the suffix, e.g. *places* /ˈpleɪsɪz/, *ended* /ˈendɪd/.

The progressive assimilation of the *-es* and *-ed* suffixes neutralizes the contrast between /s/ and /z/ and /t/ and /d/, consequently the following pairs are homophones (words that sound exactly the same): *size* = *sighs*, *passed* = *past*, *tacked* = *tact*. This is actually the reason why we indicate the assimilation of these suffixes in transcription, in spite of the fact that this assimilation is phonologically predictable.

4.9 Glottalization

The voiceless stops and the voiceless affricate (/p, t, k, tʃ/) are often accompanied or replaced by a glottal stop when they are post-vocalic (follow a vowel). Practically this means that the voicing of the preceding vowel is interrupted by pressing the vocal cords together before the actual closure is made for the consonant. This is called *pre-glottalization* (sometimes *glottal reinforcement*) and mostly takes place when the consonant is word-final or pre-consonantal. Consider the examples in (35) below.

(35)

Pre-glottalization		
Spelling	*Phonemic transcription*	*Pronunciation*
cap	/kæp/	[kæʔp]
feet	/fi:t/	[fiʔt]
catch	/kætʃ/	[kæʔtʃ]
buxom	/ˈbʌksəm/	[ˈbʌʔksəm]
Scotland	/ˈskɒtlənd/	[ˈskɒʔtlənd]

Bear in mind that glottalization in general is not obligatory, and it is regarded as a corruption of the English language by some (especially elderly, conservative) speakers of English. Nevertheless, it has become so widespread that RP speakers, even newsreaders of BBC, tend to pre-glottalize voiceless stops and the voiceless affricate /tʃ/. The same applies to *glottal replacement*, which applies to /t/, which may be dropped completely, so that only the glottal stop remains. This dropping means that instead of making a contact with the tongue

tip and the alveolar ridge, speakers press their vocal cords together. Consider the examples in (36) below.

(36)

Glottal replacement		
Spelling	*Phonemic transcription*	*Pronunciation*
chutney	/ˈtʃʌtni/	[ˈtʃʌʔni]
settle	/ˈsetl/	[ˈseʔl]
Scotland	/ˈskɒtlənd/	[ˈskɒʔlənd]
motley	/ˈmɒtli/	[ˈmɒʔli]

Pre-glottalization and glottal replacement have crept into standard British RP from London Cockney. Nowadays many younger speakers of RP tend to pronounce glottal stops even before vowels, as in *city* /ˈsɪʔi/, *butter* /bʌʔə/, *letter* /ˈleʔə/ and *not enough* /ˌnɒʔɪˈnʌf/. Bear in mind that the glottal stop is not a phoneme of the English language, even if it completely replaces the /t/, it remains a sub-phonemic free variant of the voiceless alveolar stop. The glottal stop might sound strange to the Hungarian ear, consequently untrained listeners might misinterpret certain forms. For example, *settle* [ˈseʔl] may be misinterpreted as *sell* or *great news* [ˌgreʔ ˈnjuːz] as *grey news*, especially when heard out of context.

Pre-glottalization and glottal replacement serve to indicate the distinction between voiced and voiceless consonants along with other phonological cues. These cues are listed in Table (37) below.

(37)

Voiceless consonants	*Voiced consonants*
Never voiced	Voiced but can become devoiced
Shorten the preceding vowel	Do not shorten the preceding vowel
Stops and affricates can be glottalized	Never glottalized
Stops are aspirated at the beginning of a stressed syllable (cf. 4.10 below)	Never aspirated

As it appears from Table (37), voiceless consonants are never voiced and they shorten the preceding vowel. Furthermore, voiceless stops and the voiceless affricate can become glottalized, and the voiceless stops can become aspirated especially at the beginning of stressed syllables, cf. Section 4.10 below. Conversely, voiced consonants can become devoiced and they do not shorten the preceding vowel even if they are partially devoiced. Moreover, they never become glottalized and never undergo aspiration.

4.10 Aspiration

The voiceless stops /p, t, k/ are aspirated at the beginning of a stressed syllable, e.g.: ***p**ay, en**t**ire, a**c**cording*. They, however, remain unaspirated when preceded by an /s/, e.g.: *sky, discreet, explain*. The reason for this is that in the latter examples the /s/ seems to begin the syllable and thus the voiceless stops are no longer syllable-initial, a statement which can cause some problems when it comes to the examination of phonotactic constraints regarding syllable-initial consonant clusters in general. This is an issue which is not discussed at this point of the present textbook.

Aspiration can be realized in two different ways depending on what follows the voiceless oral stop. Consider the examples in (38) below.

(38)

Realization of aspiration	
Voiceless stop is followed by a vowel	Voiceless stop is followed by a sonorant
cap [kʰæp], *return* [rɪˈtʰɜːn]	*twist* [tw̥ɪst], *betray* [bɪˈt̬ɹ̥eɪ]

It appears from (38) above that aspiration can be implemented in two different ways. If a stressed vowel directly follows the voiceless stop, the voiceless stop is realized with a slight puff of air after it, which is a [h]-like sound, indicated with a superscript [ʰ] in narrow phonetic transcription. However, when a non-nasal sonorant (a liquid or a glide) intervenes between the voiceless stop and following vowel, the intervening non-nasal sonorant becomes partially devoiced, which is indicated with a little circle [̥] under the relevant non-nasal sonorant in the IPA.

Besides the two different realizations of aspiration, some authors and some textbooks distinguish two different degrees of aspiration, generally referred to as strong aspiration and weak aspiration. Consider Table (39) below, which illustrates the environments where strong aspiration is attested.

(39)

Examples of strong aspiration		
(a)	(b)	(c)
píg	com**p**áre	**p**láy
pérfect	re**p**órt	im**p**réss
téxt	re**t**áin	**t**wínkle
tóken	en**t**íre	be**t**ráy
kíll	re**c**áll	**c**lérk
chémical	de**c**áy	a**c**róss

According to the table in (39), strong aspiration takes place at the beginning of a stressed syllable with or without an intervening non-nasal sonorant between the voiceless stop and the following stressed vowel. It does not matter if the stress is on the first syllable or elsewhere. Stress is indicated with the acute accent (´) mark above the stressed vowel letter in the above table. Consider now cases of weak aspiration in Table (40) below.

(40)

Examples of weak aspiration
políce
preténd
togéther
treméndous
commótion
cremáte

Table (40) illustrates that the word-initial voiceless stops (in boldface) are weakly aspirated in the initial unstressed syllable of the word. Stress is indicated with the acute accent mark (´) again, and it shows that the stress falls on the second syllable in each case. This means that there are two conditions on weak aspiration. On the one hand, weak aspiration takes place only at the beginning of the first syllable of the word and secondly, only if this syllable is unstressed.

Let us now examine the "elsewhere" environments where no aspiration seems to take place.

(41)

No aspiration				
(a)	(b)	(c)	(d)	(e)
s**t**éak	fés**t**ival	má**tt**er	lís**p**	cá**p**
mis**t**éak	mís**t**er	hél**p**ing	rís**k**	há**t**
s**p**án	más**c**uline	váni**t**y	hás**t**e	húr**t**
s**t**ánd	jóys**t**ick	Améri**c**an	wás**p**	ár**t**
dis**c**réet	jés**t**er	júm**p**er	mós**t**	fól**k**
dis**p**íte	hós**p**ital	bán**k**rupt	grotés**q**ue	páni**c**

It appears from Table (41) that there is no aspiration if the voiceless oral stop is not syllable-initial but is preceded by an /s/, regardless of the stressed or unstressed nature of the syllable in question, cf. columns (a) and (b). The examples in column (c) demonstrate that voiceless oral stops remain

unaspirated at the beginning of an unstressed syllable word-medially. The last two columns – (d) and (e) – illustrate the point that aspiration is unattested word-finally, regardless of the type of the segment that precedes the word-final voiceless stop.

4.11 The special behaviour of some obstruents

Some obstruents deserve a special comment because their pronunciation poses difficulty to Hungarian learners. This section consists of two subsections. The first subsection concentrates on the dental fricatives and the second subsection looks at some regularities affecting the alveolar stops.

4.11.1 The problem of dental fricatives

The dentals are fricatives in English, they are pronounced with the tongue raised and projected towards the upper front teeth or between the upper and lower teeth, hence the term *interdental*. Since dental fricatives are not sibilants, the inflectional suffixes *-s* and *-ed* are attached to them without a linking vowel, cf. *Judith's* is /ˈdʒuːdɪθs/, not */ˈdʒuːdɪθɪz/, *clothes* is /kləʊðz/ and not */ˈkləʊðɪz/, *toothed* is /tuːθt/ and not */ˈtuːθɪd/ and *bathed* is /beɪðd/ and not */ˈbeɪðɪd/. The (inter)dental fricatives are not part of the Hungarian vowel system, to pronounce them counts as a speech defect, called a lisp, *pöszeség.* Since (inter)dental fricatives do not exist in Hungarian, Hungarian learners of English tend to replace them by a consonant similar in terms of manner or place of articulation. These are usually the labio-dental fricatives /f/ and /v/, the Hungarian dental stops /t/ and /d/, the Hungarian dental affricates /ts/ and /dz/ or the alveolar fricatives /s/ and /z/. There are a lot of minimal pairs that can be very instructive, and they usually make learners realize that dental fricatives are distinctive phonemes in English. Consider the following minimal pairs below.

(42)

Minimal pairs with dental fricatives			
/θ/ – /s/	thigh – sigh	/ð/ – /z/	with – whiz
	myth – miss		teethe – tease
/θ/ – /t/	themes – teams	/ð/ – /d/	they – day
	tenth – tent		bathe – bade
/θ/ – /f/	thought – fought	/ð/ – /v/	thy – vie
	three – free		lather – lava

The minimal pairs in (42) may help learners realize that dental fricatives do function as phonemes in English. It may also be useful to present students with examples such as those in (43) below since they are all pronounced differently.

(43)

Word endings pronounced differently			
tent	/tent/	tenth	/tenθ/
tend	/tend/	tense	/tens/
tents	/tents/	tens	/tenz/
tends	/tendz/	tenths	/tenθs/

Another difficulty that arises from the pronunciation of dental fricatives is that the alveolar fricatives /s/ and /z/ do not assimilate in place to a following dental fricative. This means that clusters such as /sθ/, /sð/, /zθ/ and /zð/ may not be simplified by assimilation. Consider the examples in (44) below.

(44)

Alveolar fricatives do not assimilate to dental fricatives		
Example	*Correct pronunciation*	*Incorrect pronunciation*
nice thought	/naɪs θɔːt/	*/naɪθ θɔːt/
chase them	/tʃeɪs θəm/	*/tʃeɪθ θəm/
Bill's theory	/bɪlz θɪəri/	*/bɪlð θɪəri/
she's there	/ʃiːz ðeə/	*/ʃiːð ðeə/

The remaining alveolars, however, partially assimilate to a following dental fricative and become interdentals before interdental fricatives. This dentalized articulation is indicated with the diacritic mark [̪] under the corresponding symbol in the IPA. Consider the examples in (45) below.

(45)

Partial assimilation of alveolar stops, alveolar nasal and alveolar lateral				
Combination	*Example*	*Symbols*	*Example*	*Symbols*
/t/ + dental	tight theory	[t̪θ]	hit this	[t̪ð]
/d/ + dental	a bad theory	[d̪θ]	played the guitar	[d̪ð]
/n/ + dental	enthusiast	[n̪θ]	on the table	[n̪ð]
/l/ + dental	wealthy	[l̪θ]	kill them	[l̪ð]

It is absolutely necessary to pronounce the dentalized alveolars in these environments, otherwise the following dental fricatives cannot be properly articulated.

Both the dental fricatives are represented by the digraph *th*. The digraph *th* is pronounced /θ/ in the overwhelming majority of the cases, as in *think, healthy* and *youth*. The voiceless interdental fricative is especially frequent in learned words of Greek or Latin origin where other languages – including Hungarian – have /t/, cf. *throne, theme, method* and *marathon*, for example. The digraph *th* is pronounced as a voiced dental fricative /ð/ in a relatively small number of words, such as *this, that, smooth, bathe* and *clothes*, etc. There is no rule that would prescribe either the voiceless or the voiced pronunciation of the dental fricative for the digraph *th*, except, of course, that in learned words of Greek and Latin origin *th* is always pronounced voiceless /θ/. Note that there are some special voiceless–voiced alternations in some lexical items. These are given in Table (46) below.

(46)

Voiceless–voiced alternations of dental fricatives		
/θ/ > /ð/	/θ/ > /ð/	/θ/ > /ð/
north > northern	cloth > clothing	bath > bathe
south > southern	cloths > clothes	breath > breathe
worth > worthy		

There are also a couple of words in which the digraph *th* is irregularly pronounced /t/. These are *Thames* /temz/, *Thomas* /ˈtɒməs/, *Theresa* /təˈriːzə/, *Anthony* /ˈæntəni/, *Esther* /ˈestə/.

4.11.2 Further regularities affecting alveolar stops

The English /t/ and /d/ are pronounced quite differently from Hungarian /t/ and /d/. While these stops are alveolar in English, they are dental in Hungarian. This means that in English the tongue tip is pressed against the alveolar ridge (the hard bony structure behind the upper teeth) while in Hungarian the tongue tip is pushed against the back wall of the upper teeth. English-type alveolar stops can also be heard in some Hungarian dialects. Furthermore, /t/ and /d/ often undergo *fricative release*, when the release stage of these stops is implemented somewhat lazily, cf. *two* [tˢuː], *heart* [hɑːtˢ], *date* [dᶻeɪt], *feed* [fiːdᶻ]. This phenomenon is also referred to as *affrication* since these stops ultimately sound almost like affricates.

A number of rules affecting the alveolar stops have been discussed in the previous sections of this unit. Recall that /t/ is affected by aspiration or glot-

talization and /d/ may become devoiced under certain circumstances. Furthermore, both /t/ and /d/ may become palatalized under certain circumstances. In the following two subsections we look at two further regularities that may affect the alveolar stops: the voicing and flapping of /t/ and the place assimilation of /t/ and /d/.

4.11.2.1 Flapping

In colloquial speech styles – and especially at a fast speech rate – unaspirated /t/ may become /d/ foot-internally, i.e., when the syllable following the /t/ is unstressed. This may lead to *right away* sound like *ride away*, *not at all* sound like *nod at all* or *little girl* sound like *liddle girl.* Such foot-internal intervocalic /d/ sounds – whether original or produced by voicing – are frequently pronounced so fast that the air column is not at all stopped by the sudden closure. This very fast /d/-like sound is called a *flap* or a *tap*, the choice mainly depends on the author, and it has a special phonetic symbol [ɾ]. Consider the examples in (47) below.

(47)

The flapping of English /t/ and /d/		
Example	*Broad transcription*	*Flapped pronunciation*
butter	/ˈbʌtə/	[ˈbʌɾə]
nobody	/ˈnəʊbədi/	[ˈnəʊbəɾi]
hit it	/ˈhɪt ɪt/	[ˈhɪ ɾɪt]
sity	/ˈsɪti/	[ˈsɪɾi]
skeleton	/ˈskelɪtən/	[ˈskelɪɾən]

Flapping is optional in BrE but obligatory in AmE, therefore the contrast between *writer* and *rider*, *writing* and *riding*, *bitter* and *bidder* is neutralized, all forms being pronounced with a flap [ɾ]. In foot-internal intervocalic position (i.e., when the flapping site is followed by an unstressed vowel), the contrast between /t/ and /d/ is suspended in AmE. Note once again that these words are pronounced differently in formal, careful BrE pronunciation.

4.11.2.2 Place assimilation of /t/ and /d/

The alveolar stops are unstable in the sense that they are susceptible to place assimilation: they frequently assimilate in place to a following bilabial or velar stop. There are two types of place assimilation, labial and velar, as presented

in Table (48) below. This time the process is shown by phonetic respelling not by phonetic transcription.

(48)

Place assimilation of alveolar stops		
Labial assimilation: /t d/ > /p b/ before /p b m/		
/t/ > /p/	hot pepper	"hop pepper"
	He hit Boris	"He hip Boris"
	not me	"nop me"
/d/ > /b/	bad boys	"bab boys"
	good manners	"goob manners"
	mad present	"mab present"
Velar assimilation: /t d/ >/k g/ before /k g/		
/t/ > /k /	fat cat	"fak cat"
	fat guy	"fak guy"
/d/ > /g/	good car	"goog car"
	good grade	"goog grade"

Note that although place assimilation takes place in the examples above, there will be no voice assimilation in *hit Boris, mad present, fat guy* or *good car.*

4.11.2.3 The hard and soft pronunciations of the letters *c* and *g*

The letters *c* and *g* have two basic pronunciations. These are traditionally referred to as *soft* and *hard* pronunciations of these consonant letters. The soft sound values are the sibilants /s/ and /dʒ/, the former may also become palatalized to /ʃ/, while the hard sound values are the velar /k/ and /g/. The basic regularity is that the letters *c* and *g* are pronounced with their soft values when they are followed by the vowel letters *e, i, y* and with their hard values when followed by the vowel letters *a, o, u* or a consonant, or nothing. Consider first the soft pronunciations of the letters *c* and *g* below.

Note that this is a letter-to-sound rule and not a true phonological rule of English, i.e., this regularity could just as well belong to Unit 7. The reason why we discuss it here is that Unit 7 concentrates on the regular sound values of vowel graphemes.

(49)

The soft pronunciation of letters "c" and "g"		
soft c = /s/	*soft c = /ʃ/*	*soft g = /dʒ/*
cell, cider	ocean	algebra, angel, ginger
face, cigarette	ancient	oxygen, budge, gin
force, face	facial	fidget, gadget,
city, cycle	precious	George, gesture, sponge
cider, Cyril	musician	gentle, frigid, gym
precise, fancy	physician	Belgium, orgy, lounge
century, mercy	vicious	geology, giraffe, surgeon
centaur /ˈsentɔː/	crucial	longitude /ˈlɒndʒɪtjuːd/

Note also that there are a lot of exceptions to this generalization where *c* and *g* are simply not pronounced with their regular soft value before *e, i* and *y*. Consider the irregular examples in (50) below.

(50)

Irregularly hard pronunciations before e, i *and* y	
Letter "c" pronounced irregularly hard /k/	*Letter "g" pronounced irregularly hard /g/*
sceptical	boogie, target, giggle
Celtic	gear, together, begin
soccer	get, anger, gynaecology
	geese, finger, Gilbert
	eager, linger
	Gertrude, hunger
	tiger, girl
	lager, gift

As mentioned above, when *c* and *g* are followed by *a, o, u,* or a consonant or nothing, the pronunciation is always hard, i.e., a velar /k/ or /g/. Consider the examples in (51) below.

(51)

Regularly hard pronunciation before vowel letters a, o, u, *consonant or nothing*	
Letter "c" pronounced regularly hard /k/	*Letter "g" pronounced regularly hard /g/*
cut, music, vacuous	guest, gamble, gun
cat, panic, immaculate	figure, bargain, guts
calm, cubic, macron	angular, mongrel, vigour
cover, cave, back	angry, tango, agony
cool, camera, suckling	fragment, bingo, mango
success, rescue, vector	iceberg, frog, vague
accident, excuse, doc	vague, wrangler, bring
lilac, maniac, welcome	angular, tongue, wrong

There are a couple of irregular words where *c* and *g* happen to be pronounced soft although they are not followed by an *e, i* or *y*. The most important are *Caesar* /ˈsiːzə/, *gaol* /dʒeɪl/, *margarine* /ˈmɑːdʒəriːn/.

4.11.3 Velar softening

In a number of English stems the pronunciation of the final *c* and *g* vacillates between soft and hard pronunciation, i.e., /k/ alternates with /s/ or /ʃ/ and /g/ alternates with /dʒ/. This regularity is often referred to as *Velar softening* and it is especially frequent in words of Latin and Greek origin. Velar softening seems to take place in front of certain synthetic (root-level) suffixes beginning with the vowel letters *e, i* and *y*. Consider the examples in (52) below.

(52)

Velar softening and its absence	
No Velar softening /k/ or/g/	*Velar softening /s/, /ʃ/ or /dʒ/*
electric#	electric+ity
medic+al#	medic+ine
rigor#	rig+id
pedagogue#	pedagog+y
reg+al#	reg+ent
music#	music+i+an
frag+ment#	frag+ile
reg+al#	reg+i+cide
public#	public+ize
analog+ous#	analog+y

Interestingly, there is no velar softening before *-ed, -er, -ing, -y* (whether adjectival or diminutive), i.e., the last sound does not change, there is no alternation. Even the spelling may be adjusted to help preserve the hard or soft pronunciation of *c* or *g* in these cases. Consider the examples in (53) below.

(53)

Hard pronunciation is preserved by respelling of "c" to "ck" before -ed, -er, -ing, -y	
panic+ing > panicking	picnic+er > picnicker
mimic+ing > mimicking	garlic+y > garlicky

No such spelling adjustment is necessary before a final *g*, cf., e.g., *stronger, younger* or *hugging*. It is also worthy of note that in order to preserve the soft pronunciation of final *-ce* and *-ge* sequences, the silent *e* must be preserved in spelling before *-able* and *-ous*, cf. *trace+able > traceable, change+able > changeable* or *courage+ous > courageous*.

4.12 The special behaviour of nasals

4.12.1 The special behaviour of alveolar /n/ and velar /ŋ/

There are three nasal phonemes in standard British RP, /m/, /n/ and /ŋ/. The alveolar nasal – just as in Hungarian – frequently assimilates in place to a following stop as in *mean person* where /-np/ becomes [-mp] in actual pronunciation. Similarly *teen king* is pronounced [ˈtiːŋkɪŋ] instead of *[ˈtiːnkɪŋ].

The velar nasal /ŋ/, as in *sink, tango,* sounds the same as that in Hungarian *fánk, tenger*. The distribution of the English velar nasal /ŋ/ is quite different from that of the Hungarian velar nasal. The *g* of the *ng* sequence is never pronounced before a word boundary and thus a velar nasal /ŋ/ is pronounced word-finally and before a word-level (analytic) suffix, as in *sing* /sɪŋ/ and *singer* /ˈsɪŋə/. This never happens in Hungarian, where /ŋ/ is always followed by a velar stop /k/ or /g/ as in *bank* /bɒŋk/ and *ring* /rɪŋg/.

Since we find minimal pairs with the velar nasal like *sin* /sɪn/ – *sing* /sɪŋ/, *kin* /kɪn/ – *king* /kɪŋ/ or *ton* /tʌn/ – *tongue* /tʌŋ/ in English, the velar nasal is regarded as a separate phoneme even though it has a rather defective distribution. This is the reason why the IPA transcription system transcribes every English velar nasal as /ŋ/ even if it stands before a /k/ or a /g/, where its occurrence is entirely predictable as in *tank* /tæŋk/ and *tango* /ˈtæŋgəʊ/. Consider the examples in (54) below where the items in the first two columns constitute minimal pairs.

(54)

/n/	/ŋ/	/ŋk/
run	rung	
sinner	singer	sinker
kinship	kingship	
hand	hanged	
banned	banged	banked
sin	sing	sink
son	sung	sunk
kin	king	kink

As mentioned above, the /g/ of an /ŋg/ sequence remains silent word-finally, which includes all cases of /ŋg/ sequences that appear before a word-level (analytic) boundary even if that boundary is ultimately followed by an analytic suffix. Therefore, *singer* is pronounced /ˈsɪŋə/ since it has the structure sing#er. When the /ŋg/ sequence is morpheme internal, however, the /g/ is never dropped, as in *anger* /ˈæŋgə/ or *tango* /ˈtæŋgəʊ/, for example, since in these cases *ang-* and *tang-* are not free morphemes, and are not followed by a word boundary. Consider now the examples in (55) below, which illustrate the distribution of silent versus audible /g/ in /ŋg/ sequences.

(55)

/g/ is silent (word-final)	*/g/ is pronounced (word-medial)*
king /kɪŋ/	finger /ˈfɪŋgə/
tongue /tʌŋ/	tango /ˈtæŋgəʊ/
sing#er /ˈsɪŋə/	single /ˈsɪŋgl/
wrong#ly /ˈrɒŋlɪ/	Hungary /ˈhʌŋgərɪ/
hang#ing /ˈhæŋɪŋ/	language /ˈlæŋgwɪdʒ/
king#ship /ˈkɪŋʃɪp/	mongrel /ˈmʌŋgrəl/
hang#er /ˈhæŋə/	angry /ˈæŋgrɪ/

It must also be noted that there are some exceptions to this distribution. Notably, the comparative (*-er*) and the superlative (*-est*) forms of the adjectives *long, strong* and *young* are all pronounced with /ŋg/, i.e., *longer* /ˈlɒŋgə/, *longest* /ˈlɒŋgəst/, *younger* /ˈjʌŋgə/, *youngest* /ˈjʌŋgəst/ and *stronger* /ˈstrɒŋgə/, *strongest* /ˈstrɒŋgəst/.

4.12.2 The special behaviour of *mb*

The rule that regulates the distribution of /g/ in /ŋg/ sequences also applies to /mb/ sequences. The /b/ of /mb/ sequences remains silent in word-final position, i.e., before a word boundary. In *bomb#* /bɒm/, *bomb#er* /ˈbɒmə/ and *bomb#ing* /ˈbɒmɪŋ/ the /b/ remains silent, however, in *timber* /ˈtɪmbə/ and *lumber* /ˈlʌmbə/ it is pronounced since these are monomorphemic items where the /mb/ sequence occurs word-medially. *Number*, however, can be pronounced in two different ways. If it is a noun, it is pronounced /ˈnʌmbə/, if, however, it is the comparative form of the adjective *numb* /nʌm/, i.e., *numb#er*, it is pronounced /ˈnʌmə/. Consider now the examples in (56) below, which illustrate the distribution of /b/ in /mb/ sequences.

(56)

/b/ is silent (word-final)	*/b/ is pronounced (word-medial)*
comb /kəʊm/	amber /ˈæmbə/
comb#ing /ˈkəʊmɪŋ/	timber /ˈtɪmbə/
plumb#er /ˈplʌmə/	jumbo /ˈdʒʌmbəʊ/
climb /klaɪm/	scramble /ˈskræmbl/
climb#ing /ˈklaɪmɪŋ/	lumber /ˈlʌmbə/

4.13 The special behaviour of glides

The two glides of English (/j/ and /w/) are very vowel-like in their phonetic characteristics, and therefore they are often referred to as semi-vowels. They have a defective distribution in English inasmuch as they occur only before vowels but not after them. In other words, semi-vowels are always prevocalic in English. They are vowels in terms of their phonetic characteristics but because of their distribution in the phonological string they are regarded as consonants that provide a smooth transition onto the following vowel. Word-initially or before stressed vowels glides clearly behave as consonants, cf., e.g., *yet* /jet/, *beyond* /bɪˈjɒnd/, *universe* /ˈjuːnɪvɜːs/, *fume* /fjuːm/, *wall* /wɔːl/, *reward* /rɪˈwɔːd/, *twist* /twɪst/, *between* /bɪˈtwiːn/. Recall that glides – like all other sonorants – are voiced in the default case but become devoiced after aspirated stops, cf. Section 4.10 on aspiration.

4.13.1 The glide-*i* and glide-*u*

Before weak (unstressed vowels) the semi-vowels /j/ and /w/ are in free variation with /i/ and /u/. The choice usually depends on speech style and speech rate. In slow, careful, pedantic speech styles the pronunciation is usually a syllabic /i/ and /u/, while at a fast speech rate, in colloquial speech styles it is usually a non-syllabic /j/ or /w/. Consider the example in (57) below.

(57)

		syllabic (vowel)	*non-syllabic (glide)*
glide-*i*	tedious	/ˈtiːdiəs/	/ˈtiːdjəs/
	happier	/ˈhæpiə/	/ˈhæpjə/
	arial	/ˈeəriəl/	/ˈeərjəl/
glide-*u*	casual	/ˈkæʒuəl/	/ˈkæʒwəl/
	graduate	/ˈgrædʒuət/	/ˈgrædʒwət/
	manual	/ˈmænjuəl/	/ˈmænjwəl/

Since glide-*i* and glide-*u* may be realized both as syllabic and non-syllabic segments, they are often referred to as half-syllabic segments. The rules affecting the semi-vowel /j/ (Devoicing and Yod-dropping) and the rule triggered by /j/ have already been discussed in this Unit. The labiovelar glide, however, requires further discussion.

4.13.2 The labiovelar glide

The English labiovelar glide /w/ is a lip-rounded semi-vowel whose pronunciation can be likened to that of a short and quick /u/. It is labial because it is lip-rounded and velar because the back of the tongue is raised towards the velum (soft palate). This segment is especially difficult for Hungarian learners since this sound does not exist in the Hungarian sound system. Phonetically this sound is quite similar to Hungarian /u/ but in Hungarian /u/ is a syllabic segment (a vowel), never a glide (a consonant.) Since it is also similar to the Hungarian consonant /v/ (which is a fricative in Hungarian, like in English), it is a usual mistake to pronounce a /v/ instead of /w/. One should always bear in mind that English /w/ is a kind of Hungarian /u/ rather than a Hungarian /v/. The English name *double U* also suggests that it is a kind of /u/ rather than a kind of /v/, in spite of the fact that in Hungarian it is called a *double V* (*dupla V*). This is because in Hungarian this letter is pronounced /v/ as in *whisky* /ˈviski/ or *cowboy* /ˈkovboj/. Just like the palatal glide /j/, the labiovelar glide /w/ is also affected by devoicing after aspirated /t/ and /k/, cf. Section 4.10. The combination *wh* is also pronounced as a /w/ in present-day English, cf., *white*

/waɪt/, *which* /wɪtʃ/ and *nowhere* /ˈnəʊweə/. Originally *wh* was pronounced and still is pronounced in GA and in some British varieties as /hw/ as in *white* /hwaɪt/ and *which* /hwɪtʃ/, for example. The *wh* combination is pronounced /h/ in *who, whose, whom, whole* and *whore*.

4.14 The distribution of /h/

The English glottal /h/ is pronounced exactly like Hungarian /h/ but its distribution is fairly different in English. This means that /h/ has defective distribution, it does not occur in all the available phonological positions even if the spelling suggests so. For short, it may only occur at the beginning of a word or when followed by a full (non-reduced) vowel, i.e., in the onset position of syllables, like the glides /j/ and /w/. Consider the examples in Table (58) below where unpronounced *h*'s are underlined.

(58)

Unpronounced /h/ in English		
Word-finally	*Before a consonant*	*Before a weak vowel*
sha<u>h</u> /ʃɑː/	Fa<u>h</u>renheit /ˈfærənhaɪt/	ve<u>h</u>ement /ˈviːɪmənt/
Alla<u>h</u> /ˈælə/	Ka<u>h</u>n /kɑːn/	shep<u>h</u>erd /ˈʃepəd/
Sara<u>h</u> /ˈseərə/	Jo<u>h</u>n /dʒɒn/	ve<u>h</u>icle /ˈviːɪkl/
Poo<u>h</u> /puː/		fore<u>h</u>ead /ˈfɒrəd/
Noa<u>h</u> /ˈnəʊə/		Dur<u>h</u>am /ˈdʌrəm/
		Clap<u>h</u>am /ˈklæpəm/
		Gra<u>h</u>am /ˈgreɪəm/
		Birmingh<u>a</u>m /ˈbɜːmɪŋəm/

The *h* may also be optionally dropped at the beginning of function words such as *he, him, his, her, have, has* and *had* when they are non-initial in the sentence and are unstressed. And indeed, in fast, colloquial speech this seems to be the case when the *h* is dropped and the particular function word is attached to the preceding lexical item. Consider the examples in (59) below.

(59)

Optional unpronounced /h/ in function words		
Example	*Careful, formal*	*Fast colloquial*
They beat him	/ˈbiːt hɪm/	/ˈbiːtɪm/
They told him	/ˈtəʊld hɪm/	/ˈtəʊldɪm/
Fred has bought his car	/ˈfred həz ˈbɔːt hɪz .../	/ˈfredəz ˈbɔːtɪz .../

The glottal /h/ is normally represented by the letter *h*. There are, however, a number of digraphs which also contain the letter *h*, cf., e.g., *ch, kh, gh, ph, sh, th, rh*, but these digraphs are not pronounced /h/. There are also a couple of words in which *h* remains unpredictably silent. The most important are *honour, honest, hour, heir, exhaust* /ɪgˈzɔːst/ and *exhibit* /ɪgˈzɪbɪt/.

Unit 5

PHONOLOGY 3: RULES AFFECTING ENGLISH VOWELS

5.1 Introduction

As we have seen, Standard BrE RP is a non-rhotic accent: the historical *r* has disappeared from some of the phonological positions where it originally occurred. This disappearance, however, has left its traces on the vowels preceding the historical *r*. These traces are currently referred to as *Pre-R Breaking* and *Pre-R Broadening*. Note in advance that these regularities are historical facts about the BrE RP accent rather than synchronic alternations. In other words, *broken-tense* and *broad-lax* vowels are the end-products of a historical restructuring. Their presence is also interesting from a distributional point of view since they occur in some phonological contexts but not in others. Moreover, both Pre-R Breaking and Pre-R Broadening further support the view that the English vowel system can be grouped along the lines of the tense–lax dichotomy since tense vowels were affected by breaking whereas lax vowels were affected by broadening. In order to see the difference between the two types of phenomena let us start our discussion with breaking.

5.2 Pre-R Breaking

Pre-R Breaking is a phenomenon that affected only a subset of the English vowel system, namely the tense vowels. This historical restructuring resulted in the occurrence of centring diphthongs /ɪə, ʊə, eə, ɔə/ of which the last one, /ɔə/, has later undergone monophthongization resulting in a long /ɔː/. Note also that these vowels – except /eə/ – can also come from other sources in the history of BrE RP, but one major source is obviously breaking. Consider Table (1), which shows *plain-tense – broken-tense* pairs of vowels. As it appears from the table, the wide diphthongs also have a broken counterpart, which thus become triphthongs. Note that the breaking of monophthongs and narrow diphthongs before *r* is obligatory and there are no exceptions to this generalisation, while the breaking of wide diphthongs is optional in some contexts, which will be discussed later.

(1)

	Plain-tense	*Broken-tense*
Monophthongs	/iː/	/ɪə/
	/(j)uː/	/(j)ʊə/
Narrow diphthongs	/eɪ/	/eə/
	/əʊ/	/ɔː/
Wide diphthongs	/aɪ/	/aɪə/
	/aʊ/	/aʊə/
	/ɔɪ/	/ɔɪə/

Table (1) illustrates the current state of affairs: each plain-tense vowel has its broken counterpart, and the plain-tense vowels may not occur before *r*, unless, of course, the vowel and the following *r* are separated by a word-level (analytic) morphological boundary. The process is more complicated when examined from a diachronic point of view, and several 'rules' were introduced in traditional phonological theories to capture the process that turned an /iːr/ sound sequence into /ɪə/. Moreover, these rules then had to be placed in a fixed order so that they could ultimately arrive at the correct result. Since, however, this is an introductory students' book into basic phonological analyses, we will not even touch on the historical aspects of the phenomenon. We will leave the diachronic aspects of the developments of Pre-R Breaking for a historical linguistics course, and will concentrate only on the end-product of the process here. Table (2) contains examples that illustrate plain–broken pairs.

(2)

Plain-tense	*Broken-tense*
/iː/ been	/ɪə/ beer
/(j)uː/ moon, cube	/(j)ʊə/ moor, cure
/eɪ/ stain	/eə/ stair
/əʊ/ stone	/ɔː/ store
/aɪ/ time	/aɪə/ tyre
/aʊ/ house	/aʊə/ hour
/ɔɪ/ join	/ɔɪə/ Moir

The examples in (2) show lexical items which display the plain-tense – broken-tense relationship depending on whether the vowel is followed by an *r* in spelling or not. Note that the *r* is never pronounced in the right-hand column, since it would be word-final in that position and the word-final *r* remains unpronounced, as it was already discussed in Unit 4 above. This means that breaking is not sensitive to R-dropping, and this is why breaking was ordered before

R-dropping in theories subscribing to traditional rule ordering. It is probably a shallow commonplace that in the logical ordering of the two regularities breaking must precede R-dropping. The reason for this is quite simple: should R-dropping be ordered before breaking, then the former would eliminate the conditioning context for the latter and breaking could not take place, i.e., it would not be attested. This reasoning thus leads to the conclusion that breaking does not depend on the presence or absence of a pronounced /r/. This does not mean that there are no examples where the *r* is pronounced after a broken-tense vowel. The *r* in these cases is naturally followed by a vowel as in *weary* /ˈwɪərɪ/, for example. Consider Table (3) below, which contains examples where the *r* is pronounced after a broken-tense vowel.

(3)

Plain-tense – broken-tense pairs	
Plain-tense	*Broken-tense*
/iː/ cleaning	/ɪə/ clearance
/juː/ fumy	/jʊə/ fury
/uː/ frugal	/ʊə/ rural
/uː/ looming	/ʊə/ luring
/eɪ/ pavement	/eə/ parent
/eɪ/ repaying	/eə/ repairing
/əʊ/ stony	/ɔː/ story
/əʊ/ exploding	/ɔː/ exploring
/aɪ/ fining	/aɪə/ firing
/aɪ/ timing	/aɪə/ tiring
/aʊ/ louder	/aʊə/ flowering
/aʊ/ scouting	/aʊə/ scouring

The examples in (3) clearly illustrate that the plain-tense vowels are replaced by their broken variants in a pre-r context. Whether the letter *r* that occurs in the spelling is actually pronounced or not is absolutely independent of breaking and depends solely on the phonological context – recall the R-dropping rule in Unit 4 above. It is also worthy of note that the vowel /ɔː/ will also be identified as a lax vowel later in our discussion. Moreover, breaking is practically absent from GA, so that the two sets of words sound roughly the same in this accent. Furthermore, it is also important to emphasize that the vowel /ʊə/ that results from breaking can be monophthongized to /ɔː/. For example, *sure* /ʃʊə/ can also be pronounced as *sure* /ʃɔː/, *poor* /pʊə/ as *poor* /pɔː/, *during* /ˈdjʊərɪŋ/ as *during* /ˈdjɔːrɪŋ/ and *boorish* /ˈbʊərɪʃ/ as *boorish* /ˈbɔːrɪʃ/. Note,

however, that the vowel /ʊə/ – like all the other broken-tense vowels except /eə/ – can also come from other sources. If the vowel /ʊə/ is not the result of Pre-R Breaking, but the result of syllable contraction – compressing two syllables together into one – it cannot be pronounced /ɔː/. For instance, the word *annual* /ˈænjʊəl/ cannot be pronounced */ˈænjɔːl/, the word *factual* /ˈfæktʃʊəl/ cannot be */ˈfæktʃɔːl/, and *manual* /ˈmænjʊəl/ is never */ˈmænjɔːl/.

5.2.1 The structure-dependence of Pre-R Breaking

Another important fact about breaking is that it is – like the rules to be discussed in the next unit – sensitive to the structure of the word, i.e., this regularity is structure-dependent, which means that it does not operate across a word-level boundary (#). Consider the examples in (4) below.

(4)

Structure-dependence of breaking	
Example	*Pronunciation*
key#ring	/ˈkiːrɪŋ/, */ˈkɪərɪŋ/
say#Robert	/ˌseɪ ˈrɒbət/, */ˌseə ˈrɒbət/
re#read	/ˌriːˈriːd/, */ˌrɪəˈriːd/
de#ranged	/ˌdiːˈreɪndʒd/, */ˌdɪəˈreɪndʒd /
low#risk	/ˌləʊˈrɪsk/, */ˌlɔːˈrɪsk/
few#republicans	/ˌfjuː rɪˈpɒblɪkənz/, */ˌfjʊə rɪˈpɒblɪkənz /

As it is illustrated by the examples in (4), if there is a word-level (analytic) boundary between the tense vowel and the following *r*, the rule of breaking is blocked. In other words, if the tense vowel and the following /r/ flank a word boundary, the vowel remains plain-tense. Therefore, Pre-R Breaking is identified as a lexical rule.

5.2.2 Optional breaking of wide diphthongs

So far, we have been discussing cases where breaking was obligatory and exceptionless. However, there is a special context where Pre-R Breaking is optional, and this affects only the set of wide diphthongs. The breaking of wide diphthongs is obligatory in certain environments and optional elsewhere. In

order to illustrate the difference between the two contexts, consider the examples in (5) below.

(5)

Obligatory	*Optional*
tire#d	siren
lyre#	virus
retire#s	Byron
empire#s	tyrant
tower#ing	?
flower#less	?
hour#ly	?

The reason why the breaking of wide diphthongs is obligatory in the left-hand column and optional in the right-hand one is that the /aɪ+r/, /aʊ+r/ sequences fall directly before a word boundary in the former, and are found inside the word in the latter. In other words, when the wide diphthong plus /r/ sequence, which is an input to the Pre-R Breaking rule, is word-final, Pre-R Breaking is obligatory, and when the same string is found word-medially breaking is optional. Do not be misled by the silent *e*'s in the left-hand column, they are not taken into account for the purposes of Pre-R Breaking since they are never pronounced. Furthermore, it is not easy to find examples with /ɔɪ+r/ (*Moir* and *Moira* are sometimes cited as examples); and likewise, there are probably no examples with an /aʊ+r/ sequence for the optional cases, i.e., there are no examples in which this sequence would be found word-medially.

The examples in (5) illustrate the fact that although breaking seems to be an obligatory regularity of BrE RP, there is a restricted set of lexical items in which breaking is optional. This mostly happens to /aɪ/.

5.3 Pre-R Broadening

Pre-R Breaking affected only the tense vowels of English. The other large functional set was influenced quite differently by a following /r/. Lax vowels are said to have undergone *Pre-R Broadening*, which is nothing else but a convenient shorthand label for *compensatory lengthening*, the latter being a real technical term in phonological parlance.

Compensatory lengthening is a diachronic phonological change which results in the restructuring of the syllable structure of the word. By deleting a consonant – usually from before another consonant or word-finally – and lengthening the preceding vowel into the phonological position vacated by the deleted conso-

nant, it reorganizes the syllable structure of the word. This process is thus a lengthening process inasmuch as a short vowel becomes a long vowel as a result of the change. Moreover, it is a compensatory process since lengthening itself is a compensation for the loss of a consonant. Since Pre-R Broadening – as the label itself suggests – took place before the historical /r/, it is very tightly connected to the R-dropping rule. The *plain-lax – broad-lax* division is shown in Table (6) below.

(6)

Plain-lax	*Broad-lax*
/æ/	/ɑː/
/ɒ/	/ɔː/
/ɪ/	/ɜː/
/e/	
/ʌ/	
/ʊ/	

It appears from the table above that the short monophthongs of English constitute exactly the set of plain-lax vowels. Two plain-lax vowels, /æ/ and /ɒ/ each have their own broad-lax counterpart, /ɑː/ and /ɔː/ respectively. The remaining four plain-lax vowels, however, have the same broad-lax counterpart; the contrast between them is neutralised in this special context. This type of process is also referred to as *merger* in historical linguistics, since the four contrastive plain-lax values are merged into a single broad-lax value /ɜː/.

There are two phonological positions where the historical /r/ of RP has been deleted: *pre-consonantal* and *word-final*; it is exactly these positions where broad-lax vowels came into being. Pre-consonantally the historical /r/ cannot be recovered since in present-day RP it has no chance to appear before a consonant. Word-finally, however, the presence of a historical /r/ can be justified by placing the given word before another lexical item that begins with a vowel. The historical /r/ then immediately becomes audible – recall the section on Linking–R in Unit 4.

It is important to mention that the broad-lax /ɜː/ – except in *colonel* /ˈkɜːnəl/ – is always the result of broadening, it has no other source, and therefore it occurs only in words where there is an *r* after it in the spelling, even if that *r* remains unpronounced due to the R-Dropping rule. The broad-lax /ɔː/ and /ɑː/, however, are also found in words where there is no *r* after them either in pronunciation or in spelling, cf. *lawn, spa, bra, ball, call,* etc.

(7)

Plain-lax	*Broad-lax*
/æ/	/ɑː/
band, bat, fat, man, bank	bard, bar, far, mar, bark
/ɒ/	/ɔː/
not, fond, pond, conk	nor, ford, port, cork
/ɪ/	/ɜː/
gist, flint, skint, film	girl, flirt, skirt, firm
/e/	/ɜː/
hen, belt	her, Bert
/ʌ/	/ɜː/
fun, musk, cup	fur, murk, cur
/ʊ/	/ɜː/
put	purr

The word-pairs in (7) above have been collected to illustrate the distribution of plain-lax versus broad-lax vowels. The examples in (8) below are designed to further exemplify the phenomenon of Pre-R Broadening in British RP. The common feature of these lexical items is that the *r* is never pronounced.

(8)

Lexical items with a broad-lax vowel	
/ɑː/	park, car, start, pardon, marvellous, mark, star, farther, partner, scarf
/ɔː/	forth, important, sport, north, fortress, orthodox, horde, lord, ford
/ɜː/	term, hermit, permanent, her, termite, ternary, terminate, kernel, permeate
	girl, stir, gird, bird, birch, skirt, shirt, skirmish, firm, sir, sirloin, mirth
	murky, burn, hurt, fur, cur, lurch, turn, furnace, turtle, burden, lurk, surf

5.3.1 The structure-dependence of Pre-R Broadening

Just like Pre-R Breaking, Pre-R Broadening is also a structure-dependent rule. Consider the examples in (9) below.

(9)

The structure-dependence of broadening	
Plain-lax	Broad-lax
carry	starry
hurry	furry
barren	barring
mirror	stirring
herring	erring

The examples in the first column of Table (9) are pronounced with a plain-lax vowel while the ones in the second column are pronounced with a broad-lax vowel. The reason for this discrepancy is that the items in the first column are all monomorphemic, i.e., the *r* always stands before a vowel and they have no alternant in which this *r* could be deleted. The examples in the second column are rather different: they are composed of a stem and a suffix, and in the unsuffixed form the *r* occurs in a word-final position and therefore it remains unpronounced. Consequently, the preceding vowels in these forms have all undergone broadening, and they remain broad even after suffixation. This is again a clear sign of the fact that broadening is the end-product of a historical restructuring of lexical items rather than a synchronic phonological alternation. The synthetic forms in the left-hand column all belong to the so-called *Carrot-rule* words, to be discussed in the next section.

5.4 The Carrot-rule

The Carrot-rule is a widely accepted nickname for the absence of broadening. We mentioned in Section 5.3 above that broadening was the result of the deletion of historical /r/. Historical /r/ was deleted only from before a consonant and word-finally, i.e., from pre-consonantal and pre-word-final position. In the complementary context, i.e., before a vowel, the historical /r/ remained pronounced, and it was never deleted. As a result, the consonantal position occupied by the historical /r/ has never been vacated, and the preceding plain-lax vowel has had no chance to lengthen. In the so-called Carrot-rule words, the historical /r/ has always been followed by a vowel word-internally and could not be deleted. Consider the examples in (10) below.

(10)

Absence of Broadening = Carrot-rule	
/æ/	marry, baron, caret, clarify, parrot, carrot, barrel
/e/	heron, terror, herring, merit, derelict, ferry, error
/ɪ/	myriad, mirror, tyranny, spirit, lyrics, miracle
/ɒ/	moral, torrent, sorry, Morrison, foreign, porridge
/ʌ/	currant, hurry, worry, Surrey, currency, furrow

The absence of R-dropping and the absence of broadening thus go hand in hand in the history of English.

5.5 Pre-voiceless shortening

The vowels of English are affected not only by a following /r/ but also by voiceless consonants in general. More precisely, English vowels tend to shorten somewhat before voiceless consonants, which is especially audible in the case of long vowels, including diphthongs, and in the case of the low front vowel /æ/. As a result, the vowel /iː/ is pronounced really long ([iː]) in *sea, bead* and *bean* but it becomes somewhat shortened in *seat, beat* and *beach*, the proper transcription of the latter items would probably be [i] in narrow transcription. Note, however, that this shortening is never indicated in broad (phonemic) transcription, since it does not affect the quality of the vowel, only its quantity. By the same token, the diphthong /aɪ/ in *time* is somewhat longer than that in *fight* and the /əʊ/ of *stone* is longer than that of *hope.*

Pre-voiceless shortening also facilitates the recognition of the difference between voiced and voiceless consonants even when the former become devoiced to a certain degree. In minimal pairs like *heat – heed, price – prize, fate – fade, rope – robe, use (n) – use (v)*, the phonetic difference is only partially manifested in the voicing of the final obstruent, since all obstruents are partially devoiced in word-final position. Vowel-length, however, facilitates the perception of the difference between the members of these minimal pairs. Since this kind of vowel alternation is predictable from the phonological context, it is never indicated in broad transcription.

Pre-voiceless shortening then also serves to indicate the *underlyingly*/*phonemically* voiced or voiceless nature of the following consonant. Moreover, a fully long vowel informs the listener that the following consonant should be treated as phonemically voiced even if it becomes ultimately devoiced to a certain degree.

5.6 Word-final lengthening

The quality and the quantity of English vowels can be influenced not only by a following /r/ or by the nature of the consonants that follow them but also by various other factors. For example, not all vowels can appear word-finally in English. There is a very strict (morpheme-structure) condition in English, which prescribes that no English word may end in a short full vowel. This means that regardless of spelling, no non-reduced plain-lax vowel, /æ, e, ɪ, ʌ, ʊ, ɒ/ appears word-finally. If the word-final vowel functions as a full vowel, it must be long: a long monophthong or a diphthong. This phenomenon is called word-final lengthening. Consider the examples in (11) below, where all the vowels that function as full vowels appear as long vowels in word-final position.

(11)

Word-final lengthening		
spa /spɑː/	jumbo /ˈ dʒɒmbəʊ/	ballet /ˈbæleɪ/
follow /ˈfɒləʊ/	statue /ˈstætʃuː/	menu /ˈmenjuː/

In word-final weak (unstressed) syllables, however, short vowels must undergo vowel reduction and weaken to an /ə/ or an /i/, as in *pizza* /ˈpiːtsə/ or *many* /meni/. Interestingly, the word-final unstressed short *i/y* remains tense, and this may be referred to as the rule of word-final tensing. The occurrence of the word-final weak (unstressed) /u/ is restricted to a couple of lexical items including *to, do, you* when these lexical items stand before a word beginning with vowel or /w/. For example, *to Alex* is pronounced /tu ˈæleks/ and *Are you well?* is pronounced /ˈɑː ju ˈwel/. Bear in mind that pre-consonantally these lexical items are pronounced with a schwa as in *to me* /tə ˈmiː/ or *don't you dare!* /ˈdəʊnt jə ˈdeə/. Word-finally, however, these items are pronounced with a long (tense) /uː/, as in *going to* /ˈgəʊɪŋ tuː/.

5.7 Hiatus and Prevocalic Tenseness

A sequence of two vowels belonging to two adjacent syllables is called a *hiatus* /haɪˈeɪtəs/, as in *cha.os* /ˈkeɪ.ɒs/, *ru.in* /ˈruː.ɪn/ or *li.on* /ˈlaɪ.ən/. These structures are not to be mixed with diphthongs where there are two vowel qualities in a single syllable as in *hate* /heɪt/ and *house* /haʊs/. Note that a diphthong cannot be split into two syllables, so *hate* and *house* are both monosyllabic words. The same is true of words that are spelt with a digraph, i.e., where the spelling

suggests a hiatus but the two vowel letters represent a single sound, as in *bruise* /bruːz/ or *heat* /hiːt/.

According to the *Prevocalic Tenseness* rule a prevocalic vowel (i.e., one that stands before another vowel) must be plain-tense. There are two logical possibilities: the prevocalic vowel may be weak (unstressed) or full (stressed). Let us see what happens if the prevocalic vowel is weak.

5.7.1 Weak prevocalic vowels

It is important to emphasize that the schwa /ə/ never appears in a prevocalic position in English. For example, the unstressed *u* reduces to a schwa /ə/ in, for example, *surrender* /səˈrendə/ but not in *intuition* /ˌɪntjuˈɪʃ(ə)n/. The only weak vowels that may begin a hiatus are /i/ and /(j)u/ as in *radio* /ˈreɪdiəʊ/ and *fluctuate* /ˈflɒktʃueɪt/. The symbols /i/ and /(j)u/ indicate that these vowels are pronounced with a tongue position characteristic of tense vowels but they are short.

If the second vowel of a hiatus is a schwa /ə/, the /i/ and /(j)u/ can act as a glide-*i* and glide-*u* as in *previous* /ˈpriːviəs/ or /ˈpriːvjəs/ or as in *usual* /ˈjuːʒuəl/ or /ˈjuːʒwəl/, cf. Section 4.13.1.

5.7.2 Full prevocalic vowels

If the prevocalic vowel is a full vowel, it must be tense. This is the rule which is frequently referred to as Prevocalic Tenseness. The rule also applies before suffixes. Consider the examples in (12) below, where relevant syllable boundaries are indicated with a dot.

(12)

Prevocalic Tenseness		
flu.id /ˈfluːɪd/	cha.os /ˈkeɪɒs/	po.em /ˈpəʊəm/
le.o /ˈliːəʊ/	di.et /ˈdaɪət/	vow.el /ˈvaʊəl/
ski.ing /ˈskiːɪŋ/	fly.ing /ˈflaɪɪŋ/	slow.est /ˈsləʊəst/
fre.er /ˈfriːə/	mosa.ic /məʊˈzeɪɪk/	allow.ance /əˈlaʊəns/

Such vowel+wovel sequences are often simplified especially in fast, casual speech styles but dictionaries transcribe them in the above manner in the vast majority of the cases.

5.8 Smoothing

When a tense vowel is followed by another vowel, it may be simplified in actual pronunciation by losing its closure or closing articulation. This is an optional phenomenon and is usually referred to as Smoothing.

5.8.1 The Smoothing of /iː/ and /uː/

When /iː/ and /uː/ are followed by a vowel, they are frequently smoothed to /ɪ/ and /ʊ/ respectively in colloquial speech styles, at a relatively fast speech rate. This means that they become opener and lax. Consider the examples in (13) below.

(13)

Smoothing					
	Careful	*Smoothed*		*Careful*	*Smoothed*
neon	/ˈniːən/	[ˈnɪən]	fluid	/ˈfluːɪd/	[ˈflʊɪd]
fleeing	/ˈfliːɪŋ/	[ˈflɪɪŋ]	you allowed	/juːəˈlaʊd/	[jʊəˈlaʊd]
see again	/ˈsiːəˈgen/	[ˈsɪəˈgen]	to arrest	/tuː əˈrest/	[tʊəˈrest]
me and you	/ˈmiːəndˈjuː/	[ˈmɪənˈjuː]	two attendants	/ˈtuː əˈtendənts/	[ˈtʊəˈtendənts]

The sequences that result from /ɪ, ʊ/ plus /ə, ɪ/ combinations can be contracted to a single syllable and thus they will sound like the diphthongs /ɪə/ and /ʊə/ and even the /uːi/ of *fluid* can become an /ʊɪ/ diphthong. The difference between /ɪə/ and /ʊə/ on the one hand and /ʊɪ/ on the other is that the former can also come from a source other than smoothing. Recall that /ɪə/ and /ʊə/ can be the result of both syllable contraction and of breaking. Consider the examples inn (14) below.

(14)

Smoothing and breaking		
	Smoothed	*Broken*
/iːə/ > /ɪə/	neon /nɪən/, idea /aɪˈdɪə/	steer /stɪə/, endear /ɪnˈdɪə/
/uːə/ > /ʊə/	dual /djʊəl/, brewery /ˈbrʊəri/	cure /kjʊə/, jury /ˈdʒʊəri/

In a number of frequently used lexical items containing the /iː + ə/ sequence, the smoothed /ɪə/ pronunciation has become the norm, and nowadays this is already indicated by dictionaries in lexical items such as *idea, real, theory, museum, theatre*, etc.

5.8.2 The Smoothing of closing diphthongs and triphthongs

If a closing diphthong is followed by another vowel, the second ('glide') portion of the closing diphthong is lost and the result is a monophthong followed by another vowel. Consider the examples in (15) below.

(15)

The smoothing of closing diphthongs and triphthongs		
	Careful (diphthong + V)	*Smoothed* (monophthong + V)
diet	/daɪət/	[daət]
rowing	/ˈrəʊɪŋ/	[rɜɪŋ]
towel	/ˈtaʊəl/	[taəl]
hour	/ˈaʊə/	[aə]
how often	/ˈhaʊˈɒfən/	[haˈɒf(ə)n]

The smoothing of the triphthongs /aɪə/ and /aʊə/ is especially frequent in colloquial speech styles at a relatively fast speech rate. This is true of /aɪ+ə/, /aʊ+ə/ sequences as in *piety* and *vowel* as well as /aɪə/ and /aʊə/ sequences resulting from the Pre-R Breaking of /aɪ/ and /aʊ/ as in *virus* /ˈvaərəs/ and *hour* /aə/. The /aə/ sequence that results from the smoothing of closing diphthongs or the breaking of low diphthongs can be further simplified to a long [aː], which sounds almost exactly like Hungarian *á*.

(16)

The simplification of [aə] *sequences*			
	Careful	*Smoothed*	*Simplified*
dialling	/ˈdaɪəlɪŋ/	[ˈdaəlɪŋ]	[ˈdɑːlɪŋ]
coward	/ˈkaʊəd/	[ˈkaəd]	[kɑːd]
tired	/ˈtaɪəd/	[ˈtaəd]	[tɑːd]
fired	/ˈfaɪəd/	[ˈfaəd]	[fɑːd]

The personal pronouns *we, you* and *they* also undergo smoothing when contracted with *are* and the vowel of *you're* may be further reduced to a schwa /ə/ in unstressed position. Consider the examples in (17) below.

(17)

The smoothing of personal pronouns			
Example	*Careful*	*Smoothed*	*Reduced*
you' re	/juːə/	/jʊə/	/jə/
we're	/wiːə/	/wɪə/	
they're	/ðeɪə/	/ðeə/	

There are two words in which the smoothed form has become the norm: *prayer* is only pronounced /preə/ and *mayor* is /meə/ in present day RP.

5.9 Vowel reduction: the vowels of weak syllables

English is significantly different from Hungarian in that English vowels undergo vowel reduction in unstressed syllables. Only the vowels /ə, ɪ, ʊ, i, u/ may appear in unstressed syllables, i.e., only these can function as weak/reduced vowels. This also means that the distributional capacities of English vowels are severely curtailed in unstressed syllables. Interestingly, vowel reduction may even lead to the loss of the reduced vowel in certain phonological positions where the place of the unstressed vowel is taken over by a syllabic consonant, cf. the next section on syllabic consonant formation.

It must be emphasized that each of the three weak vowels has a variant, and thus there are six different choices in weak syllables: the schwa, a syllabic consonant, an /i/, an /ɪ/, an /u/ or an /ʊ/.

The schwa /ə/ as in *letter* /ˈletə/ and *attain* /əˈteɪn/, which is the most frequent reduced vowel, never appears prevocalically. Its sub-variant is a syllabic consonant when a schwa is followed by a sonorant which is not before a vowel. For example, *button* can be pronounced as /ˈbʌtən/ or /ˈbʌtn̩/, *channel* can be pronounced as /ˈtʃænəl/ or /ˈtʃænl̩/ or *peasant* as /ˈpezənt/ or /ˈpezn̩t/, cf. the next section on syllabic consonant formation.

The weak /i/ appears word-finally as in *many* /ˈmeni/, or pre-vocalically as in *sociology* /ˌsəʊsiˈɒlədʒi/ and becomes a glide-*i* before unstressed vowels, as in *previous* /ˈpriːviəs/ > /ˈpriːvjəs/. An obligatory sub-variant of weak /i/ is weak /ɪ/, the latter occurring before a consonant as in *panic* /ˈpænɪk/ and *elect* /ɪˈlekt/. The pronunciation of this sub-variant coincides with that of the full /ɪ/ as in *hit* /hɪt/.

Weak /(j)u/ occurs before a vowel as in *evacuate* /ɪˈvækjueɪt/ or before a consonant word-initially as in *united* /juˈnaɪtɪd/ or with the yod being dropped as in *fluctuate* /ˈflæktʃueɪt/. Before a vowel it becomes a glide-*u* as in *factual* /ˈfæktʃuəl/ or /ˈfæktʃwəl/. Weak /(j)ʊ/ is an obligatory alternant of weak /(j)u/ before a consonant (non-word-initially), as in *petulant* /ˈpetjʊlənt/, *immaculate*

/ɪˈmækjʊlət/ or *Portugal* /ˈpɔːtʃʊgəl/ and corresponds to full /ʊ/ in terms of vowel-quality, i.e., it is articulated with the same tongue position as the stressed /ʊ/ of *book* /bʊk/.

Bear in mind, however, that some textbooks and dictionaries do not use the /i/ and /u/ symbols but they stick to /ɪ/ and /ʊ/ in all unstressed syllables. This certainly reduces the number of transcription symbols at the cost of losing accuracy.

Vowel reduction is best illustrated with the help of word-pairs where full and reduced vowels are represented with the same vowel letter. Consider the examples in (18) below where primary stress is indicated with an acute accent and secondary stress with a grave accent mark. The vowel letters in focus are underlined.

(18)

Vowel reduction			
Stressed (full)	*Unstressed (weak)*	*Stressed (full)*	*Unstressed (weak)*
átom /æ/	attáin /ə/	présent (n) /e/	presént (v) /ɪ/
bánd /æ/	érrand /ə/	spécial /e/	specífic /ɪ/
spá /ɑː/	Chína /ə/	láce /eɪ/	nécklace /ə/
sùpposítion /ʌ/	suppóse /ə/	rage /eɪ/	méssage /ɪ/
stóne /əʊ/	cólon /ə/	óbject (n) /ɒ/	objéct /ə/
véry /e/	báttery /ə/	canál /æ/	fínal Ø
júry /ʊə/	céntury /ə/	tónic /ɒ/	bútton Ø

The last two examples illustrate cases where vowel reduction results in syllabic consonant formation, so the symbol Ø represents the loss of the unstressed vowel. In these cases, the following consonant takes over the phonological position of the unstressed vowel forming a syllable on its own.

Table (19) below shows the correspondence between the spelling of weak vowels and their pronunciation.

(19)

The spelling and pronunciation of word-initial and word-final vowels		
Word-initial weak vowels		
Spelling	*Pronunciation*	*Examples*
a-, o-	/ə-/	again, attract, attain, oppose, obtain, observe
e-, i-	/ɪ-/	elect, event, erase, illegal, immense, immortal
u-	/ju-/	united, utensil, ubiquitous, ukase, Ukraine
Word-final weak vowels		
Spelling	*Pronunciation*	*Examples*
-a, -Vr, -re	/-ə/	soda, coma, water, teacher, driver, scholar, centre
-e, -ey, -i, -ie, -y	/-i/	recipe, money, taxi, spaghetti, Georgie, funny, jelly
No weakening in word-final position		
Spelling	*Pronunciation*	*Examples*
-o, -ow	/-əʊ/	solo, jumbo, lingo, poncho, follow, swallow, fellow
-u, -ue, -ew	/-juː/	menu, statue, continue, nephew, interview

The vowels of weak syllables are not as important as those of strong syllables because sometimes they are hardly audible. The weak vowels are frequently interchangeable, cf., for example, *pigeon*, which can be pronounced either /ˈpɪdʒən/, /ˈpɪdʒɪn/ or /ˈpɪdʒn/. Sometimes, however, even unstressed vowels can form minimal pairs, think of the difference between *Lenin* /ˈlenɪn/ vs. *Lennon* /ˈlenən/.

5.9.1 The comparison of weak /i/ and /ɪ/

A weak /i/ is usually pronounced instead of a schwa /ə/ when the spelling has *i, y, e* or *ie* not followed by an /r/. Weak /i/ is pronounced the same as Hungarian /i/ and it also has the same quality (tongue position) as English /iː/ but it is short. As pointed out in the previous section, it may occur word-finally or pre-vocalically but never pre-consonantally: *many* /ˈmeni/, *radio* /ˈreɪdiəʊ/ and *react* /riˈækt/. Some speakers tend to lengthen the weak /i/ word-finally so that *funny* is pronounced [ˈfʌniː] and *happy* becomes [ˈhæpiː].

If, however, weak /i/ is followed by another weak vowel (/ə/ or /i/) the weak /i/ may become a glide, namely /j/ as in *lenient* /ˈliːniənt/ or /ˈliːnjənt/ or *previous* /ˈpriːviəs/ or /ˈpriːvjəs/. In pre-consonantal positions weak /i/ is replaced by /ɪ/ as in *refer* /rɪˈfɜː/, *panic* /ˈpænɪk/, *skeleton* /ˈskelɪtən/ or *conflict (n)* /ˈkɒnflɪkt/. This type of weak /ɪ/ is phonetically identical to the stressed (full) /ɪ/ of *hit* /hɪt/ or *afflict* /əˈflɪkt/. Table (20) summarizes the distribution of /iː/, /ɪ/ and /i/ sounds, where the shaded box contains items that have weak sounds.

(20)

The distribution of /iː/, /ɪ/ and /i/ sounds		
	Stressed	*Unstressed*
Long	/iː/ h**ea**t, comp**e**te, p**e**nal	/iː/ jubil**ee**, pedigr**ee**
Short	/ɪ/ s**i**t, m**i**rror, hab**i**tual	/i/ *pre-vocalic and word-final* rad**io**, r**e**act, funn**y**, tax**i** /ɪ/ *pre-consonantally* r**e**tain, hab**i**t, paint**e**d

5.9.2 Unstable weak /ɪ/ in English

Native speakers of RP very often replace weak /ɪ/ with /ə/ between two consonants. For example, *menace* /ˈmenɪs/ is also pronounced as /ˈmenəs/ and *vanity* can be pronounced both as /ˈvænɪti/ and /ˈvænəti/. It is entirely up to the speaker how he/she chooses to pronounce these words but certainly /ɪ/ is more old-fashioned and /ə/ is more modern. Consider (21) below, listing examples where the quality of the weak vowel vacillates between /ɪ/ and /ə/.

(21)

Vacillating pronunciation between /ɪ/ and /ə/ in weak syllables
kitch**e**n, madn**e**ss, host**e**ss, or**i**gin, van**i**ty, grav**i**ty, san**i**ty, happ**i**ly, bracel**e**t, delic**a**te, men**a**ce, pal**a**ce, horr**i**ble, poss**i**ble, barr**i**ster, del**e**gation

Most books and dictionaries do not indicate this choice but it is probably best to transcribe these words with a schwa /ə/ because it is becoming the norm especially amongst members of younger generations. One must, however, bear in mind that there are certain endings where only /ɪ/ is possible and schwa /ə/ is disallowed. These are *-ing, -ic, -ish, -it, -es, -ed, -age*.

In a couple of unstressed syllables preceding a consonant, the /ɪ/ vs. /ə/ difference can lead to a difference in meaning, i.e., they can produce minimal pairs. Word-finally unstressed /ɪ/ and /ə/ can produce similar minimal pairs. Bear in mind that the *r* which occurs in the spelling after the schwa remains silent in these cases. Consider the following minimal pairs in (22) below.

(22)

Minimal pairs with /ɪ/ and /ə/		
/ɪ/ – /ə/	/ɪ/ – /ə/	/ɪ/ – /ə/
teaches – teachers	illusion – allusion	rocky – rocker
raises – razors	except – accept	Lenin – Lennon
boxes – boxers	effect – affect	ready – redder

5.9.3 Unstable weak /u/ in English

The pronunciation of weak /u/ is the same as that of Hungarian *u* and it also has the same quality as English /uː/ but /u/ is short. This is why there is no colon after it in transcription. It is often preceded by a /j/, and frequently occurs in unstressed syllables where the spelling has *u* not followed by an *r*. The yod element of /(j)u/ is pronounced or dropped according to the Yod-dropping rule, cf. Section 4.6 above on Yod-dropping. It always stands before a vowel but never word-finally, and can occur pre-consonantally only if it is word-initial, cf. *united* /juˈnaɪtɪd/, *insinuate* /ɪnˈsɪnjueɪt/, *graduate* /ˈgrædʒueɪt/, *actual* /ˈæktʃuəl/, *vacuous* /ˈvækjuəs/.

Pre-consonantally weak /u/ is replaced by weak /ʊ/ as in *speculate* /ˈspekjʊleɪt/, *regular* /ˈregjʊlə/, *Portugal* /ˈpɔːtʃʊgəl/. This weak /ʊ/ sounds exactly the same as the full /ʊ/ of *cushion* /ˈkʊʃn/, *butcher* /ˈbʊtʃə/ or *foot* /fʊt/. This type of weak /ʊ/, however, is often replaced by a schwa, in fact the modern tendency is to pronounce a schwa /ə/ rather than an /ʊ/, so one may come across pronunciations such as *speculate* /ˈspekjəleɪt/, *regular* /ˈregjələ/, *Portugal* /ˈpɔːtʃəgəl/.

Note, however, that a weak /u/ is not possible word-finally where the long "full" vowel /(j)uː/ is pronounced as in *menu* /ˈmenjuː/, *statue* /ˈstætʃuː/, *revenue* /ˈrevənjuː/.

It is also worthy of note that when the unstressed letter *u* is followed by an *r*, or by two consonant letters, or by one word-final consonant, it is never pronounced as /ʊ/, but rather as a schwa /ə/, as in *pleasure* /ˈpleʒə/, *accurate* /ˈækjərət/, *insultation* /ˌɪnsəlˈteɪʃn/, *voluntary* /ˈvɒləntri/, *momentum* /məʊˈmentəm/.

5.10 Syllabic consonant formation

We have discussed the fate of the post-vocalic /r/. Bear in mind, however, that besides post-vocalic /r/, other post-vocalic sonorants may also exhibit a special behaviour. The phenomenon of syllabic consonant formation affects the sonorants /n/, /l/ and sometimes /m/ when they follow an unstressed /ə/. In this context the schwa frequently drops out and the alveolar/labial nasal or alveolar-lateral liquid functions as a syllabic segment, i.e., forms a syllable on its own. Take, for example, *channel* /ˈtʃænl/ and *button* /ˈbʌtn/ or *prism* /ˈprɪzm/ where the vowel of the second syllable is missing, i.e., these words consist of two syllables but there is only a single vowel in them. In narrow phonetic transcription this is usually shown by the diacritic mark [̩] under the consonant, as in [ˈtʃænl̩], [ˈbʌtn̩] or [ˈprɪzm̩]. Recall that a syllabic /l/ is always pronounced as a dark [ɫ].

The syllabic /n/ or /l/ tend to occur in the ultimate or penultimate syllable of the word when preceded by an [ə]. Consider the examples in (23) below.

(23)

Syllabic consonant formation		
	ə + non-syllabic consonant	syllabic consonant
channel	/ˈtʃænəl/	/ˈtʃænl/
table	/ˈteɪbəl/	/ˈteɪbl/
button	/ˈbʌtən/	/ˈbʌtn/
token	/ˈtəʊkən/	/ˈtəʊkn/
national	/ˈnæʃənəl/	/ˈnæʃənl/ or /ˈnæʃnl/
final	/ˈfaɪnəl /	/ˈfaɪnl /
patience	/ˈpeɪʃəns/	/ˈpeɪʃns/
faculty	/ˈfækəltɪ/	/ˈfækltɪ/

As it appears from the table above, syllabic consonants tend to occur word-finally, as in *channel, table, marble, people,* etc., or between two consonants, as in *faculty, patience, prudence*, etc. Note that the syllabic nature of consonants is not indicated in phonemic transcription.

Syllabic consonants may also occur before a vowel when a vowel-initial suffix is attached to a word ending in a syllabic consonant. Consider the examples in (24) below, where the hyphens indicate syllable boundaries.

(24)

Syllabic consonant followed by a vowel-initial suffix			
button	/ˈbʌ-tn/	button-ing	/ˈbʌ-tn-ɪŋ/
listen	/ˈlɪ-sn/	listen-er	/ˈlɪ-sn-ə/
final	/ˈfaɪ-nl/	final-ly	/ˈfaɪ-nl-ɪ/
penal	/ˈpiː-nl/	penal-ize	/ˈpiː-nl-aɪz/
prison	/ˈprɪ-zn/	prison-er	/ˈprɪ-zn-ə/
bottle	/ˈbɒ-tl/	bottle-ing	/ˈbɒ-tl-ɪŋ/

All the above words have a free variant pronunciation with a schwa /ə/ plus a non-syllabic /l/ or /n/ as in /ˈprɪzənə/, /ˈpɪːnəlaɪz/, /ˈlɪsənə/.

In word pairs such as *finally* (final+ly) and *finely* (fine+ly) we have three syllables and a dark /l/ in the former (/ˈfaɪ.nl.ɪ/) but only two syllables and a clear [l] (/ˈfain.lɪ/) in the latter. A syllabic consonant which occurs before a vowel must be indicated in transcription either by a vertical stroke under it (/faɪn̩lɪ/) or by a dot after it (/ˈfaɪnl.ɪ/), otherwise it cannot be distinguished from *finely* (/ˈfaɪnlɪ/).

5.11 Syncope (syllable loss before suffixes)

The schwa is often dropped between two syllables, especially if it is followed by an /l/, an /r/ or an /n/. This means that the given word becomes one syllable shorter, as in *bak(e)ry* /ˈbeɪk(ə)ri/. This phenomenon is often referred to as *syncope* and it results in a syllable loss. The stress pattern of the word, however, is not altered. This phenomenon often depends on speech rate and style, however, there are some items in which it is historically established, i.e., nowadays the syncopated form is the norm, e.g. *bus(i)ness, ev(e)ning* and *ev(e)ry*. Consider the types of syncope in (25) below.

(25)

Types of syncope (syllables loss)	
Syllable loss indicated in spelling	
enter > entrance /ˈentə/ > /ˈentrəns/	actor > actress /ˈæktə/ > /ˈæktrɪs/
Syncope not indicated in spelling	
centre > central /ˈsentə/ > /ˈsentrəl/	ample > amply /ˈæmp(ə)l/ > /ˈæmpli/
handle > handling /ˈhænd(ə)l/ > /ˈhændlɪŋ/	cycle > cyclic /ˈsaɪk(ə)l/ > /ˈsaɪklɪst/
Syncope is optional but it is the norm in colloquial speech styles	
carefully /ˈkeəfəli/ > /ˈkeəfli/	favourably /ˈfeɪvərəbli/ > /ˈfeɪvrəbli/
traveller /ˈtrævələ/ > /ˈtrævlə/	honourably /ˈɒnərəbli/ > /ˈɒnrəbli/
original /əˈrɪdʒənəl/ > /əˈrɪdʒnəl/	practically /ˈpræktɪkəli/ > /ˈpræktɪkli/

Syncope is becoming the norm nowadays especially in fast colloquial speech styles. It is important to emphasize that there are a lot of restrictions on syncope. For example, the consonants that flank the syncope site must show a rising sonority slope, i.e., the right-hand consonant must be more sonorous than the left-hand one. This means that the (bogus) clusters that result from syncope resemble onset clusters inasmuch as the right-hand consonant is almost always a sonorant while the left-hand one is almost always an obstruent. Interestingly, even this proviso may be violated in certain cases. The consonant (bogus) cluster that results from the syncope of *fam(i)ly* is not a typical onset cluster since both the consonants are sonorants. In *veg(e)table*, however, both the consonants that flank the syncope site are obstruents, and therefore do not qualify as onset clusters either, nor do they exhibit a rising sonority slope.

The shorter (syncopated) forms are becoming increasingly the norm, especially in words ending *-ery, -ary, -ory*. Think of examples such as *station(a)ry, bak(e)ry, cemet(e)ry*, *perempt(o)ry*.

Unit 6

PHONOLOGY 4: TRISYLLABIC LAXING AND VOWEL SHIFT

6.1 Introduction

This unit begins with a non-automatic phonological alternation. This means that the description of the regularity to be examined below needs to make reference to pieces of information other than phonological. Besides terms such as *consonant, vowel, stress, syllable*, which directly refer to phonological properties of lexical items, the internal grammatical (morphological) structure of the word also has to be taken into account. This will lead us to the question of what we exactly mean by *word* from a phonological or a morphological point of view.

The received wisdom amongst linguists is that a morphological word is a lexical item which is the result of a word-formation process. The phonological word, however, is a lexical item on which structure-dependent regularities can operate. In other words, the internal morphological make-up of the word can influence the operation of phonological regularities: some regularities will freely operate across words or word-level boundaries, while others will be blocked by the same entity. Rules that operate freely across boundaries are called postlexical rules in the technical jargon, since they are able to scan sequences larger than a lexical item. On the other hand, rules that are constrained by word boundaries are referred to as lexical rules since some of the boundaries will be visible to these regularities, and therefore they usually operate within the word.

6.2 Trisyllabic Laxness

We examined the English vowel system in detail in Unit 2 above and we noted that besides phonetic categories that describe the articulatory properties of vowels, there are also functional categories which describe the behaviour of the given vowel in the system. These functional categories were termed *tense* and *lax*, and this section will concentrate on a regularity which cuts the English vowel system into two along these categories. This regularity is termed

Trisyllabic Laxness and expresses the tendency that stressed vowels in a given position tend to be of a certain type. Consider the examples in (1) below.

(1) Trisyllabic Laxness: the basic regularity

/æ/	/e/	/ɪ/	/ɒ/
cápital	rélevant	divínity	persónify
vánity	sevérity	críminal	hóliday
sácrament	compétitor	míracle	ferócity
bálustrade	régiment	ínstitute	mótivate
ánimal	pénalty	prímitive	animósity
grávity	élegance	pýramid	órigin
/ʌ/	/ɑː/	/ɜː/	/ɔː/
lúxury	pártisan	círcular	córdial
últimate	párliament	túrbulence	dórmitory
adúltery	ártery	intérpolate	inórdinate
núnnery	márvellous	fértilize	páucity
cómpany	márginal	términate	fórmulate
súmmary	lárceny	pérsecute	córpulent

As the name of the regularity suggests, stressed vowels can only be lax in a certain position. If we examine the examples in (1) and if we try to determine the position where this regularity is in force, we notice that it is not easy to find the position if we make an attempt at counting the number of the syllables from the beginning of the word. However, if we count the number of the syllables from the end of the word, we find that the stressed vowel always occurs in the *antepenultimate* syllable of the word, i.e., in the third syllable from the end of the word. This is the position where a stressed vowel is required to be lax, regardless of the number or type of consonants occurring after the vowel under focus. There is another quite intriguing fact about Trisyllabic Laxness: the lax vowel /ʊ/ never appears in the antepenultimate syllable of English words, therefore, we will never find examples for Trisyllabic Laxness with the vowel /ʊ/.

It is also interesting to note that the rule may be extended to further stressed syllables towards the beginning of English words. If we examine the examples in (2) below we notice that in the fourth and fifth last syllables of English words we also tend to find only lax vowels. Consider the examples below, where the vowels under consideration appear in boldface and carry a grave or an acute accent mark. Cf. Section 9.2 on stress-marking.

(2)

"Trisyllabic" Laxness in the 4th and 5th syllables from the end
c**é**remony, d**è**mocrátic, p**à**ginátion, ph**à**rmacólogy, c**ó**ronary, **á**ristocrat

The Trisyllabic Laxness rule, however, has a number of exceptions both regular and irregular. In this respect the Trisyllabic Laxness rule is quite different from automatic phonological regularities, which have no exceptions whatsoever, cf. L-darkening. In what follows we list the exceptions to Trisyllabic Laxness starting with regular exceptions.

6.2.1 Exceptions to Trisyllabic Laxness

As already mentioned above, the Trisyllabic Laxness Rule (TSL) is structure-dependent, i.e., it is sensitive to the grammatical make-up of the word. For this reason, a word with an internal analytic structure will by definition be exempt from the requirements of Trisyllabic Laxness. This point will be discussed in 6.2.2 below. In this subsection we will concentrate on regular and irregular exceptions.

6.2.1.1 The non-laxability of /u:/ and /ju:/

The vowels /u:/ and /ju:/ both resist Trisyllabic Laxing, i.e., they constitute a regular exception to Trisyllabic Laxness. Consider the examples in (3) illustrating the resistance of /u:/ and /ju:/ to Trisyllabic Laxness.

(3)

Non-laxability of /u:/and /ju:/
púrify, opportúnity, commúnicate, músical, endúrance, sóuvenir, fúneral, júbilee

The vowels /u:/ and /ju:/ thus freely occur in a stressed antepenult even within a non–analytic domain.

6.2.1.2 C*i*V Tensing vs. Trisyllabic Laxness

Another regular exception is the case of C*i*V Tensing. Interestingly, the C*i*V context refers to an orthographic configuration rather than a real sound sequence. The term C*i*V designates a sequence of a consonant letter (C), a letter *i* and a vowel letter (V). What is even more interesting, however, is that the C*i*V context cuts the English letter-to-sound correspondence system into two groups. The vowel letters A, E, O, U are all pronounced with a tense value

– called C*i*V Tensing – before a consonant letter plus a letter *i* plus a vowel letter. The letter I/Y, however, is pronounced with a lax sound value in the same orthographic context. We will return to this question in Unit 7 below.

C*i*V Tensing thus overrides Trisyllabic Laxness, i.e., Trisyllabic Laxing is suspended in a C*i*V Tensing environment. Consider the examples in (4) below.

(4)

CiV Tensing overrides Trisyllabic Laxness
pó**diu**m, sá**lie**nt, vá**rio**us, expé**die**nt, ingré**die**nt, má**nia**c, rá**dia**nt, sympó**siu**m, rá**diu**s

All the stressed vowel letters in (4) above are followed by a consonant letter plus a letter *i* and a following vowel letter, the relevant sequences are given in bold characters. The stressed vowel letters will thus all be pronounced with their regular tense value overriding the effect of Trisyllabic Laxness in this context.

6.2.1.3 Words ending in a -V*ry* sequence

There are words that end in a vowel plus *ry* sequence, i.e., words ending in *-ery, -ary, -ory*. These words seem to resist Trisyllabic Laxness just like the C*i*V Tensing words. Consider the examples in (5) below listing words ending in a vowel plus *-ry* sequence.

(5)

-Vry words
ív**ory**, nót**ary**, machín**ery**, refín**ery**, plén**ary**, bín**ary**, wín**ery**

Note that there is a further proviso: The stressed vowel letter must be followed by a single consonant letter, cf. *núnnery, lóttery, súmmary, precúrsory, móckery, compúlsory, introdúctory, térnary*. The stressed vowels in these examples are all pronounced lax because they are followed by at least two consonant letters. The reason for this distribution will be discussed later in Unit 7.

6.2.1.4 Irregular exceptions to Trisyllabic Laxness

Besides regular exceptions to Trisyllabic Laxness there are also irregular exceptions that do not obey the Trisyllabic Laxing rule. These are listed in (6) below.

(6)

Irregular exceptions to Trisyllabic Laxness
/eɪ/ stábilize, pátriot !, ápricot !, fávourite
/aɪ/ vítamin !, níghtingale, fínalize, ítemize, ísolate, dýnamite, /aɪ(ə)/ írony
/əʊ/ nótify, ómega, códify, /ɔː/ glórify
/iː/ obésity, pénalize

6.2.2 Trisyllabic Laxness and grammatical structure

It was pointed out above that the Trisyllabic Laxing Rule is sensitive to the internal grammatical structure of the word. This means that not all the stressed tense vowels undergo laxing in the antepenultimate stressed syllable. Consider the distribution of Trisyllabic Laxness and its absence thereof in (7) below.

(7)

No Trisyllabic Laxness		*Trisyllabic Laxness*	
tidy	tidiness	penal	penalty
lazy	laziness	compete	competitive
fever	feverish	creed	credible
even	evenly	severe	severity
meagre	meagrely	hero	heroine
final	finally	divine	divinity
total	totally	derive	derivative
legal	legally	crime	criminal
spiteful	spitefully	tyrant	tyranny
maiden	maidenhood	grave	gravity
parent	parenthood	grade	graduate
advise	advisable	insane	insanity
read	readable	nation	national
reason	reasonable	fable	fabulous
bribe	bribery	prepare	preparatory
note	notary	legal	legislate
bounty	bountiful	sole	solitude
leader	leadership	mode	modify
dictator	dictatorship	holy	holiday
cater	catering	compose	compositor

The suffixes in (7) fall into two categories, those that induce Trisyllabic Laxness and those that do not. The items in the first two columns have a tense vowel in the stressed position regardless of the position of that vowel in the word. The reason for this is that the suffixed forms contain an analytic (#) suffix, and the analytic boundary cuts the word into two separate phonological domains. The Trisyllabic Laxing rule, however, is constrained to the level of the word, i.e., it operates between two analytic boundaries but not across them. An analytic boundary thus blocks the operation of the Trisyllabic Laxing rule, i.e., its domain of application does not extend beyond the level of the word.

The situation is different in the last two columns where the unsuffixed forms have a tense vowel, while the suffixed ones a lax vowel. Clearly, in these cases the Trisyllabic Laxing rule operates in the suffixed forms, and this is possible since the suffixes are attached to the stems via a synthetic boundary. A synthetic boundary, however, does not split the word into two separate phonological domains, but the word behaves as if it were a single monomorphemic unit. In fact, it is a monomorphemic unit since the synthetic (+) boundary suffixes are not real suffixes inasmuch as they do not have a clear, independent meaning, and they are always attached to bound stems. Moreover, their productivity is very low, i.e., they are no longer used for word-formation, they are not attached to new stems entering the English language through borrowing or coinage.

The above argumentation suggests that besides the Trisyllabic Laxing test, there are further properties that distinguish the two sets of suffixes. Note that analytic (word-level) suffixes are mostly quite productive, they have a clear, identifiable meaning and they are attached to free stems. This latter property is especially evident if we remove the suffixes from the words in the second column: we immediately notice that the stems are free in that they are meaningful lexical items by themselves and can be used in the sentence on their own. The suffixes figuring in (7) above can be classified into two groups along the lines in (8) below.

The suffixes in the second column of (8) above are in fact not real suffixes in the sense that they are not used productively for word-formation in English. Synthetic suffixes, often referred to as root-level suffixes in the literature, are often regarded as endings rather than suffixes since they cannot be separated from the putative base to which they are added. There is no further space in the present book for a theoretical discussion of different types of suffixes. It is worth bearing in mind, however, that besides Trisyllabic Laxness there are a host of other phonological processes that may indicate the fact that what looks like a suffix is an ending rather than a suffix.

(8)

analytic (#) suffix	*synthetic (+) suffix*
#ness	+ty
#ish	+itive
#ly	+ible
#hood	+ine
#able	+itor
#ery	+tive
#ary	+al
#ful	+y
#ship	+uate
#ing	+ulous
#ed	+tory
	+ate
	+itude
	+ify
	+day
	+itor

6.3 Vowel Shift

Vowel Shift is another phonological reflex which seems to be constrained to non-analytic domains. Vowel Shift is thus a phonological phenomenon where the morphological structure of the word seems to play an important role. This regularity is the legacy of a famous 15th century restructuring of the English vowel system, called the Great Vowel Shift. We will completely disregard the historical aspects of the phenomenon in the present textbook, since we are only concerned with the synchronic aspects of the alternation. There are two aspects of the regularity that we will necessarily discuss below. We will concentrate on the alternating pairs of vowels on the one hand, and on the environments in which this alternation takes place, on the other. Let us start with the first aspect: the regular types that are identified on the basis of vowel pairs.

6.3.1 Regular types of Vowel Shift

We recognize four chief types of Vowel Shift on the basis of the vowels participating in the alternation. Each type has a Pre-R sub-type, which is regulated by Pre-R Breaking and the Carrot-rule. Moreover, each major type of Vowel Shift can be associated with a characteristic spelling, which happens to be the same in each alternant. Consider the examples in (9) below.

(9)

	Basic type		*Pre-R type*		
	Tense	*Lax*	*Tense*	*Lax*	*Letter*
Type I	/eɪ/	/æ/	/eə/	/æ/	A
	sane	sanity	compare	comparison	
	state	stature	barbarian	barbaric	
	valency	valid			
	grade	gradual			
	grade	graduate			
Type II	/iː/	/e/	/ɪə/	/e/	E
	creed	credulous	imperial	imperative	
	intervene	intervention	hysteria	hysterical	
	serene	serenity			
	compete	competitive			
	creed	credible			
Type III	/aɪ/	/ɪ/	/aɪə/	/ɪ/	I
	derive	derivative	tyrant	tyranny	
	rite	ritual	satire	satirical	
	divide	division			
	divine	divinity			
	final	finish			
Type IV	/əʊ/	/ɔ/	/ɔː/	/ɒ/	O
	mode	modify	glory	glorify	
	sclerosis	sclerotic	story	historical	
	tone	tonic			
	compose	compositor			

Besides the regular types listed above, there are further *stem-vowel alternations* that may not be regarded as regular types of Vowel Shift, either because the vowels come in untypical pairings or because both vowels are tense or lax. Consider the non-typical types of vowel alternations in (10) below.

(10)

Untypical stem-vowel alternations	
untypical pairs	clear /ɪə/ - clarify /æ/, produce /juː/ - production /ʌ/
no shift other than /juː/	scene /iː/ - scenic /iː/, obese /iː/ - obesity /iː/
both lax	example /ɑː/ - exemplify /e/

It appears from (9) above that there are four regular types of Vowel Shift, each of which is identified on the basis of the tense-lax pairs participating in the alternation. The next step is to identify the contexts in which this type of stem-vowel alternation takes place.

6.3.2 Vowel Shift environments

In what follows we attempt to take stock of the environments in which regular stem-vowel alternation is attested. The first environment will already be familiar from previous sections of the present unit.

6.3.2.1 Trisyllabic Laxness

Vowel Shift may be motivated by the rule of Trisyllabic Laxness. Consider the examples in (11) below, stressed vowels are given in boldface.

(11)

Vowel Shift due to Trisyllabic Laxness	
s**a**ne	s**a**nity
ser**e**ne	ser**e**nity
der**i**ve	der**i**vative
div**i**ne	div**i**nity
cr**i**me	cr**i**minal
m**o**de	m**o**dify
prep**a**re	prep**a**ratory
n**a**tion	n**a**tional
comp**e**te	comp**e**titor
s**e**cret	s**e**cretary

In the shorter stem-alternants of (11) above, the primary stressed vowel occurs in the ult or penult (the ultimate or penultimate syllable) and is pronounced tense. In the right-hand column containing the putative suffix, however, the

stressed vowel occurs in the antepenultimate syllable of the word and hence it is pronounced lax. The stem vowels alternate regularly, i.e., they represent one of the alternating pairs displayed already in Table (9) above.

6.3.2.2 Laxing endings

There are three monosyllabic endings which exert a laxing effect on the stressed vowel occurring in the immediately preceding syllable in some sporadic stems. Consider the examples below in Table (12).

(12)

Laxness due to a laxing ending					
-ic		-id		-ish (verbal)	
tone	tonic	valency	valid	final	finish
cycle	cyclic	rabies	rabid		
lyre	lyrics				
metre	metric				

6.3.2.3 Laxness due to a free *U*

There are a number of morphemes in which the stressed stem vowel "becomes" lax when it is followed by a vowel letter *U* in the next syllable, provided that this vowel letter *U* is itself in a free graphic position. Graphic positions will be discussed below in Unit 7. For the time being, bear in mind that a vowel letter is situated in a free graphic position if it is followed by a CV (consonant letter vowel letter) sequence, a V (vowel letter), or if it is located immediately at the end of the word.

(13)

Laxing due to a free U in the next syllable	
case	c**a**s**ua**l
rite	r**i**t**ua**l
grade	gr**a**d**ua**l
grade	gr**a**d**ua**te
vacant	v**a**c**uo**us
state	st**a**t**ure**
creed	cr**e**d**ulo**us
Jesus	J**e**s**ui**t

The stem vowels in the right-hand column of (13) above are said to be lax because they are all followed by a letter *U* in the next syllable, which is followed by another vowel letter as in *casual* or by a consonant letter – vowel letter sequence as in *stature*. Unfortunately, there are no examples with an alternating stressed stem vowel which would be followed by a word-final letter *U*. The relevant sequences are given in bold characters and the stressed vowels are underlined in the table above.

6.3.2.4 Laxness due to a consonant cluster

According to traditional analyses, long vowels of some stems shorten in the alternative allomorph provided that in the latter alternant the vowel under consideration is followed by at least two consonants. This observation is exemplified by the pairs in Table (14) below.

(14)

Laxing due to a consonant cluster	
red**ee**m	red**e**mption
interv**e**ne	interv**e**ntion
dec**ei**ve	dec**e**ption
k**ee**p	k**e**pt
w**ee**p	w**e**pt
j**oi**n	j**u**nction
destr**oy**	destr**u**ction

The respective longer forms in (14) are not productively derived from the corresponding shorter forms but rather they represent two co-existing forms in the English lexicon.

6.3.2.5 C*i*V Laxing

Another quite special context in which Vowel Shift takes place is the case of *i*C*i*V Laxing, where the underlined vowel letter is in a stressed position. There are two conditions on C*i*V Laxing. First, the stressed vowel must be spelt either as I or Y, and second, this particular vowel letter must be followed by a sequence composed of a consonant letter, a letter *i* and another vowel letter – recall the context of C*i*V Tensing. Examples are given in (15) below.

(15)

Vowel Shift due to iCiV Laxing	
revise	rev**isio**n
divide	div**isio**n
vice	v**icio**us
decide	dec**isio**n
preside	pres**idiu**m

The examples in (15) above demonstrate that Vowel Shift may be due to what we call C*i*V Laxing provided that the stressed vowel letter is I/Y. The relevant *i*C*i*V sequences appear in boldface in the right-hand column of the table.

6.3.2.6 Unexplained Vowel Shift

In a couple of lexical items, the stem-vowel alternates in the regular manner, but it is not easy to capture anything common in these environments. We will refer to these cases as unexplained Vowel Shift. Examples are given in (16) below.

(16)

Unexplained Vowel Shift	
shade	shadow
bite	bit
hide	hid
feed	fed

6.3.2.7 Free Vowel Shift

Some lexical items can be pronounced in two different ways, and the pronunciation depends entirely on the choice of the speaker, it is not motivated by grammatical features or operation. Interestingly, the free variant vowel phonemes correspond to pairs otherwise figuring in regular types of Vowel Shift. Consider the examples in (17) below.

(17)

Vowel Shift as free variation					
/eɪ/	/æ/	/iː/	/e/	/aɪ/	/ɪ/
apricot	apricot	zebra	zebra	cyclic	cyclic
patriot	patriot	epoch	epoch	vitamin	vitamin
patent	patent	ego	ego	privacy	privacy

6.4 Summary

The reason why we discussed Trisyllabic Laxness and Vowel Shift together is that they are both non-automatic phonological regularities of English. Neither Trisyllabic Laxness nor Vowel Shift are real dynamic alternations in the sense that the participating pairs of lexical items are not derived one from the other. The reason for this is that the putative suffixes "causing" Vowel Shift as it were, are not real suffixes, they are not productive, and are not used for productive word-formations. Trisyllabic Laxness and Vowel Shift are statements capturing regularities in the lexicon of present-day English.

Unit 7

SPELLING AND PRONUNCIATION

7.1 Introduction

This unit concentrates on the regular sound values of single vowel graphemes and vowel digraphs. It is frequently assumed that the connection between spelling and pronunciation is so chaotic in English that it is not worth trying to study these regularities. It is true that the pronunciation of a relatively large set of vocabulary items is irregular, i.e., the sound value of a given grapheme deviates from the norm, but the simple fact that we consider certain sound values regular suggests that there exists an intimate connection between spelling and pronunciation. It is also true, however, that the so-called *irregular* words are basic and quite frequent vocabulary items.

The reason why we have to study the connection between spelling and pronunciation is that non-native speakers of English are initially exposed to the written form of the language in the overwhelming majority of the cases. This is especially true of adults learning English as a second language in a non-native environment. It is therefore necessary to provide learners with some knowledge that enables them to predict the pronunciation of written words.

7.2 The regular sound values of single vowel-graphemes

A *grapheme* is a letter or a combination of letters used to represent a sound segment or a group of sound segments. If two letters happen to represent a single sound segment (phoneme), we refer to it as a *digraph* /ˈdaɪgrɑːf/, which corresponds to Hungarian *kettősbetű*. Examples of digraphs occur, for example, in English ***ch****ain* /tʃeɪn/ or *pa****th*** /pɑːθ/ or Hungarian ***sz****ó* /soː/. A digraph is also regarded as a grapheme just like a single letter. The term grapheme corresponds to Hungarian *betű* and even Hungarian digraphs are referred to with this term, cf., *cs* betű in *csikó*.

There are five single vowel letters in English: they are *a, e, o, u* and *i=y*. There are also thirteen vowel digraphs whose sound values will be discussed in the next section. Bear in mind that we will discuss the sound values of vowel-

graphemes only when they function as full vowels, i.e., when they appear in stressed syllables, either primary or secondary.

Each single vowel letter has two basic regular sound values: a tense one and a lax one. For example, the letter *e* has /iː/ as its regular tense value in *theme, scene, serene* and /e/ as its regular lax value in *bed, next* and *serenity*. The rules of Pre-R Breaking and Pre-R Broadening, however, further complicate the picture. The broken-tense value of the letter *e* will thus be /ɪə/, as in *here, serious* and *experience*, while its broad-lax value will be /ɜː/ as in *her, term* and *permanent.*

It must be noted that there are several methods of indicating the tense/lax sound value of single vowel letters without having to transcribe the given sound. One possible and frequent way of doing this is to use diacritic marks above the vowel letter: the length mark is used for plain and broken-tense pronunciation, the short sign is used for plain-lax pronunciation, while the pointed circumflex is used for the broad-lax value. The length mark can be used for both the plain and the broken-tense pronunciation since the presence or absence of a following *r* makes it obvious if the given sound value is broken-tense or plain-tense. Consider Table (1) below illustrating how these orthographic diacritic marks are used for indicating appropriate sound values in the case of the single vowel letter *e*.

(1)

Letter	*Diacritic mark*	*Sound value*	*Example*
ē	length mark	plain-tense	mētre, ēven /iː/
ē	length mark	broken-tense	hēro, sērum /ɪə/
ĕ	short-sign	plain-lax	lĕtter, vĕry /e/
ê	pointed circumflex	broad-lax	têrm, pêrmanent /ɜː/

The four regular sound values of the vowel letter ***e*** are summarized in Table (2) below.

(2)

The sound values of the vowel letter ***e***			
Tense value		*Lax value*	
Plain-tense	*Broken-tense*	*Plain-lax*	*Broad-lax*
mētre	hēro	lĕtter	têrm
/iː/	/ɪə/	/e/	/ɜː/

Table (3) below shows all the regular sound values of English single vowel letters when they represent a full vowel.

(3)

Single vowel letter	*Tense*		*Lax*	
	Plain-tense	*Broken-tense*	*Plain-lax*	*Broad-lax*
A	/eɪ/ hate, fate	/eə/ bare, fare	/æ/ tap, marry	/ɑː/ star, bard
E	/iː/ metre, even	/iə/ hero, serum	/e/ letter, very	/ɜː/ term, herd
I=Y	/aɪ/ time, byte	/aɪə/ fire, lyre	/ɪ/ sit, mirror	/ɜː/ bird, myrrh
O	/əʊ/ stone, most	/ɔː/ store, flora	/ɒ/ stop, lorry	/ɔː/ form, born
U	/juː/ tune, cubic /uː/ June, prune	/jʊə/ pure, fury /ʊə/ sure, jury	/ʌ/ hurry, curry	/ɜː/ burn, cur

It appears from Table (3) that the vowel letter *o* has only three different sound values since its broken-tense and broad-lax values coincide. It is also striking that out of the six full short vowels only five appear in the Plain-lax column. The reason for this is that the vowel /ʊ/ does not have a regular spelling. It is usually spelt with the letter *u* as in *bull, full* or *put* or *oo* as in *hook, look* or *foot*.

By examining the Broad-lax column, one can immediately see that it contains only three sounds since there are only three broad-lax vowels in English. The broad-lax value of *e, i* and *u* is the same, namely /ɜː/, which is the result of a historical merger, whose historical aspects are not discussed in the present textbook. It is also worthy of note that the alphabetical names of the five single vowel letters correspond to their regular plain-tense sound value, namely /eɪ, iː, aɪ, əʊ, juː/. The tense values of the letter *u*, namely /juː/and /jʊə/ are pronounced /uː/ and /ʊə/ after certain consonants or consonant combinations due to the rule of Yod-dropping, which was discussed back in Unit 4, Section 4.6.

7.3 The regular sound values of vowel digraphs

The regular sound value of vowel digraphs is normally tense, which is of course broken-tense before /r/. For example, the regular sound value of the digraph *ea* is /iː/ as in *heat* but it becomes broken-tense /ɪə/ before /r/ as in *clear* /klɪə/. The only digraph whose regular sound value is lax is *au=aw*, namely /ɔː/. Bear in mind that *i* and *y* on the one hand and *u* and *w* on the other are equivalent when they appear as the second element of a digraph. The only digraphs whose regular sound value may not be represented by a single vowel letter are *ou=ow* /aʊ/ and *oi=oy* /ɔɪ/. Otherwise, vowel digraphs have sound values that can also be represented by single vowel letters. Table (4) below summarizes the regular sound values of vowel digraphs.

(4)

Vowel digraph	*Tense*		*Lax*	
	Plain-tense	*Broken-tense*	*Plain-lax*	*Broad-lax*
AI=AY	/eɪ/ main, hay	/eə/ pair, fair		
EI=EY	/eɪ/ vein	/eə/ heir, their		
EA	/iː/ team, beat	/ɪə/ fear, clear		
EE	/iː/ meet, fleet	/ɪə/ sneer, deer		
IE	/iː/ piece, grieve	/ɪə/ tier, pier		
OA	/əʊ/ poach, roach	/ɔː/ roar, boar		
AU=AW				/ɔː/ paw, clause
OO	/uː/ food, loot	/ʊə/ moor, poor		
EU=EW	/juː/ feud, few /uː/ crew, shrew	/jʊə/ neuro, euro /ʊə/ pleura, jewry		
UI	/juː/ nuisance /uː/ fruit	/jʊə/ Muir		
OI=OY	/ɔɪ/ loin, joy	(ɔɪə) Moir		
OU=OW	/aʊ/ scout, how	/aʊə/ hour		

It also appears from the table above that the vowel digraphs *eu=ew* and *ui* share the same basic sound value, namely /juː/ or /jʊə/, which can, of course, become yodless /uː/ or /ʊə/ according to the rule of Yod-dropping, cf. Unit 4, Section 4.6 above. Furthermore, it is also worthy of note that the vowel digraphs *ea, ee* and *ie* share the same plain-tense and broken-tense sound value.

7.4 Irregular sound values of single vowel letters and vowel digraphs

This section concentrates on words in which single vowel letters and vowel digraphs have an irregular sound value. These cases are also referred to as quality deviations by, for example, Nádasdy (2003), i.e., items whose graphemes have a sound value that deviates from the norm. In this section I will quote Nádasdy's (2003) examples in a tabular form.

(5)

Isolated deviating words (occur sporadically)	
a = /e/	many, any, ate, Thames
u = /ɪ/	busy
o = /ʊ/	wolf, woman, bosom
o = /ɪ/	women

Table (6) below lists the groups of deviating words as given by Nádasdy (2003).

(6)

(a) Irregular sound value due to a neighbouring sound or letter		
WANT-words	*a* = /ɒ/	want, wash, swan, quality, wander, wallop, squash…
WAR-words	*a* = /ɔː/	war, dwarf, quarter, swarm, warn, warped, wart…
WORK-words	*o* = /ɜː/	work, worth, world, word, worm, worse, worship…
ASK-words	*a* = /ɑː/	ask, past, class, path, example, dance, glance, task…
CALL-words	*a* = /ɔː/	tall, call, bald, alter, walk, chalk, talk, tall, Balkans…
PALM-words	*a* = /ɑː/	palm, calm, half, balm, calf…
(b) Irregular sound value due to foreignisms (French/Italian-like spellings)		
MACHINE-words	*i* = /iː/	machine, clique, ski, pizza, visa, kilo, antique, police…
CHAUFFEUR-words	*au* = /əʊ/	chauffeur, mauve, chauvinism, sauté…
MEMOIR-words	*oi* = /wɑː/	memoir, reservoir, bourgeois, repertoire…
SOUP-words	*ou* = /uː/	soup, group, route, souvenir, rouge, douche…
CREPE-words	*e* = /eɪ/	crepe, fete, suede, regime, café, fiancée, debris…
*(c) Irregular sound value due to traditional spellings with **e, ea***		
CLERK-words	*e* = /ɑː/	clerk, sergeant, Derby, Berkeley, Hertford…
BREAD-words	*ea* = /e/	bread, health, meant, pleasant, peasant, jealous, ready…
EARTH-words	*ea* = /ɜː/	earth, heard, pearl, earn, early, learn, search, earl…
BEAR-words	*ea* = /eə/	bear, swear, tear, wear, pear…
*(d) Irregular sound value due to traditional spellings with **o, oo, ou, u***		
LOVE-words	*o* = /ʌ/	love, come, onion, mother, London, among…
TROUBLE-words	*ou* = /ʌ/	trouble, country, courage, young, double, couple, enough…
MOVE-words	*o* = /uː/	move, do, prove, tomb, lose, womb, who, ado…
PUT-words	*u* = /ʊ/	put, full, butcher, cushion, pudding, bush, sugar…
LOOK-words	*oo* = /ʊ/	look, book, crook, good, wool, foot, took, soot, stood…
SOUL/BOWL-words	*ou/ow*= /əʊ/	soul, shoulder, bowl, know, own, blow, dough…
THOUGHT-words	*ough* = /ɔː/	thought, nought, brought, fought, sought, wrought…

It must be noted here that there is a group among the deviating words that contains a large number of (approximately 50) words. These were referred to as the LOVE-words above in Table (6). Consider now Table (7), where the letter *o* is pronounced /ʌ/ in each word.

(7)

LOVE-words revisited: letter o *is pronounced* /ʌ/			
Before **m**	*Before* **n**	*Before* **v**	*Before others*
come	one, Monday	love	other
comfort	none, London	dove	brother
company	done, honey	glove	mother
accomplish	son, money	above	dozen
compass	ton, front	cover	nothing
stomach	won, frontier	covert	colour
some	wonder, onion	covet	worry
somersault	monk, sponge	covenant	borough
Somerset	monkey, mongrel	oven	thorough
comfy	constable, among	shove	
	conjure, tongue	shovel	
	month	govern	
		slovenly	

There are also some very rare and difficult combinations of vowel letters whose pronunciation is also unpredictable from the spelling. These are listed in Table (8) below.

(8)

Rare and difficult combinations of vowel letters		
eo	/iː/	people
	/e/	Leonard, leopard, jeopardize, Geoffrey
	/əʊ/	yeoman, broken to /ɔː/ in George, Geordie
ae	/eɪ/	Gaelic, Israeli, sundae, reggae, broken to /eə/ in aerodrome
	/iː/	Caesar, aegis /iːdʒɪs/, aesthetics /iːsˈθetɪks/
oe	/iː/	Oedipus, amoeba, phoenix
	/uː/	manoeuvre /məˈnuːvə/
ao	/eɪ/	gaol (= jail) /dʒeɪl/
aa	/eə/	Aaron
eau	/juː/	beauty, bureau /ˈbjʊərəʊ/

7.5 Letter-to-sound regularities: Free position and covered position rules

7.5.1 Introduction

In the previous sections we discussed the regular sound values of vowel graphemes – single vowel letters and vowel digraphs – one by one. We saw that there are two basic sound values for each single vowel letter: a tense one and a lax one. The tense–lax division is thus further supported by letter-to-sound evidence, and the subject matter of the following sections is the relationship between graphic positions and sound values. In order to be able to examine this relationship we have to clarify what exactly is meant by the notion of 'graphic position'.

7.5.2 Graphic positions of vowel letters

The graphic position of a vowel letter is determined by the letters that follow it in the spelling even if the given letter is not pronounced. A graphic position therefore means orthographic position, and, as a result, the following subsections do not discuss phonological regularities, but regularities related to spelling–pronunciation correspondence.

There are two different graphic positions: the free graphic position and the covered graphic position. Consider Table (9) below.

(9)

Free graphic position			*Covered graphic position*	
(a)	(b)	(c)	(d)	(e)
mA**ke** crA**te**r dU**ly** hI**de** sO**da**	chA**o**s trU**a**nt lE**o** l**Io**n hO**a**x	denY**#** mE**#** gO**#** flU**#**	mA**tt**er rO**ck**er chA**pt**er stU**mbl**e sE**nt**ence bU**x**om	hA**t#** hI**t#** cU**p#** flO**p#** scA**n#**
V**CV**	V**V**	V**#**	V**CC**	V**C#**

It appears from Table (9) above that the two types of graphic position are in complementary distribution, i.e., there are no overlapping cases as it illustrated by the shorthand version of the respective environments in (10), where capital V stands for vowel letter and capital C for consonant letter.

(10)

Free graphic position			*Covered graphic position*	
(a)	(b)	(c)	(d)	(e)
VCV	VV	V#	VCC	VC#

There are three sub-cases of free graphic position and two sub-cases of covered graphic position. A stressed vowel letter is said to be in a free graphic position if it is followed by a single consonant letter plus another vowel letter, column (a), if it is immediately followed by another vowel letter, column (b), or if it stands directly at the end of the word, column (c). Conversely, a stressed vowel letter is said to occupy a covered graphic position if it is followed by at least two consonant letters, column (d), or if it is followed by a consonant letter plus the end of the word (word boundary) represented by the hatch mark (#), column (e).

Taking a closer look at the examples in (9) above, an interesting generalisation can be captured. Vowel letters in free graphic position seem to be pronounced with their regular tense value, while vowel letters in covered position with their regular lax value. The tense–lax dichotomy thus gains further justification when it comes to letter-to-sound correspondence. In sum, the basic generalisation runs as follows.

(11) *A stressed vowel letter in a free graphic position is pronounced tense, a stressed vowel letter in a covered graphic position is pronounced lax.*

The situation, however, is somewhat complicated by the examples listed in (12) below.

(12) Apparent counterexamples

(a)	*(b)*
tY**ph**oid	stA**bl**e
hY**ph**en	crA**dl**e
cI**ph**er	scrU**pl**e
scA**th**e	mE**tr**e
pA**th**os	A**pr**on
bA**th**e	cY**cl**e

The examples in (12) seem to refute the generalisation made in (11) above, since all the stressed vowels in (12) are pronounced with their regular tense value in spite of the fact that they are followed by two consonant letters in each case. One would be tempted to draw the conclusion that the examples in (12) in fact

constitute cases where the stressed vowels are in a covered position, and hence should belong to group (d) in Table (9). In other words, the items in (12) constitute counterexamples to the generalisation in (11) above. Since however, these counterexamples show a regular pattern, we will regard them as regular exceptions to (11).

In (12a) the stressed vowels are followed by the *ph* or *th* letter combinations, which function as digraphs (two letters representing a single sound). While *ph* generally represents the voiceless labio-dental fricative [f] in English orthography, *th* usually stands for [θ] or [ð]. In (12b) on the other hand, the first consonant that follows the stressed vowel is an oral stop while the second one is a liquid, i.e., a stop plus liquid combination follows the stressed vowel in that order. At this point we might propose an alternative approach in which *ph* and *th* sequences, and stop plus liquid configurations count as a single consonant letter for the purposes of calculating graphic positions. By adopting this approach, we can classify the examples in (12) into column (a) in Table (9) and (10) above, and thus we do not need to introduce an extra sub-rule accounting for the examples in (12). By the same token, the letter *x* is traditionally regarded as a consonant letter that must be counted twice, i.e., *x* will correspond to a CC configuration, hence the example *buxom* in (9d) above. This is a feasible approach since this particular letter stands for two sounds, [k] and [s], in that order.

Besides the examples in (12) above, there are further counterexamples to the free position rule. While there are only a handful of counterexamples (approximately between 40 and 50) to the covered position rule, the free position rule has a number of exceptions. Some of these exceptions are regular – i.e., follow an identifiable pattern – others are irregular and have to be memorized one by one. Some of the regular exceptions to the free position rule are listed in (13) below and they are arranged according to the regularity motivating the laxness of the stressed vowel letter, cf. Subsection 7.5.3 below.

(13)

Vowel letters pronounced lax in free graphic position			
c**e**metery	t**o**nic	v**a**cuum	v**i**cious
p**o**verty	s**o**lid	cont**i**nue	m**y**riad
ab**i**lity	bl**e**mish	m**e**nu	abol**i**tion
opera	ch**e**rish	v**a**lue	tr**i**vial
animal	t**e**net	m**a**nual	
p**a**rody	cr**e**dit	gr**a**dual	
	gr**a**vel		

The examples listed in (13) all obey a rule that is stronger than the graphic position rule, i.e., these cases represent regularities which eliminate the effect of the free position rule. These regularities will be discussed in Subsection 7.5.3 below.

There are a number of further examples mostly in the penultimate syllable of words where we pronounce a lax vowel in spite of its free graphic position. These cases cannot be captured along recurrent regularities, and are therefore regarded as truly irregular. Consider some examples in (14) below.

(14)

Irregular exceptions to the free position rule
examine, Alan, body, lemon, famine, dragon, scholar, study, melon, pedal, prison

Besides the irregularities affecting the free position rule, there are also exceptions to the covered position rule. The difference between the exceptions is that in the case of the covered position rule the number of exceptions will be relatively small. Most of these words have the letter combinations *-ost, -old, -ign, -igh, -ange, -aste, -ild, -ind*. Consider the examples listed in (15) below.

(15)

Exceptions to the covered position rule
ancient, danger, both, won't, paste, mind, only, scarce, gross, wind (v.), align, grind, plight, comb, Christ, pastry, ruthless, sign, rind, Hastings, pint, ghost, host, most, find, kind, post, range, change, mangy, strange, angel, ghost, wild, mild, told, haste, taste, arrange, tight, hind, sigh, fold, child

7.5.3 Free position laxing rules

It was pointed out in Subsection 7.5.2 above that the covered position rule is a fairly powerful generalisation about English letter-to-sound correspondences. Although there are exceptions to the covered position rule, the number of exceptions is relatively low, and in the vast majority of the cases exceptions can be identified on the basis of letter/sound sequences.

The situation is radically different in the case of the free position rule. On the one hand, the number of exceptions will be much higher in the case of the free position rule than in the case of the covered position rule, and on the other hand, there will be regularities that are stronger than letter-to-sound regularities. In other words, some of the exceptions to the free position rule will be systematic exceptions since these exceptions are due to stronger regularities. These 'stronger' regularities are usually referred to as *laxing rules* or *overriding*

rules. Interestingly, these overriding rules also function elsewhere in English phonology, for example, in connection with the Vowel Shift rule, cf. Unit 6, Section 6.3 above. In the following subsections we will summarize the free position laxing rules.

7.5.3.1 Trisyllabic Laxness

We have already discussed rules that are constrained by the morphological structure of the word; these regularities were referred to as structure-dependent rules. Among these regularities Trisyllabic Laxness was identified as a rule which is especially sensitive to the grammatical context. Consider the examples in (16) below.

(16)

Trisyllabic Laxness
v<u>a</u>nity, cr<u>i</u>minal, gr<u>a</u>titude, n<u>a</u>vigate, sev<u>e</u>rity, div<u>i</u>sible, s<u>a</u>nity

The examples in (16) demonstrate that although the underlined stressed vowels are all in free graphic position, they are pronounced lax. These counterexamples, however, are systematic exceptions to the free position rule because the stressed vowel occurs in the antepenultimate (stressed) syllable, which is followed by two syllables without an intervening analytic boundary. Therefore, the suffixes or putative suffixes seem to form a synthetic domain. In fact, one is tempted to say that the entire strings occurring in (16) constitute one single unitary synthetic, monomorphemic domain whose suffixes are no longer separable from their stems and thus are best regarded as endings. This viewpoint is strengthened by the fact that in none of the examples of (16) can the suffix or putative suffix be neatly separated from the expected stems, since by removing the (putative) suffixes we are left with bound stems that may not occur in isolation; e.g., *van-. crimin-, grat-, navig-, sever-, divis-, san-*. The "suffixes" in (16) above were thus referred to as synthetic suffixes in Unit 6 above to express the conviction that they do not form a domain separate from the stem. The only reason why we regard them as some kind of suffixes rather than endings is that the stems or putative stems have an alternative form in the English lexicon whose pronunciation is obviously different and occur as free morphemes, e.g., *vain, crime, grate, navy, severe, divide, sane*. The two alternative forms have much in common, especially in terms of grammar, meaning and history.

Besides the forms in (16) there are further examples of Trisyllabic Laxness that are structurally somewhat different from the 'bound stem plus synthetic suffix' kind of structure. Consider the examples in (17) below.

(17)

Trisyllabic Laxness
animal, parody, origin, opera, poverty, cemetery, liberal

The examples in (17) are sometimes referred to as cases of orthographic Trisyllabic Laxness since we cannot find free stems with alternative pronunciation whose grammar, meaning or history could be related to a substring in corresponding longer forms. For example, *animal* cannot be related to a putative *ane* stem since there is no such form in the English lexicon.

It is worth bearing in mind, however, that the items in both (16) and (17) above are exceptions to the free position rule and are subject to Trisyllabic Laxness. This means that the effect of the Trisyllabic Laxness overrides the effect of the free position rule.

7.5.3.2 Laxing endings

There are some recurring monosyllabic endings that are regularly preceded by a stressed lax vowel. Consider the examples below.

(18)

Laxing endings	
-ic	tonic, comic, fabric, metric, phonetic, fanatic, dramatic, historic, Asiatic
-id	tepid, solid, valid, rapid, vapid, intrepid, vivid
-ish	replenish, finish, abolish, parish, blemish, polish, establish, vanish, cherish
-it, -et	habit, visit, rivet, comet, Janet, planet, tenet
-el	gravel, level, model, ravel, travel, novel, panel, rebel

As can be seen in (18), the endings *-ic, -id, -ish, -et/-it,* and *-el* constitute laxing endings because the stressed vowel occurring in the syllable preceding these endings is pronounced lax in spite of the fact that these vowel letters are in free graphic position. There are, however, a couple of exceptions to the Laxing ending rule listed in (19) below.

(19)

Exceptions to laxing endings	
-ic	phonemic, strategic, scenic, basic
-el	label, navel, libel, bagel
-it, -et	secret
-ish	Sweedish, brutish, stylish, Danish, popish, Polish, boorish, slavish, apish

The counterexamples in (19) are not equal in status because while the ones listed in the first three rows constitute sporadic exception to the laxing ending effect, those in the last row are quite regular exceptions. By comparing the examples ending in *-ish* in (18) and (19) above, we can draw the conclusion that *-ish* seems to function as a laxing ending only in the case of nouns and verbs, while in adjectives the same ending does not exert a laxing effect on the preceding tense vowel.

7.5.3.3 Laxing by free *U*

The next laxing rule is the so-called 'laxing by free *U* effect. Consider the examples in (20) below.

(20)

Laxing by free U
continue, value, tribute, statue, casual, venue, menu, vacuum, manual, leisure

It appears from (20) that although the stressed vowel letters all occur in a free graphic position, they are all pronounced lax. The common graphic arrangement in (20) is that the stressed vowel letters are followed by a letter *U* in the next syllable, which happens to be in a free graphic position itself. This regularity again has a couple of exceptions listed in (21) below.

(21)

Exceptions to laxing by free U
closure, disposure, exposure, composure, nature, procedure

7.5.3.4 C*i*V Laxing and C*i*V Tensing

The C*i*V Laxing rule is called jocularly the *idiot*-rule by some phonologists since the graphic arrangement in *idiot* corresponds to the requirements of this regularity. There are two requirements for the operation of this regularity: on the one hand, the stressed vowel must be I or Y, on the other hand, the stressed vowel must be followed by a C*i*V arrangement, i.e., a consonant letter followed by a letter I, which is followed by another vowel letter. Consider the items in (22) below.

(22)

C*i*V *Laxing*
idiot, Syria, myriad, vision, vicious, familiar, trivial, edition, petition, ambition

Note that for C*i*V Laxing to take place, the stressed vowel letter should be I or Y. Therefore, it is best characterised as *iCi*V *Laxing*. The reason for this is that all other vowel letters become tense in a C*i*V position, i.e., when followed by the same arrangement. Consider the examples in (23) below.

(23)

CiV Tensing	
Letter	*Examples*
A	radio, ratio, nation, relation, mania, radius, various, alien, barium, stadium
E	serious, premium, deletion, imperial, completion, Nigeria, tedious, medial
O	podium, associate, social, notion, Antonius, memorial, inquisitorial
U	furious, Julian, union, peculiar, dubious, studio, Peruvian, curious

By examining the examples in (23) above, we can draw the conclusion that vowel letters other than I/Y are pronounced with their tense value when they are followed by a C*i*V sequence. This does not mean, however, that there are no exceptions to the C*i*V Tensing effect. Consider the counterexamples in (24) below.

(24)

Exceptions to CiV Tensing
rational, national, companion, onion, camion, valiant

In spite of the exceptions in (24) that certainly weaken the C*i*V generalisation, we can claim that the overwhelming majority of the items meeting the structural description of C*i*V Tensing obey the rule. Furthermore, these examples could still be explained away by claiming that Trisyllabic Laxness is stronger than C*i*V Tensing in these examples. This is certainly a tempting explanation, especially in light of the fact that *ratio* and *nation* are pronounced with a tense vowel. This reasoning, however, is not available in the remaining examples of (24) since the relevant sequences can be pronounced as disyllabic strings involving a glide-*i*. Moreover, *national* and *rational* can also be pronounced as disyllabic words as a result of syncope that can affect the medial unstressed vowel in these words. At this point the best strategy is to acknowledge that there are a few counterexamples to C*i*V Tensing.

7.5.3.5 Unpredictable laxness in free graphic position

Besides the four laxing rules listed above in 7.5.3.1 – 7.5.3.4 that eliminate the effect of the free position rule, there are quite a number of irregular exceptions to the free position rule. The vast majority of these irregular exceptions occur in the penultimate syllable of English words. Consider the non-exhaustive list of examples in (25) for irregular laxness in free graphic position.

(25)

Irregular laxness in free graphic position
melon, lemon, canon, salad, manor, foreign, liver, linen, atom, prison, petrol, body, study, proper, florist, metro, baron, devil, Devon, dragon, leper, baton, basil, Adam, copy, river, pity, eleven, never, Alex

The number of counterexamples to the free graphic position rule indicates that the free position rule is a tendency rather than an absolute rule. Nevertheless, since there are more examples that obey the free position rule than those that do not, we will regard the free position rule as a rule of letter-to-sound correspondence in English.

7.5.3.6 The resistance of free *U* to laxing

Interestingly, none of the laxing rules affect the letter *U* in a free graphic position. This means that the letter U is always pronounced with its regular tense value when it occurs in a free graphic position, while it is pronounced lax when occurring in a covered graphic position. Consider the examples in (26) below illustrating that the pronunciation of the letter *U* depends on the relevant graphic position.

(26)

The pronunciation of free U *depending on its graphic position*	
tense	security, nudity, mutual, puberty, cubicle, fusion, lubricate, Punic, puritan, lucid, duel, illusion, funeral, unity, cucumber, immunity, peculiar
lax	purchase, turner, Russian, burning, pungent, occurrence, bumper, currant, hunter, bungalow

The examples in the first row of (26) illustrate that free *U* is resistant to laxing, while the examples in the second row of (26) show that in a covered graphic position free *U* is pronounced with its regular lax value. This, however, does

not mean that there are no sporadic counterexamples where U has the unexpected sound value. Study the examples in (27) below.

(27)

Unexpected sound value of free U
study, punish, public, ruthless

The examples in (27) illustrate occasional counterexamples where the letter *U* has the opposite sound value; i.e., it has a tense value in a covered graphic position and it has a lax value in a free graphic. position.

Unit 8

SUPRASEGMENTALS 1: SYLLABLES AND PHONOTACTICS

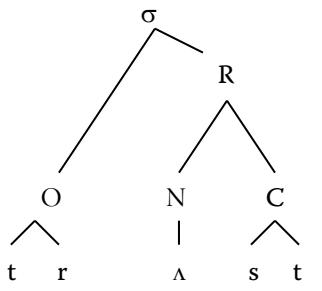
8.1 Introduction

Thus far we have been dealing mostly with segmental regularities of English phonology and letter-to-sound correspondences. Although some of the rules required the identification of syllable sequences – think of Trisyllabic Laxness – the focus of the regularity was always an individual segment. From now on we will turn our attention to phonological regularities whose proper description requires the identification of phonological material larger than the segment. In order to be able to discuss English word-stress in the next two chapters, we will have to examine the nature of syllables. The reason for this is that the proper treatment of English word-stress requires three different types of information: phonological, morphological and syntactic. The first one of these concerns the nature of syllables, since some syllable types tend to attract word-stress while others deflect it. More on this in Units 9 and 10.

8.2 Syllables

Although recent phonological theories have questioned the necessity of the term 'syllable' as a vital theoretical concept, it is still used as a convenient label to capture the intuitive claim that segments seem to pattern into sequences larger than the segment and smaller than the word. Furthermore, syllables have long been part of phonological theorizing, and different phonological theories have proposed different syllabic divisions, and have made explicit references to this concept when accounting for certain regularities. In the present book we will follow the most widely accepted syllabic organization, which takes the shape of (1) below, cf. also Section 3.7.

(1)



According to the diagram in (1) above, the *syllable* is symbolized with the Greek lowercase sigma. Furthermore, the syllable consists of the following constituents: *onset* (O), *rhyme* (R), *nucleus* (N), and a *coda* (C). The onset seems to be an immediate constituent of the syllable, it is directly linked to the syllable node, while the nucleus and the coda are linked to the syllable node via an intermediate constituent, called the rhyme. This arrangement suggests that the nucleus and the coda are more intimately connected to each other than, for example, the onset and the nucleus. In other words, the onset seems to be independent of the nucleus and the coda. There are a number of phonological arguments for this type of syllabic constituency, both phonotactic and stress-related. Stress-related arguments will be discussed in the final two Units of this book, and this Unit will only concentrate on the phonotactic arguments.

The only obligatory constituent of the syllable is the nucleus, which is frequently referred to as the *peak*. The reason why some textbooks prefer the term 'peak' to 'syllable' is that the nucleus constitutes the sonority peak of the syllable, i.e., it hosts the most sonorous segments, namely vowels. The nucleus (the centre) of the syllable is thus reserved for vowels, and this also means that the only obligatory constituent of the syllable is the vowel. Anything else is optional even though vowels are normally preceded and/or followed by consonants. There are syllables which lack consonants altogether, i.e., have an empty onset and an empty coda. Moreover, there are also languages – like English – which, under special circumstances, allow consonants to occur in the nucleus. Such consonants are called syllabic, and we saw a number of examples of syllabic consonants in Section 5.10. Other languages – including Hungarian – allow only vowels to occur in the nucleus, although in some words of German origin the syllabic consonant has become the norm, especially for younger generations. These points were dealt with in connection with L-darkening in Unit 4 above. The nucleus is thus the most sonorous, loudest constituent of the syllable, hosting vowels in the default case and constituting the sonority peak.

The onset constituent is reserved for consonants preceding the nucleus in the same syllable. The onset (if there is one in the given syllable) therefore constitutes the beginning of the syllable and counts as a phonotactic domain, which means that not all consonant sequences are allowed to occur in the onset. Generally speaking, only consonant clusters of the rising sonority type are legal in this syllabic constituent, especially if we disregard clusters beginning with the notorious voiceless alveolar fricative /s/. Note at this point that /s/ upsets the general phonotactic pattern of word-beginning consonant sequences of English because the distribution of consonants is relatively free after a word-initial /s/ in English. The major phonotactic constraints holding in the English onset will be discussed in a separate section below. Bear in mind, however, that an English onset consists of maximally two consonants in the normal case, and

that this can be supplemented by a word initial /s/. In other words, if an English syllable begins with three consonants, the first one of these can only be the voiceless alveolar fricative /s/.

The coda, which is the rightmost – ultimate – constituent of the syllable, also hosts consonants, and it is – like the onset – an optional part of the syllable. If the coda is empty the syllable is said to be an open syllable, otherwise it is a closed syllable. The coda may contain maximally three consonants, which can be complemented by a further consonant as a result of suffixation. The coda is also a phonotactic domain although the constraints holding in this constituent are quite different from those obtaining in the onset. The general pattern is a cluster of the falling sonority type, i.e. unlike in onsets – where sonority rises in the default case – sonority shows a falling slope in codas. On the phonotactic constraints holding in the coda constituent cf. Subsection 8.3.3 below.

8.3 Phonotactics

When we examine the lexicon of a natural language, we notice very soon that consonants and vowels cannot be randomly strung together without restrictions. In fact, in all languages there are stringent constraints on how consonants and vowels can be sequenced, and these constraints are mostly language-specific. They are technically called phonotactic constraints, and they highlight the fact that words are not purely a random selection of segments figuring in the given language. To pick a very simple example, almost all speakers of English know that some letters that appear in spelling remain unpronounced when it comes to pronunciation. For example, one of the first facts about pronunciation taught to a beginner English student is that in the case of words beginning with a *kn* sequence in spelling the initial letter *k* remains silent; for example, *know* /nəʊ/, *knife* /naɪf/ and *knight* /naɪt/. This means that some consonantal combinations are impossible word-initially and hence syllable-initially in English. Note that this latter statement presupposes that syllable-initial sequences necessarily coincide with word-initial sequences, which is not necessarily true. This question, however, will not be dealt with at this introductory level.

Another famous example of word/syllable-initial phonotactics is the case of the letter sequence *ps*. While in Hungarian, for example, this sequence of letters is pronounced without any difficulty, in English the situation is radically different. Think of words such as *psychology* /saɪˈkɒlədʒɪ/, *psyche* /ˈsaɪki/, *pseudo* /ˈsjʊədəʊ/, *psalm* /sɑːm/, which exemplify the fact that word-initial */ps/ sequences are illegal in English. There are a number of phonotactic constraints holding word/syllable-initially, and these will be discussed in some detail in the following subsection.

8.3.1 Phonotactic constraints syllable/word-initially

This book follows the old-fashioned tradition whereby word-initial sequences are considered to be coexistent with syllable-initial sequences. This viewpoint has rightfully been questioned by a number of scholars of various theoretical standing. Nevertheless, the discussion of such theoretical details would take us far beyond the scope of the present course.

The most important generalisation regarding English onsets is that in the normal case they have maximally two positions for consonants. If there are three consonants in an English onset, the leftmost consonant must be an /s/. This distributional pattern shows that not any kind of consonant can initiate a triconsonantal cluster word/syllable-initially. In what follows, we will look at the distribution of English consonants in two-consonant word/syllable-initial clusters. It is a well-known fact about English syllable-initial consonant clusters that the distribution of consonants in the second position of such clusters is tightly constrained. For example, in a C_1C_2 syllable-initial cluster, C_2 can never be an obstruent. In other words, an obstruent can never follow either a sonorant or another obstruent in this position. Consider Table (2) below. We will now disregard clusters beginning with an /s/, because such clusters will be dealt with separately.

(2)

English C1C2 clusters beginning with an obstruent									
		second consonant							
		m	n	ŋ	l	r	j	w	h
first-consonant	p				√	√	√	---	
	t				---	√	√	√	
	k				√	√	√	√	
	b				√	√	√	---	
	d				---	√	√	√	
	g				√	√	√	√	
	f				√	√	√	---	
	θ				---	√	√	√	
	ʃ				---	√	---	√ ?	
	v				√ ?	√ ?	√ ?	---	
	ð				---	---	---	---	
	z				---	---	√ ?	---	
	ʒ				---	---	---	---	

By examining Table (2), it seems that the distribution of consonants in the second position of a C_1C_2 onset cluster is fairly defective. First of all, we do not find nasals and /h/ in the second positions of clusters exemplified by (2). This means that obstruents in general can be followed only by liquids and glides in this type of cluster. Furthermore, clusters beginning with /p/ and /b/ on the one hand and /t/ and /d/ on the other hand allow the same set of consonants to follow them; the bilabial stops cannot be followed by the labiovelar glide /w/, while the alveolar stops cannot be followed by the alveolar lateral /l/. This restriction is part of a wider constraint excluding homorganic consonants (consonants produced at the same place of articulation) in an onset cluster. As far as the velar stops are concerned, /k/ and /g/ can be followed by any of the liquids and glides (except /h/) although /gj-/ initial syllables are quite rare, cf. *gules* /gjuːlz/ and *gular* /ˈgjuːlə/.

The distribution of consonants in the second position of an onset cluster is even more constrained if the first consonant is a fricative. As it appears from Table (2) above, virtually no consonant can follow the voiced fricatives in an onset cluster, and this fact is indicated by the question marks after the tick. This means that although we find a few isolated examples for such clusters, they occur mostly in proper names of foreign origin or in onomatopoeic words, and therefore these clusters may not be regarded as systematic examples in this position. For example, /vl/ occurs in *vlog, Vlad, Vladimir, Vladislav*, /vr/ occurs in a single onomatopoeic word *vroom*, while /vj/ is attested only in *view*. The only examples for /zj/ are the Greek proper name *Zeus* /zjuːs/ and the words *exude* /ɪgˈzjuːd/, *exuberant* /ɪgˈzjuːbərənt/ and *exhume* /ɪgˈzjuːm/.

As for C_1C_2 onset clusters beginning with voiceless fricatives, the situation is slightly different; /f/ and /θ/ allow a relatively free distribution of liquids and glides in the second position of onset clusters. The only restriction is the homorganicity constraint, which bars homorganic consonants from occurring in an onset cluster, and therefore two labials */fw/ are excluded from this position. Interestingly */θl/ is also unattested in English. The remaining /ʃ/ can be followed only by /r/, while there are rarely heard examples for /ʃw/, such as the Hebrew *schwa* for the phonetic symbol of the English unstressed vowel, the pronunciation of German proper names such as *Schwartz* and *Schweitzer* or that of the brand name of the famous soft-drink *Schweppes.*

Let us now turn our attention to C_1C_2 onset clusters beginning with the voiceless alveolar fricative /s/.

(3)

English C1C2 clusters beginning with an /s/										
	second consonant									
1st C	p	t	k	f	m	n	l	r	j	w
s	√	√	√	√	√	√	√	---	√	√

It appears from Table (3) that a wider range of consonants can occur in the second position of C_1C_2 onset clusters where C_1 happens to be the voiceless alveolar fricative /s/. For example, the voiceless oral stops /p/, /t/ and /k/, the voiceless fricative /f/ and the non-velar nasals /m/ and /n/ can all occur in this position. Examples are *sport, steak, sky, sphere, smile* and *snake*. This kind of distribution is unusual, especially in light of the fact that all other obstruents can be followed only by sonorants in the second position of onset clusters. Moreover, out of liquids and glides, the post-alveolar /r/ may not occur in the second position of *s*C clusters, so */sr/ is excluded (except perhaps in *Sri Lanka*), while /sl/, /sj/ and /sw/ are possible, as in *slaughter, super* and *swan*.

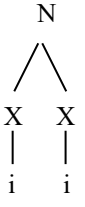
One more remark is due in connection with English C_1C_2 onset clusters; when the second consonant of these clusters is a /j/ this /j/ can only be followed by an /u:/ in the nucleus. This is one of the reasons why some phonologists regard this /j/ and the following /u:/ as a single unitary phonological unit, the complex vowel /ju:/ In other words, it is worth bearing in mind that the status of the palatal glide is quite different from that of the remaining consonants in this position. Without going into further theoretical details on the question of the complex vowel /ju:/, let us turn to the centre of the syllable, the nucleus.

8.3.2 Phonotactic constraints in the nucleus

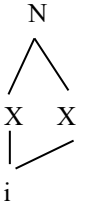
All the short and long monophthongs of English (except the schwa) can occur in the nuclei of English stressed syllables without displaying phonotactic interactions with the consonant(s) preceding them. This means that we can hardly detect any phonotactic interactions between the onset and the nucleus. This fact is frequently quoted as a piece of evidence in favour of the structure in (1) above where the onset is directly linked to the syllable node, whereas the nucleus and the coda form an intermediate constituent called the rhyme.

Long vowels are said to occupy two timing units represented by X-es, and as a result a nucleus containing a long vowel is said to dominate two X-es. Such nuclei are referred to as branching nuclei. Consider the representation in (4) below.

(4) (a)



(b)



According to (4a), the representation of a long /iː/ involves two timing units hosting the same vowel, i.e., identical phonetic material is found in both positions. Alternatively, the phonetic material can be lodged in the lefthand position, whence it spreads into the righthand position, (4b). This can also be viewed as a special type of phonotactic constraint, and the same applies to all the 5 long monophthongs of BrE RP. As far as diphthongs are concerned, note that in the case of closing diphthongs (/aɪ/, /aʊ/, /ɔɪ/, /eɪ/, /əʊ/) the second position is always occupied by a short high monophthong, whereas the second timing unit of centring diphthongs is always occupied by the /ə/. These three vowels (called *the offglides*) have a common property to be discussed in the next unit.

8.3.3 Phonotactic constraints in the coda

The coda has long been questioned as a syllabic constituent having legitimate theoretical status by some phonologists. Nevertheless, since this introductory coursebook does not provide space for theoretical argumentation, we will follow the old-fashioned syllabic division illustrated in (1) above. It must be noted that a maximal English coda can contain up to three consonants, which can be supplemented by a further consonant coming from a following suffix. Here we will completely disregard consonant clusters involving a consonant coming from a suffix, so the maximal cluster for our purposes will be composed of three consonants. Furthermore, since triconsonantal coda-clusters like the /mpt/ of *prompt* or the /ŋks/ of *jinks* are only sporadic, we will concentrate only on biconsonantal coda-clusters. We will start with C_1C_2 coda-clusters whose sonority seems to fall. Let us start with sonorant plus obstruent clusters in (5) below.

(5)

English C1C2 coda clusters beginning with a sonorant															
	second consonant														
first consonant		p	t	k	b	d	g	f	v	θ	ð	s	z	ʃ	ʒ
	m	√			√?								√		
	n		√	–		√						√	√?	√?	
	ŋ			√			√?								
	l	√	√	√	√	√	√?	√	√	√		√	√?	√	

It appears from Table (5) above that nasals are normally followed by homorganic stops, although some restrictions apply here. For example, /mb/ and /ŋg/ clusters are found word-medially *amber* /ˈæmbə/, *finger* /ˈfɪŋgə/ but never word-finally *lamb* /læm/ and *king* /kɪŋ/, and are therefore not regarded as real coda clusters.

The reason for this is quite simple: word-medially we find a relatively free distribution of consonants in consonant clusters compared to those found word-initially or word-finally. Nasals can freely be followed by homorganic voiceless stops both word-medially and word-finally but only alveolar nasal + homorganic stop voiced clusters are found word-finally, cf. *wind* or *kind*, for example. Moreover, nasal plus alveolar fricative clusters occur occasionally word-finally, cf., *Thames* /temz/, *hence* /hens/, *bounce* /baʊns/ and word-medially *frenzy* /ˈfrenzi/. Furthermore, palatalized /s/ occurs in the form of /ʃ/ in *mansion* /ˈmænʃən/, *tension* /ˈtenʃən/ type words, for example. The last three examples with /nz/ and /nʃ/, which again occur only word-medially, are not regarded as real coda clusters. Clusters that look like coda clusters at first sight but occur only word-medially are indicated with a question-mark after the tick in Table (5). Although they behave like bogus clusters from a distributional view, they also exhibit phonotactic interactions (place assimilation) diagnostic of coda clusters.

The distribution of obstruent consonants after the liquid /l/ is relatively free compared to those occurring after nasals. Think of words such as *pulp, kilt, bulk, bulb, bold, vulgar, golf, valve, health, pulse, Wales, Giles* and *Welsh*. Some of these are extremely rare, like /-lʃ/, /-lz/, /-lθ/, and /-lv/, while /-lg-/ seems to occur only word-medially as in *vulgar*, hence the question-mark after it in Table (5) above

As far as the remaining sonorant + obstruent coda clusters are concerned, consider Table (6) below.

(6)

English sonorant + affricate coda clusters			
first consonant	second consonant		
		tʃ	dʒ
	m		
	n	√	√
	ŋ		
	l	√	√

It appears from Table (6) above that English sonorant + affricate coda clusters are possible only if the sonorant is alveolar, or alveolar lateral, i.e., we encounter /-ntʃ/ and /-ndʒ/ clusters in *punch, bench, orange, dungeon* and *cringe*, for example, or /-ltʃ/ and /-ldʒ/ as in *belch* and *bulge*, but no other sonorant + affricate coda clusters are possible.

Let us now turn our attention to oral stop + obstruent coda clusters in (7) below. It is worthy of note that out of the 78 logical possibilities only 5 such different clusters seem to exist, which means that the combinatorial possibilities in this type of cluster are severely reduced.

(7)

English C1C2 stop + obstruent coda clusters														
	second consonant													
		p	t	k	b	d	g	f	v	θ	ð	s	z	ʃ
first consonant	p		√									√		
	t											√		
	k		√									√		
	b													
	d													
	g													

As noted above, we have very few stop + obstruent coda clusters in English. There are altogether 5 different clusters in this group: /pt/ as in *apt*, /ps/ as in *lapse*, /ts/ as in *Ritz* and *blitz*, /kt/ as in *act* and *fact*, and /ks/ as in *box* or *axe*. Note that affricates do not seem to figure in stop + obstruent coda clusters since we disregard clusters that occur only word-medially like /ktʃ/ in *lecture*, for example. Clusters that are attested only word-medially are regarded as bogus clusters since the syllable boundary will always lie between the consonants forming a bogus cluster. As a result, they can also be viewed as non-clusters. Real coda clusters must be able to occur word-finally besides occurring word-medially.

If we examine the nature of the clusters listed in (7) above, we can draw the immediate conclusion that clusters of this type are always voiceless, the C_2 consonant is always a voiceless alveolar stop or a fricative, while the first consonant is a voiceless stop; voiced stops are excluded from this combination of consonants. The clusters listed in (7) above seem to upset the sonority sequencing requirement inasmuch as the sonority value of the participating consonants does not fall towards the end of the word.

Consider now coda-clusters whose first consonant is a fricative and the second one is an obstruent. Fricative + affricate clusters, like the /stʃ/ in *posture* or *question* are disregarded again, since they occur only word-medially and are therefore regarded as bogus clusters.

By examining the distribution of consonants in English C_1C_2 fricative + obstruent coda clusters, we find a very defective distribution again, i.e., the distributional possibilities are severely curtailed. The clusters are uniformly voiceless again and, in fact, we find two such clusters if we disregard /sp/, /st/, /sk/ clusters that may also occur word-initially. These two clusters are /ft/ as in *raft, lift* and *loft* and the only example with /θs/ is *maths*, whose monomorphemic status is highly questionable. Clusters occurring exclusively word-medially, such as the voiced cluster /zd/ of *wisdom,* are disregarded again.

(8)

English C1C2 fricative + obstruent coda clusters														
		second consonant												
		p	t	k	b	d	g	f	v	θ	ð	s	z	ʃ
first consonant	f		√											
	v													
	θ											√		
	ð													
	s	√	√	√										
	z													
	ʃ													

The clusters /sp/ (*wasp, lisp, rasp*, etc.), /st/ (*list, post, toast*, etc.) and /sk/ (*risk, ask, desk*, etc.) also occur word-initially, cf. Table (3) above. The status of *s*C clusters will not be discussed further at this introductory level, but it is worth bearing in mind that these clusters may occur word-initially, word-medially and also word-finally.

8.4 Syllabification

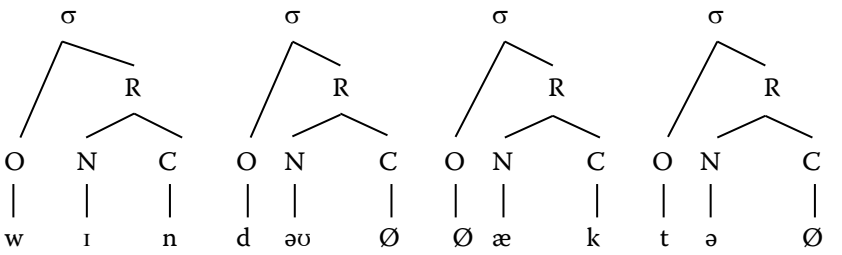
Following this short excursus on the basic phonotactic constraints of English, let us now turn to syllabification. Syllabification is a phonological problem and it is not equal to hyphenation, which is orthographic syllable division. The question of syllabification obviously arises only if we deal with polysyllabic words. We have seen the structure of monosyllabic words in (1) above, and we also noted that while consonants are optional constituents in the syllable, vowels in general are obligatory. Furthermore, while consonants occupy the margins of the syllable – onset and coda respectively – vowels occupy the nucleus in the default case. Only the latter constituent is obligatory, onsets and codas may be missing.

When it comes to polysyllabic words, the question of syllabification arises since it is not immediately evident whether the intervocalic consonant will occupy the coda of the left-hand syllable or the onset of the right-hand syllable. Vowels occupy the centre of the syllable, i.e., the nucleus, but the status of the intervening consonant(s) must be determined.

8.4.1 Consonant clusters impossible as onsets

Traditionally, there are two factors that seem to determine the position of intervocalic consonant(s). The first factor is whether the consonant cluster is a legal onset or not, i.e., whether the consonant sequence forms a phonotactically permissible word/syllable-initial cluster. If the answer is no, the syllable boundary will lie in between the two consonants forming the cluster. Consider *window* or *actor*. Since neither /nd/ nor /kt/ can begin English syllables, the syllable boundary will lie between the two consonants; *win-dow* and *ac-tor* respectively. Consider the representations in (9) below.

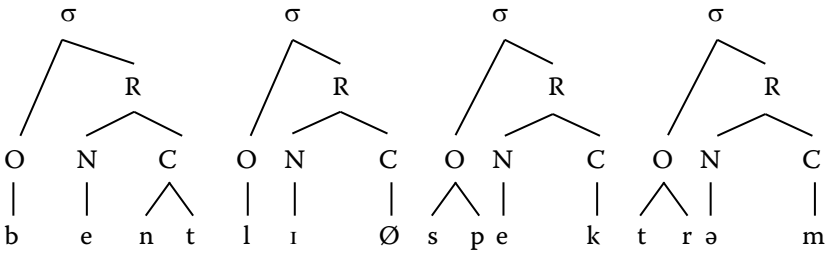
(9) (a) *window* (b) *actor*



It appears from the representations above that the syllable boundary lies clearly between the members of a cluster that is unable to form an onset. The same strategy applies in the case of triconsonantal clusters not forming a possible onset. This time there are two logical possibilities: either a legal biconsonantal coda is followed by a single member onset as in *Bent-ley* or a single member coda is followed by a branching onset as in *spec-trum*. In *Bent-ley* the situation is quite easy since a legal coda /nt/ is followed by a legal onset /l/. A different division is not feasible since /tl/ is not a possible onset as we have seen in Table (2) above, and consequently the hyphen occurs between *t* and *l*. *Spectrum* is somewhat different and looks a bit more complicated at first sight, since *kt* forms a legal coda in English (cf. *pact*) while *tr* forms a legal onset (cf. *trick*). The status of the medial /t/ will be determined by the so-called *Onset Maximization Principle*, which prescribes that an onset must be maximized whenever it is possible. This means that any sequence of consonants must be syllabified into the onset of the right-hand syllable if that sequence forms a possible onset in the given language. This is why we have chosen the syllable division *spec-trum* and not **spect-rum*. The theoretical background behind the Onset Maximization Principle will not be discussed in the present book.

Consider now the representations in (10) below showing the syllable structure of *Bentley* and *spectrum*.

(10) *Bentley* *spectrum*



It is quite clear from the representations in (10) above that syllable division is partly determined by the Onset Maximization Principle. Let us now turn our attention to consonants and consonant clusters that form permissible onsets.

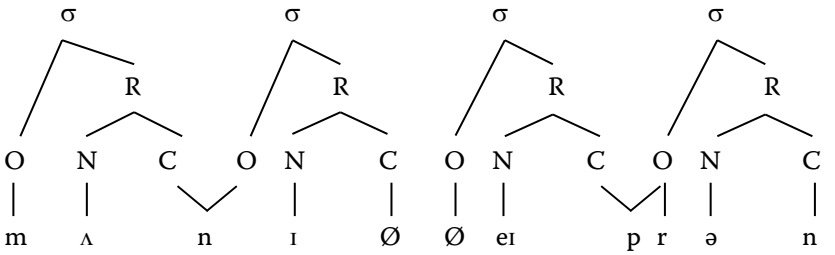
8.4.2 Consonants and clusters permissible as onsets

If the intervocalic consonant or consonant cluster forms a permissible onset, the stress pattern must be taken into consideration. There are three logical possibilities: the left-hand syllable is strong and the right-hand one is weak (unstressed); the left-hand syllable is weak (unstressed) and the right-hand one is strong; both syllables are weak (unstressed). Two adjacent stressed syllables are avoided due to *Stress Clash Avoidance*, which means that stressed syllables are practically never adjacent in English.

8.4.2.1 A stressed syllable followed by an unstressed syllable: ambisyllabicity

Let us explore the first possibility, i.e., when the left-hand syllable is stressed while the right-hand one is unstressed. Consider now the representations in (11).

(11) *money* *apron*



It appears from the representations in (11) that a single intervocalic consonant is linked both to the coda constituent of the left-hand syllable and to the onset constituent of the right-hand syllable if the left-hand syllable is stressed while the right-hand syllable is unstressed. This is called *ambisyllabicity,* and the

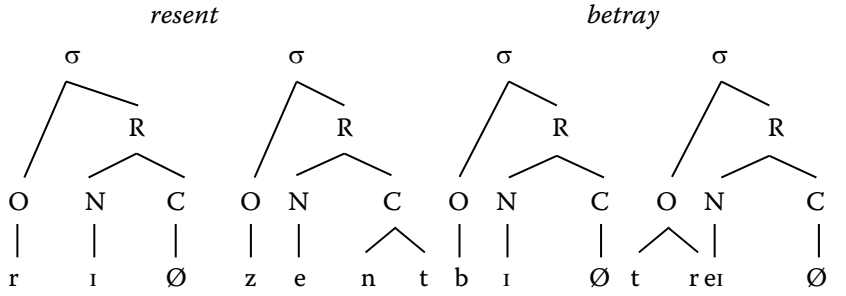
/n/ in *mo-n-ey* is ambisyllabic, i.e., belongs to both syllables. Ambisyllabicity ensures that a stressed syllable does not remain with an entirely empty coda constituent, it seems somehow to attract the intervocalic consonant into its coda sharing it at the same time with the following onset.

In *a-p-ron* only the first consonant of the permissible onset is invited to the coda of the preceding syllable, and therefore only /p/ will be ambisyllabic while /r/ will clearly remain in the onset of the right-hand syllable. Let us now turn our attention to lexical items where the prominence relations seem to be the opposite.

8.4.2.2 An unstressed syllable followed by a stressed syllable: onset maximization

The second possibility is when the left-hand syllable is unstressed while the right-hand one is stressed. In this case there are no ambisyllabic consonants since the consonant or the cluster permissible as an onset will occupy the onset of the second syllable. Consider the representations in (12) below.

(12)

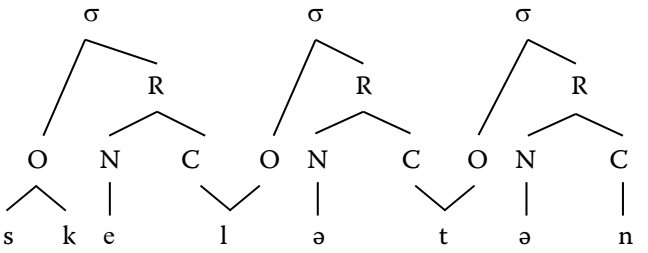


In both *re-sent* and *be-tray* the first syllable has an empty coda, i.e., the first syllable is an open syllable. This is the result of a conspiracy of two factors: the stress falls on the second syllable in both words, and the intervocalic consonant or consonant cluster forms a legal onset.

8.4.2.3 Adjacent unstressed syllables: ambisyllabicity

The word *ske-l-e-t-on* has two adjacent unstressed syllables; the second and the third. According to the discussion presented above the single /l/ intervening between the first and the second vowel will be ambisyllabic. This follows from the fact that the first syllable is stressed while the second is unstressed in this word. However, not only is the /l/ but also the /t/ intervening between the last two nuclei will also be ambisyllabic. This means that when we encounter a sequence of two unstressed syllables, we should treat them like stressed-unstressed sequences, cf. 8.4.2.1 above, i.e., ambisyllabicity applies again. Consider the visual representation of the syllable structure of *skeleton* below in (13).

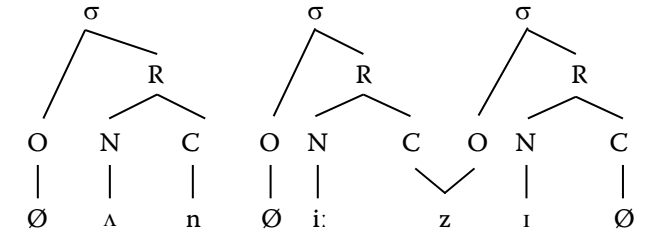
(13) *skeleton*



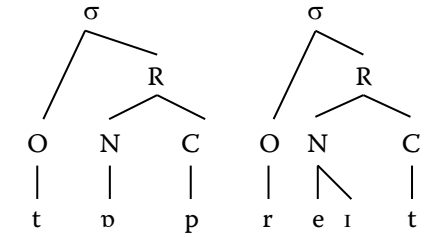
8.4.3 Morphological considerations

The syllabification rules presented above in 8.4.2 may be overridden by morphological considerations. For example, in *top.rate, un.easy, mis.calculate* and *rip.off* the syllable boundary will coincide with the morphological boundaries, and the above-mentioned syllabification rules (onset maximization, ambisyllabicity) do not apply. Consider the representations of *un-ea-s-y* and *top-rate* in (14) below. In the first case the syllable boundary coincides with the morphological boundary between the independent meaningful prefix *un-*, and the free stem *-easy,* while in the second case the syllable boundary coincides with the morphological boundary present in between the two elements of the compound word *top-rate*.

(14) *uneasy*



top rate



With the above-mentioned syllabification rules in mind, let us now turn to word-stress. It will be shown in the next unit that different syllable types may play a crucial role in determining the location of word-stress.

Unit 9

SUPRASEGMENTALS 2: DEGREES OF STRESS. BASIC REGULARITIES

9.1 Introduction

Stress is a suprasegmental phonological feature whose phonetic correlates are full vowel quality, loudness, and change of pitch. Languages like Hungarian have static word-stress; this means that the position of word-stress is virtually invariable. Stress in Hungarian generally falls on the first syllable of the word and remains therein after suffixation. Moreover, the difference between stressed and unstressed syllables is not sharp in Hungarian since all the vowels are pronounced with their full vowel quality. In other words, since there is no vowel reduction in Hungarian, the difference between stressed and unstressed syllables is not strengthened by the difference of vowel quality.

The situation in English is radically different; only a subset of the English vowel system occurs in an unstressed/weak syllable. As it was already pointed out back in Unit 2, the /ə/ is the primary unstressed vowel in English, but the vowels /ɪ/ and /ʊ/ and their corresponding short tense versions /i/ and /u/ can occur under special circumstances in weak syllables. This means that besides pitch change and loudness, the difference between stressed and unstressed syllables is marked by the difference in vowel quality. Moreover, English stress is kinetic, i.e., the position of the stress is not fixed in all occurrences of the same morpheme but depending on suffixation, for example, the stress can fall on different syllables.

The term *stress* is often replaced by the term *accent* in phonological parlance. This, however, is best avoided since it can cause terminological confusion: the term *accent* also refers to a host of other features in phonological description. For example, it means special properties of pronunciation, which roughly corresponds to Hungarian 'akcentus'. Secondly, it can also refer to an orthographic symbol, usually a diacritic mark, which corresponds to Hungarian 'ékezet'. And finally, it is also used as a term denoting the most prominent syllable of a sentence, which corresponds to the Hungarian 'mondatfőhangsúly'. Thus, in order to be able to escape a terminological jungle, it is best to refer to the prominent syllables of words as stressed syllables.

9.2 Degrees of stress and stress-marking

Another interesting property of English stress is that it is relative, and consequently it has several degrees. Mainstream textbooks make a difference between at least four different degrees of prominence. Two different types of stressed syllables are distinguished from two different kinds of unstressed syllables. The distribution of different degrees of stress is illustrated in Table (1) below.

(1)

stress type	*degree of stress*	*accent pitch*	*loudness*	*full vowel*	*examples*
stressed	1. primary	√	√	√	de**móc**racy, se**rén**ity
	2. secondary	–	√	√	**dè**mocrátic
unstressed	3. strong unstressed	–	–	√	cára**van,** hési**tate**
	0. weak unstressed	–	–	–	cá**ra**van, hé**si**tate

Table (1) illustrates four different degrees of prominence characterised by the presence vs. absence of special phonological properties, and the relevant syllables of the examples are shown in boldface.

Primary stressed syllables are characterised by all the three phonological properties and they count as the most strongly stressed syllables. The primary stressed syllable is characterised by pitch change, loudness and full vowel quality. This syllable can be the location of the accent and can carry phrasal or sentence stress. The secondary stressed syllable is one step weaker than the primary stressed syllable; it is still loud like the primary stressed syllable but it cannot be the location of the accent, and therefore no change of pitch is attested here. Secondary stressed syllables are also characterised by full vowel quality, and thus there is no vowel reduction in secondary stressed syllables. Strong unstressed syllables are traditionally referred to as tertiary stressed or minor stressed syllables, the latter term expressing the fact that traditionally primary and secondary stresses are considered major stresses. Strong unstressed syllables are not characterised either by pitch change or loudness, but they still have a full vowel. And finally, weak unstressed syllables are not characterised by any of the three properties listed in Table (1) above.

There are several methods of indicating stress but the usual practice nowadays is the use of the acute accent for primary stress and the use of the grave /grɑːv/ accent for secondary stress when the given word is not transcribed. This method is shown in (2) below.

(2)

refórm	horízon
rèformátion	hòrizóntal

In the shorter forms above, the second syllable is primary stressed, represented by the acute accent tilting rightwards. In the second line, the derived forms have two stresses, a secondary stress followed by a primary one. The secondary stress in both cases occurs on the initial syllable and is marked by the grave accent tilting leftwards.

When the lexical item is transcribed by IPA symbols, stresses are marked by vertical lines, and these vertical lines occur either as a superscript or as a subscript. Consider the relevant examples in (3) below.

(3)

rɪˈfɔːm	həˈraɪzən
ˌrefəˈmeɪʃən	ˌhɒrɪˈzɒntəl

Primary stress-marks thus occur before and over the segment starting the stressed syllable while secondary stress-marks occur before and below the segment starting the secondary stressed syllable.

9.3 Regularities governing the distribution of stresses

As we have seen, two degrees of stress are usually marked in phonetic transcription: primary and secondary stresses. In fact, according to the approach adopted in this book, we acknowledge only two types of stressed syllables. Note that if there are at least two stressed syllables in a word, the rightmost is the most strongly stressed syllable. In other words, a secondary stress can never follow the primary, i.e., there are no posttonic secondary stresses in English. Note that the most strongly stressed syllable of the word is also technically referred to as the 'tonic'. Consider the example in (4) below.

(4)

Primary and secondary stresses	
ùtilitàrianístic	/ˌjuːtɪlɪˌteərɪəˈnɪstɪk/

As the example in (4) above illustrates, the strongest stress of the word is always the rightmost of the stresses, i.e., the English stress system is right-dominant.

Another major rule regarding the distribution of stresses is that they are virtually never adjacent. There are handful of examples like *sardine* /ˌsɑːˈdiːn/ where

the secondary stress immediately precedes the primary, but this is so rare that we do not need to deal with these in the present course. According to the received terminology, stresses in English can never be adjacent since that would lead to a *stress clash*, and the English stress system strives to avoid stress clashes. This is often termed the '*Stress Clash Avoidance*' or the '*No Stress Clash*' constraint.

Another major constraint on the distribution of stresses is that one of the first two syllables of any English word must be stressed; either primary or secondary. This means that no English word may begin with two unstressed syllables, and this constraint is usually termed the '*Early Stress Requirement*'. One consequence of the conspiracy of this requirement and the Stress Clash Avoidance constraint is that if a given word has its primary stress on the third syllable, the first syllable will be automatically secondary stressed.

9.4 The relationship between primary and secondary stresses: iambic vs. derivational

We distinguish two different types of secondary stress depending on the position of the primary stress in the base with respect to the secondary stress in the corresponding derived form. First consider the examples in (5) below.

(5)

Iambic secondary stress	
reform /rɪˈfɔːm/	reformation /ˌrefəˈmeɪ ʃ ən/
horizon /həˈraɪzən/	horizontal /ˌhɒrɪˈzɒntəl/
oppose /əˈpəʊz/	opposition /ˌɒpəˈzɪʃən/
Japan /dʒəˈpæn/	Japanese /ˌdʒæpəˈniːz/

The primary stress in the left-hand column falls on the second syllable and there is vowel reduction in the initial syllable in each item. In the corresponding longer forms in the right-hand column, however, the primary stress is attracted towards the end of the word. Consequently, the primary stress falls on the third syllable in the derived forms, and the original primary stress should be reduced to secondary since there should only be a single primary stress in a word and the secondary always precedes the primary. The simple stress level reduction strategy is not available in the present case since this would lead to a stress clash with the secondary stress immediately preceding the primary. As it appears from the items in the right-hand column, the secondary stress is shifted one syllable leftwards and ultimately it appears on the initial syllable. This is called *iambic stress reversal*, and this seems to be an operation in order to avoid stress clash. The other option – deleting the

original primary stress of the base word in the derived form – is not feasible since that would leave the derived form with two consecutive unstressed syllables word-initially. This is clearly prohibited by the Early Stress Requirement constraint. The content of iambic secondary stress is that the original primary stress of the base form is demoted to secondary and is pushed one syllable leftwards. Obviously, the second syllable of the derived form will undergo vowel reduction, and thus there will be an unstressed syllable between the two stresses.

Derivational secondary stress differs from iambic secondary stress in that the position of the secondary stress of the longer form is directly derived from the position of the primary stress of the shorter form. In other words, there is no iambic reversal since no stress clash results from the reduction of the original primary stress to secondary. Consider the examples of derivational secondary stress below.

(6)

Derivational secondary stress	
purify /ˈpjʊərɪfaɪ/	purification /ˌpjʊərɪfɪˈkeɪʃən/
character /ˈkærɪktə/	characteristic /ˌkærɪktəˈrɪstɪk/
intensify /ɪnˈtensɪfaɪ/	intensification /ɪnˌtensɪfɪˈkeɪʃən/
invisible /ɪnˈvɪzəbəl /	invisibility /ɪnˌvɪzəˈbɪləti /

By examining the examples in (6), we can immediately notice that the location of the primary stress in the left-hand column is identical to the location of the secondary stress in the right-hand column. The reason for this distribution is that there is no need for iambic stress reversal in the items above because if we reduce the original primary stress of the left-hand column to secondary in the right-hand column, no stress clash results since there will always be at least one unstressed syllable between the two stresses. Moreover, there will always be stress either on the first or on the second syllable and thus besides the No Stress Clash Constraint, the Early Stress Requirement is also satisfied. The reason why the primary stress of the shorter forms migrates towards the end of the word in the longer forms will be discussed in the following sections.

9.5 Stress and word ending

The location of primary stress is very often determined by the word-ending. Some word-endings tend to be stressed, while others attract the primary stress of the word onto the immediately preceding syllable. This section concentrates on the relationship between primary stress and word-ending.

9.5.1 Stressed suffixes/endings

Some word endings (mostly of French origin) attract the primary stress of the word onto themselves. Some of these endings may be analysed as meaningful units, i.e. suffixes. These endings are listed in (7) below.

(7)

Stressed endings		
-ee /-iː/	-ese /-iːz/	-esce /-es/
-ique /-iːk/	-air(e) /-eə/	-oon /-uːn/
-ette /-et/	-eer, -ier /-ɪə/	-esque /-esk/

The endings in (7) are frequently referred to in the literature as *tonic endings*. It was already mentioned above at the beginning of this unit that the most strongly stressed syllable of the word is also called the *tonic* since this is the position where the pitch changes. The term *tonic ending* thus means that the ending will bear the strongest stress of the word. Consider now the examples in (8) below listing words with tonic/stressed endings.

(8)

Words with tonic endings
critique, antique, boutique, picturesque, Romanesque, picaresque, maroon, platoon, racoon, bassoon, Japanese, Portuguese, journalese, kitchenette, launderette, cassette, adolescent, refugee, settee, addressee, millionaire, questionnaire, debonair, career, brigadier, volunteer, coalesce

In the examples of (8) above the primary stress falls on the ending as in *critique* /krɪˈtiːk/ or *picturesque* /ˌpɪktʃəˈresk/. If the primary stressed ending is preceded by one syllable, that syllable will be unstressed. If, however, there are two syllables before the primary stressed ending, there will be secondary stress on the initial syllable since no English word may begin with two consecutive unstressed syllables.

9.5.2 Pre-stressed suffixes

There are some monosyllabic and disyllabic suffixes, endings and compounding elements that attract the stress on the immediately preceding syllable. Some textbooks refer to such suffixes and endings as *stress-fixing* or *stress-imposing* endings because they fix the stress on the preceding syllable. These suffixes may cause stress shift just like tonic endings. Let us examine monosyllabic pre-stressed suffixes first.

9.5.2.1 Monosyllabic pre-stressed suffixes

Consider Table (9) below listing monosyllabic pre-stressed suffixes with a couple of examples for each.

(9)

Pre-stressed suffixes	
+ic	symbólic, democrátic, dramátic, heurístic, fantástic, epidémic, phonétics, etc.
+id	inválid (*adj.*), intrépid, tímid, vívid, cándid
+ish (*v.*)	astónish, abólish, dimínish, demólish, extínguish, relínquish, replénish

There are a couple of counterexamples where a monosyllabic pre-stressed suffix does not attract the primary stress of the word onto the immediately preceding syllable. These are listed in (10) below.

(10)

Exceptions with pre-stressed suffixes	
+ic	ágaric, chóleric, aríthmetic, ársenic, rhétoric, pólitic(s), cátholic, lúnatic, héretic, Árabic
+id	ínvalid (*n.*)
+ish (*v.*)	impóverish

Note that besides the exceptions listed in (10), *-ish* deriving adjectives from different sources is not a pre-stressed suffix either, cf., *feverish* /ˈfiːvərɪʃ/, *devilish* /ˈdevɪlɪʃ/.

9.5.2.2 Disyllabic pre-stressed suffixes

There are a host of disyllabic pre-stressed suffixes that draw the primary stress of the word on the immediately preceding syllable and thus they occupy a post-tonic position. These are listed below in several groups.

9.5.2.2.1 General disyllabic pre-stressed suffixes

General disyllabic pre-stressed/post-tonic suffixes begin with a high vowel and there is a consonant between the two vowels. Some frequently occurring examples are listed in (11) below.

(11)

General disyllabic pre-stressed suffixes	
+ify (+efy)	indémnify, persónify, exémplify, idéntify, solídify, stúpefy
+itude	solícitude, exáctitude, simílitude
+ible	corrígible, divísible, incrédible
+itive	intúitive, repétitive, compétitive
+ity (+ety)	serénity, humídity, compléxity, banálity, socíety, varíety, personálity, populárity
+ular	spectácular, molécular, vernácular, perpendícular, triángular
+ulous	miráculous, metículous, ridículous

9.5.2.2.2 Disyllabic pre-stressed suffixes beginning with a glide-i or a glide-u

Suffixes beginning with a half-syllabic-*i* or a half-syllabic-*u* begin with a high vowel which is immediately followed by another vowel, and thus the initial vowel can be pronounced as a glide /j/ or /w/. Consider the examples in (12) below listing disyllabic post-tonic suffixes beginning with a half-syllabic-*i* or a half-syllabic-*u*.

(12)

Disyllabic pre-stressed suffixes beginning with a glide	
-ial	secretárial, congénial, celéstial, impérial, colónial, managérial
-ual	perpétual, resídual, contéxtual, habítual, intellectúal
-ious/-eous	courágeous, contágious, harmónious, Antónious, commódious
-uous	supérfluous, contínuous, conspícuous, innócuous
-ion/-ian	contemplátion, navigátion, compánion, delétion, cohésion, abolítion, technícian, academícian, mathematícian
-ience	obédience, expérience, convénience
-uate	perpétuate, exténuate, eváluate, accéntuate, disambíguate

9.5.2.2.3 Greek compounds

Compound words borrowed from classical Greek are usually composed of two bases where the stress falls immediately before the second compound element, which is usually a connecting vowel between the two bases. Consider the examples in (13) below.

(13)

Pre-stressed Greek compound elements	
-logy	bió-logy, criminó-logy, phonó-logy, morphó-logy, philó-logy, teleó-logy, astró-logy
-graphy	geó-graphy, pornó-graphy, photó-graphy, monó-graphy
-cracy	aristó-cracy, demó-cracy, theó-cracy, gerontó-cracy
-crisy	hipó-crisy
-meter	thermó-meter, diá-meter, baró-meter, kiló-meter
-tomy	aná-tomy, lobó-tomy
-thesis	antí-thesis, hypó-thesis
-sophy	philó-sophy, theó-sophy
-poly	monó-poly, oligó-poly
-lysis	aná-lysis, diá-lysis, pará-lysis
-pathy	antí-pathy, telé-pathy, psychó-pathy
-phrasis	perí-phrasis, metá-phrasis
-gamy	monó-gamy, polí-gamy
-menon	legó-menon, phenó-menon

9.5.2.2.4 Multiple suffixation with post-tonic suffixes

There are words in which several post-tonic suffixes occur. In these cases, the rightmost post-tonic suffix wins, i.e., the primary stress of the word will be placed immediately before the rightmost pre-stressed suffix. Study the examples in (14) below.

(14)

Multiple suffixation with post-tonic suffixes	
mónograph	monógraphy, monográphic
íntellect	intelléctual, intellectuálity, intellectualizátion
cónstitute	constitútion, constitutionálity, constitutionalizátion
cólony	colónial, colónialist, colonialístic
hístory	hístory, histórian, históric, historícity
cónstitute	constítuent, constitútion, constitutionálity
ácademe	acádemy, académic, academícian
phótograph	photógraphy, photográphic
hábit	habítual, habituálity
pérson	persónify, personificátion
téchnical	technólogy, technológical

9.5.3 Weak suffixes

There are a couple of suffixes which appear in nouns and adjectives and are frequently referred to as *weak suffixes*. These are *-al (-ar), -ant (-ent), -ous* and the so-called abstract *-y.* Interestingly, they all consist of a single syllable containing a weak vowel, so they are pronounced as /-əl, -ə, -ənt, -əs, -i/, as in *géner+al, éleg+ant, treménd+ous, análog+y.* These suffixes are not stress-fixing (post-tonic) suffixes but their appearance influences stress-assignment, since these suffixes are integrated into the structure of the word. When a word ends in one of these monosyllabic weak suffixes, the stress will mostly fall on the antepenultimate syllable of the word in accordance with the Basic Stress Rule for Nouns, cf. Section (10.4) in Unit 10 below. (Bear in mind that adjectives are stressed either according to the nominal stress pattern or according to the verbal stress pattern.) In words that have a heavy penult, the stress will fall on the penult as in *òriéntal* or *ànecdótal.* Consider the examples in Table (15) below.

(15)

Words with weak suffixes			
	Stress on the antepenult stress […1 0 0]	*Stress on the penult* stress […0 1 0]	
	"ópera" type cf. 10.4	*"veránda" type cf. 10.4*	*"aróma" type cf. 10.4*
-al, -ar /əl/, /ə/	oríginal partícular spectácular pívotal	òriéntal paréntal hòrizóntal revérsal	anecdótal alveólar
-ant, -ent -ance, -ence -ancy,-ency /-ənt/, /-əns/, /-ənsi/	président, -cy extrávagant, -ce intélligent, -ce éloquent, -ce	resístant, -ce persístent, -ce emérgence impórtant, -ce	compónent defíant, -ce oppónent
-ous /-əs/	anónymous synónymous ridículous metículous	treméndous horréndous moméntous	desírous
y /-i/	anómaly anátomy ecónomy geómetry		

Let us now look at a couple of examples where weak suffixes induce stress shift.

(16)

Weak suffixes inducing stress shift	
órigin – orígina**l**	/ˈɒrɪdʒɪn/ – /əˈrɪdʒənl/
sýnonym – synónymous	/ˈsɪnənɪm/ – /sɪˈnɒnɪməs/
órchestra – orchéstral	/ˈɔːkəstrə/ – /ɔːˈkestrəl/
míracle – miráculous	/ˈmɪrəkl/ – /məˈrækjʊləs/
fámily – famíliar	/ˈfæm(ɪ)li/ – /fəˈmɪlɪə/
phótograph – photógraphy	/ˈfəʊtəgrɑːf/ – /fəˈtɒgrəfi/

Words with weak suffixes seem to follow the Basic Stress Rule for Nouns, cf. Section 10.4 below. In, for example, *fámily* /ˈfæmɪli/ the stress falls regularly on the antepenultimate syllable. In *famíliar* /fəˈmɪlɪə/, however, the stress seems to move from the first syllable onto the second, and this gives the impression that the weak suffix drags the primary stress towards the end of the word. In sum, a weak suffix increases the number of syllables by one, and therefore the stress must also "move" one syllable towards the end of the word.

9.5.4 Stress-neutral suffixes

Suffixes belonging to this category have no effect on the placement of the primary stress, i.e., they do not attract the primary stress towards the end of the word. Stress-neutral suffixes are listed in (17) below.

(17)

Stress-neutral suffixes	
# (e)s	# able
# ed	# ful
# ing	# less
# ly	# ize
# er	# ist
# or	# ism
# ness	# ish (*adj.*)
# hood	# y (*adj.*)
# ment	

No matter how many stress-neutral suffixes are added to a base, the stress remains in the position where it is in the base. In other words, the stress pattern of the base is not influenced by stress-neutral suffixes. Consider the examples in (18) below.

(18)

Lexical items with stress-neutral suffixes	
sócial	sócially, sócialize, sócialist, sócializing, sócialism, sócializes
ánalyse	ánalyses, ánalysing, ánalysable, ánalysingly
récognize	récognizes, récognized, récognizing, récognizable, récognizably
críminal	críminals, críminalize, críminalizes, críminalizing, críminalizingly
éducate	éducated, éducating, éducator, éducatingly
nátional	nátionalize, nátionalist, nátionalism, nátionally
mánage	mánageable, mánaging, mánages, mánagement
pátronize	pátronizes, pátronizing, pátronizingly

To conclude this unit, let us now examine some examples with mixed suffixes. stress-neutral suffixes do not influence the placement of the stress, while post-tonic suffixes and tonic endings do. Secondary stresses are not marked in the table below.

(19)

Lexical items with mixed suffixes	
nátion	nátions, nátionhood, nátionless, nátional, nationálity
cólony	cólonize, colonizátion, colónial, colónialist, colonialístic
sólid	solídify, solidificátion, solídity, sólidly
módify	módifies, módifying, modificátion
éducate	éducated, éducating, éducator, educátional, educátionist
ecónomy	ecónomist, ecónomize, económic, económics
ánalyse	ánalyses, ánalysing, ánalysable, análysis, anályses
pérson	pérson, pérsonally, persónify, personificátion

Unit 10

SUPRASEGMENTALS 3: PREDICTING WORD-STRESS

10.1 Introduction

We have pointed out in Unit 9 above that the Hungarian stress system differs from the English one in a number of respects. First of all, while Hungarian word-stress is static, the English stress system is kinetic, i.e., stress can move from one syllable to another depending on suffixation, for example. Secondly, unstressed syllables in English tend to undergo vowel reduction, while this is not true of Hungarian. And thirdly, the English stress pattern is said to be quantity sensitive, i.e., the location of the primary stress is often determined by the weight of the syllable. Some phonologists claim that the English stress system is entirely unpredictable and it is best to memorize the stress pattern of each and every word one by one.

It is true that one can always find a large number of counterexamples to each stress rule. Nevertheless, we believe that there are strong tendencies that can be regarded as regularities – if not rules – and that English stress is at least partially predictable.

In order to be able to predict the location of the primary stress, we need to take three different pieces of information into consideration: first, we need syntactic information, i.e., we need to know the word-class the given item belongs to. Secondly, we need morphological information, i.e., we need to know whether the given word is simple or complex, prefixed or suffixed, or whether it is a compound. And thirdly, phonological information is also necessary, inasmuch as the nature of the last two syllables plays a crucial role in stress assignment. As an example, we will examine the Basic Stress Rule for Verbs in the next section.

10.2 The Basic Stress Rule for Verbs

Once we have identified the lexical category of the word, the Basic Stress Rule takes phonological properties of the word into consideration when assigning primary stress. Consider the examples given in (1) below and find the factors responsible for the placement of stress.

(1)

Disyllabic verbs with heavy ults	
deléte	persíst
regáin	defénd
denóunce	evólve
belíeve	preténd
enjóy	eléct
refráin	eréct
deláy	repént

The words in (1) above have two phonological properties in common: on the one hand, they are all disyllabic (consist of two syllables), on the other hand, they all have a heavy ult. In other words, their final syllable is heavy. A heavy syllable is said to have a rhyme which contains either a long vowel, or a short vowel followed by at least two consonants. Interestingly, the characterisation of syllable weight makes reference only to the rhyme constituent of the syllable and completely disregards the onset constituent. Consequently, we can rightfully talk about heavy and light rhymes rather than heavy and light syllables, and this constitutes another strong argument in favour of the syllabic division presented in Unit 8 above where the onset constituent seems to be completely independent of the nucleus and coda constituents. In sum, the lexical items presented in (1) above are said to have a heavy ult since the rhyme of the final syllable contains either a long vowel followed by any number of consonants including zero (the left-hand column) or a short vowel followed at least by two consonants (the right-hand column). The first part of the Basic Stress Rule runs as follows: disyllabic English verbs having a heavy ult are stressed on the ult.

Let us now see what happens when the verb still has a heavy ult but it is longer than two syllables. Consider the items given in (2) below.

(2)

Verbs with a heavy ult and longer than two syllables	
délegate	ímplement
sátisfy	súpplement
ínstitute	cómplement
perámbulate	cátapult
pénalize	
réctify	
intímidate	
próphesy	

It appears from (2) above that verbs longer than two syllables having a heavy ult will be stressed on the antepenult, i.e., on the third syllable from the end of the word. The final syllables in (2) will be strong unstressed syllables having a full vowel and thus the stress pattern of these words will be 1 0 3.

It is worth bearing in mind that the stressing of verbs having a heavy ult depends on the number of syllables the verb consists of. Let us now see the stressing of verbs having a light ult, i.e., a final rhyme containing a short vowel followed maximally by one consonant.

(3)

Verbs with light ults
vómit
astónish
elícit
cóvet
réckon
rável
súmmon
hárass
devélop
abándon
replénish

It appears from Table (3) that verbs having a final light rhyme are stressed on the penult regardless of the number of syllables the verb consists of. It is important to emphasize once again that there are two factors that determine the operation of the Basic Stress Rule for English verbs: the number of the syllables the verb consists of and the weight of the final syllable/rhyme. It is for the latter fact that we regard English stress as quantity-sensitive.

If we want to correctly predict the location of the primary stress in English verbs, the first question we need to ask is whether the final rhyme of the given verb is heavy or light. If it is light, no more questions are necessary because the verb will be stressed on the penult. If the final rhyme is heavy, however, we need to take a further step by inquiring about the number of the syllables the verb consists of. If it consists of two syllables, the verb will be stressed on the ult, if it consists of more than two syllables, the verb is stressed on the antepenult.

Besides the phonological factors, morphological considerations also play an important role in predicting the location of primary stress in verbs, and therefore, the Basic Stress Rule must be complemented by morphological stress rules.

10.3 Morphological considerations

The Basic Stress Rule does not take morphological considerations into account but it operates purely on the basis of syntactic and phonological information. The internal morphological make-up of the word, however, can influence the assignment of primary stress in verbs. Just like the suffixes – listed in Unit 9 – that can alter the stress pattern of the base they are attached to, prefixes can also interfere with the Basic Stress Rule for Verbs. Without going into the subtle details of different types of prefixes, we will make a distinction between two sets of prefixes: stress-neutral prefixes that leave the stress pattern of the base unaltered, and Latinate prefixes that interfere with the Basic Stress Rule in assigning stress to English verbs.

10.3.1 Stress-neutral prefixes

Stress-neutral prefixes are mostly of Germanic origin, they have an independent, identifiable meaning, are usually stressed themselves and therefore are considered analytic. As a result, they are symbolized with the # boundary to show that they are attached to free stems and that they are independent of their base. Since these prefixes do not interfere with the stressing of the base and are stressed themselves, they will carry secondary stress in the resulting prefixed verb. This of course can lead to a situation that appears to be a stress clash at first sight, especially if the prefix is monosyllabic and the base is stressed on the first syllable. In this case a 2 1 stress pattern results, which was termed a stress clash in Unit 9 above. Note, however, that in these cases the secondary and the primary stresses will be divided by an analytic boundary and the stress clash avoidance requirement holds within non-analytic domains. In other words, the 2 1 stress pattern is regarded as legal if they are separated by a word boundary, 2#1. Consider the examples in (4) below containing stress-neutral prefixes.

(4)

Stress-neutral prefixes with examples	
de#	de#activate, de#classify,de#forest, de#frost, de#ice
re#	re#activate, re#analyse, re#read, re#write, re#nominate
pre#	pre#fabricate, pre#destinate, pre#occupy, pre#suppose
out#	out#balance, out#number, out#stretch, out#stay, out#grow
un#	un#button, un#leash, un#pack, un#mask, un#ravel
mis#	mis#guide, mis#calculate, mis#understand, mis#spell
up#	up#hold, up#turn, up#holster, up#set, up#root
fore#	fore#tell, fore#see, fore#close, fore#stall
over#	over#lap, over#throw, over#flow, over#look, over#simplify
under#	under#go, under#estimate, under#pin, under#line, under#mine

All the prefixes listed in (4) carry secondary stress and the primary stress is on the base. The prefixes are completely independent of the base so that by removing the prefix the base still constitutes a free morpheme, and the stress pattern of the base is not at all influenced by pre-fixation.

10.3.2 Latinate prefixes

Some English prefixes have come from Latin either directly or through French transmission. These prefixes are collectively referred to as Latinate prefixes and they differ from Germanic prefixes in a number of respects. First, Latinate prefixes have no independent meaning, they are unstressed and are traditionally linked to the stem with the = boundary symbol. It is also important to note that some Latinate prefixes (especially *pre=*, *re=*, and *de=*) seem to be homophonous with some of the Germanic prefixes at first sight. These prefixes will ultimately sound differently since contrary to the Germanic prefixes, the Latinate ones will be completely unstressed. Note that although the two sets are spelt the same way, they have nothing in common and have different status in English morphology. Consider now the monosyllabic Latinate stems combined with monosyllabic Latinate prefixes in (5) below.

(5)

Monosyllabic Latinate bases with monosyllabic Latinate prefixes	
Heavy stem	*Light stem*
pro=trúde	de=mít
pre=súme	com=pél
se=léct	re=pél
re=sént	con=féss
de=fénd	re=bút
re=jéct	re=gréss
con=fíne	re=mít
de=tráct	o=mít

According to Table (5), a monosyllabic Latinate stem preceded by a monosyllabic Latinate prefix is primary stressed on the stem regardless of whether the stem constitutes a heavy syllable (left-hand column) or a light syllable (right-hand column). The items in the left-hand column are not problematic since the Basic Stress Rule would equally assign primary stress to the second syllable given that the ult is heavy. Were it not for the morphological stress rule, however, the items in the right-hand column should receive primary stress on the first syllable according to the Basic Stress Rule for Verbs, given that the ult

is light in these cases. This is when the morphological stress rule intervenes and requires the stem to be stressed regardless of the nature of the ult. So, the bottom line of the argument is that monosyllabic Latinate prefixes followed by monosyllabic Latinate stems are stressed on the stem. The stress pattern of these words will thus be 0 1.

Interestingly, the same holds true of lexical items consisting of a monosyllabic Latinate stem preceded by disyllabic Latinate prefixes. Consider the list given in (6).

(6)

Monosyllabic Latinate bases with disyllabic Latinate prefixes
còntra=véne, còntra=díct, ìntro=dúce, ìnter=rúpt, sùper=séde, ìnter=séct

The items in (6) will ultimately all be primary stressed on the ult. Recall that according to the Basic Stress Rule for Verbs these items should all be primary stressed on the initial syllable were it not for the morphological stress rule. According to the Basic Stress Rule for Verbs, verbs ending in a heavy ult/rhyme and having more than two syllables are stressed on the antepenult, e.g., *satisfy*. Here, however, the Latinate morphological boundary intervenes and keeps the primary stress on the Latinate stem. Moreover, secondary stress will be assigned to the initial syllable of the prefix given the Early Stress Requirement, which prescribes that one of the first two syllables of any English word must be stressed. As a result, the words in (6) above will have a 2 0 1 stress pattern.

Another group of words with monosyllabic Latinate prefixes contain disyllabic stems ending in a light rhyme. In these items the Basic Stress Rule for Verbs seems to conspire with the morphological stress rule in determining the location of primary stress. Consider the examples in (7) below.

(7)

Monosyllabic Latinate prefixes with disyllabic stems ending in a light ult rhyme
de=vélop, re=mémber, de=término, re=línquish, ex=híbit, de=líver, con=síder

The items in (7) satisfy the requirements of both the Basic Stress Rule for Verbs and the morphological stress rule. On the one hand, the primary stress falls on the stem, while on the other hand, it also falls on the penult since the ult is light. The prefix will naturally remain unstressed since nothing forces it to become stressed, as the Early Stress Requirement is satisfied by the primary stress occurring on the second syllable of the word, which is at the same time the first syllable of the stem. The stress pattern of the words occurring in (7) will thus be 0 1 0.

The next large set of words containing Latinate prefixes will consist of words with multiple Latinate prefixes and a monosyllabic heavy stem, which is at the

same time functions as the ult. Study the items in (8) below and observe the position of the primary stress.

(8)

Multiple Latinate prefixes with a monosyllabic heavy stem
rè=sur=réct, rè=col=léct, rè=pre=sént, rè=pre=hénd, còr=re=spónd

The words in (8) satisfy the morphological stress rule since the primary stress occurs on the stem. They, however, violate the Basic Stress Rule for Verbs since the ults in (8) are all heavy and the verbs are longer than two syllables. Recall that according to the Basic Stress Rule for Verbs, verbs having more than two syllables and a heavy ult should be primary stressed on the antepenult. Here, however, the morphological boundary overrides the effect of the Basic Stress Rule for Verbs and the primary stress will be on the final syllable, which is the stem. The first syllable in each of the above verbs will ultimately be secondary stressed in order to live up to the expectations of the Early Stress Requirement.

The final set of words that contain Latinate prefixes consists of lexical items whose internal structure contains a Latinate prefix, a root plus a synthetic (+ boundary) suffix. The words in (9) below exemplify this constellation.

(9)

Latinate prefixes followed by a base plus a synthetic suffix
ím=plic+ate, im=pérson+ate, ré=cogn+ize, intér=rog+ate, in=démn+ify

The items in (9) all obey the Basic Stress Rule for Verbs and the morphological stress rule has no effect on them. Since the ults are all heavy and the words are longer than two syllables, primary stress will be assigned to the antepenultimate syllable, which can be part of the root as well as the prefix depending on how many syllables the suffix and the root consist of.

Although there are a number of further details concerning the stressing of English verbs, we will stop at this point and we will turn our attention to the Basic Stress Rule for Nouns.

10.4 The Basic Stress Rule for Nouns

When we examine the stressing of English nouns, the first property we have to examine is the number of the syllables the noun consists of. Recall that in the case of the Basic Stress Rule for Verbs the first question was whether the

ult was heavy or light. Consider the examples in (10) below illustrating the stressing of disyllabic English nouns.

(10)

Disyllabic English nouns	
Heavy ult	*Light ult*
gárment	lórry
státue	bónus
wíndow	prómise
párent	tícket
sérpent	táble
téxtile	mánner
núance	bútter
réptile	cólon

It appears from (10) above that disyllabic nouns are always stressed on the first syllable, regardless of whether they have a heavy ult or a light ult. This obviously is not true of nouns having tonic endings since these will always be end-stressed. Moreover, this generalisation will have a number of exceptions, which need not concern us here at this introductory level.

Turning our attention to nouns longer than two syllables, the next property we have to examine is whether the final syllable has a long vowel or a short vowel. If the final syllable has a long vowel, the Basic Stress Rule for Nouns will assign primary stress to the antepenultimate syllable. Consider the examples in (11) below.

(11)

English nouns with more than 2 syllables and a long vowel in the ult
ámplitude, húrricane, áppetite, véstibule, dínosaur, níghtingale, insécticide, álibi

Nouns longer than two syllables having a short vowel in the final syllable fall into two groups. They will be stressed either on the penult or on the antepenult depending on whether the penult is heavy or light. If the penult is heavy, the noun will be stressed on the penult, while if the penult is light, the noun will be stressed on the antepenult. The penult will, of course, be regarded as heavy if it has a long vowel or if the short vowel is followed by a consonant in the same syllable (a closed syllable). Consider now the examples in (12) below illustrating English nouns of at least trisyllabic length having a short vowel in the final syllable.

(12)

English nouns longer than 2 syllables with a short vowel in the ult	
Heavy penult	*Light penult*
horízon	compárison
amálgam	cínema
agénda	ánimal
propagánda	ópera
aróma	élephant
uténsil	véteran
diplóma	cáravan
veránda	skéleton
Aláska	evángelist
inspéctor	fántasy
ellípsis	cóurtesy
repúblic	vítamin

In the left-hand column of Table (12) above, we have listed nouns whose final syllable contains a short vowel but whose penult is also heavy either because it contains a long vowel or because it contains a short vowel closed by a consonant in the same syllable (a short vowel followed by 2 consonants). These nouns will, of course, be stressed on the penult. The nouns in the right-hand column, however, all have a light penult since the second syllable from the end contains a short vowel not followed by a consonant in the same syllable. Since the penult is light, quantity sensitive stress springs over to the preceding (antepenultimate) syllable.

Note that the left-hand column in (12) has a number of exceptions including *pédestal, mínister, cánister, ármistice, bárrister,* which indicates that an exhaustive discussion of English stress requires more thorough research into further details including the role of certain endings, suffixes. This course, however, is not designed to discuss all the details of English word-stress but it merely touches on the factors that influence the assignment of primary stress in English, and the interested reader is invited to consult specialised textbooks on English stress for further details (cf. the Bibliography at the beginning of this volume). We will instead close this unit with a short excursus on end-stressed nouns and compound stress.

10.5 End-stressed nouns

The Basic Stress Rule for Nouns does not cover all the stress patterns that are attested in the stressing of English nouns. In spite of the Basic Stress Rule for Nouns, a number of English nouns are stressed on the ult. Consider the examples in (13) below.

(13)

Nouns with a stressed ending
[…0 1] paráde, racóon, antíque, kitchenétte, settée, cigarétte, brigadíer, employée

The examples above contain stressed endings, and hence will be stressed on the ult. Consider now some examples that are converted from verbs and will thus follow the verbal stress pattern.

(14)

Nouns following the verbal stress pattern
[0 1] a debáte, a retúrn, a surpríse, a demánd, an arrést, the reséarch, a deláy

It appears from the examples in (14) above that some of the nouns that are converted from verbs will preserve the verbal stress pattern and will thus be end-stressed.

The picture is further complicated by examples whose final syllable contains a long vowel but there is no other particular reason why the stress should fall on the ult. If such a noun consists of three syllables, the initial syllable will be secondary stressed, cf. (15) below.

(15)

End-stressed nouns without explanation (contain a long-vowelled ult)
[0 1] políce, machíne, canóe, regíme, Perú, domáin, giráffe
[2 0 1] màyonnáise, màgazíne, màrgaríne, kàngaróo

Another complication is caused by a small number of unusually end-stressed nouns that contain a short vowel in the ult, cf. the examples in (16) below.

(16)

Unusually end-stressed nouns with a short-vowelled ult
[0 1] evént, hotél, canál, Japán, Berlín, succéss, penúlt, expénse
[2 0 1] àrabésque, Bùdapést, pèrsonnél, vìolín

The existence of end-stressed nouns suggests that one should be really cautious when making strong statements about English word-stress rules. The reason for this is that both the Basic Stress Rule for Verbs and the Basic Stress Rule for Nouns have a relatively large number of exceptions, and probably this is why they are referred to *basic* rules since they express tendencies rather than absolute regularities.

A number of further details concerning English word-stress could be discussed but such a step would take us far beyond the scope of this introductory level. The interested reader is referred to more advanced textbooks on English suprasegmental phonology. Cf. the bibliography at the beginning of this volume.

10.6 Compound stress

A compound word consists of two or more independently existing words, e.g. *bookshelf, armchair, air-condition, river bank*. Some compounds may consist of more than two words, e.g., *railway station attendant*, *English language teacher*.

The spelling of English compounds is not at all consistent: some of them are written as one word (*bookshelf, armchair, watertight, freemason*), some with a hyphen (*air-conditioner, baby-sitter, free-liver*), but most compounds are written as two words (*weather forecast, department store*). Note that there is again a certain degree of inconsistency in the spelling of a large number of compounds. For example, *weather forecast* is frequently written with a hyphen as *weather-forecast*. Since, however, spelling is a matter of social convention rather than a phonological regularity, we will disregard it in the remaining subsections of this book, and will concentrate on the stressing of compounds.

It must also be emphasized that compound words very often have a special meaning, i.e., the meaning of compounds is not always transparent. This means that the meaning of a compound word is not always predictable from the meaning of its constituent parts. For example, a *blackbird* is a special kind of bird, not just any bird which happens to be black. Likewise, *blackberry* is a special kind of berry (bogyó), which is not necessarily black and *blueberry* is a special kind of berry, which is not necessarily blue. This means that the meaning of compounds is not always compositional or transparent, as it were.

English compounds may be initially-stressed, i.e., stress may fall on the leftmost element, (e.g., *bóokshelf, Dówning Street, drúg abuse, tín-opener*) or finally-stressed with the stress falling on the second element (e.g. *rùbber bóots, Scòtland Yárd, dòuble-décker*). The length of the compounds is completely irrelevant, the stress pattern follows more from the semantic relationship existing between the elements of the compound. Note that initially stressed compounds are frequently referred to as *true compounds* while finally stressed

compounds (that seem to follow the stress pattern of phrases) are often called *pseudo compounds*.

10.6.1 True (initially-stressed) compounds

True compounds are stressed on their initial element while the second element remains strong unstressed. In other words, the second element loses its stress but the vowel retains its full character, it does not reduce to a weak vowel. The reason for this is that secondary stress never follows the primary. The stress pattern of these words will be 1 3. Consider the examples in (17) below illustrating true compounds of English.

(17)

English true compounds	
bóokshelf /ˈbʊkʃelf/	wátertight /ˈwɔːtətaɪt/
ráilway station /ˈreɪlweɪ steɪʃən/	búsiness class /ˈbɪznɪs klɑːs/
tín-opener /ˈtɪn əʊpənə/	báby-sitter /ˈbeɪbɪ sɪtə/

This kind of stress pattern resembles the Hungarian compound stress pattern as in (e.g. ***lágy**tojás* or ***hagyma**ültetvény*).

10.6.1.1 True compounds across lexical categories

True compounds may belong to different lexical categories (word classes). Consider the examples in (18) below.

(18)

True compounds (nouns)			
wáterfall	**bríe**fcase	**skáte**board	**drínking** water
bookshelf	**ásh**tray	**chócolate** bar	**dráma** society
ármchair	**órange** juice	**Báker** street	**stóck** market
hóusewife	**políce** station	**Chrístmas** party	**dríver's** licence
móon-light	**exám** paper	**convéyor** belt	**désk**top
héad-hunter	**book**case	**míle**stone	**fínger**print
ríver bank	**fréezing** point	**Líberal** party	**depártment** store
quéstion mark	**ráilway** station	**túrning** point	**exchánge** rate

In the examples of (18) above, the right-hand element is always a noun just like in the examples of (19) below. The only difference is that the second element of the compound nouns in (19) are derived from a verb by attaching the *-er* or the *-ing* suffixes.

(19)

*True compounds whose second element is Verb-*er *or a Verb-*ing			
fólk singer	**shóp**lifting	**héad**-hunter	**fúnd**raising
lánguage teacher	**spéech**-writer	**mátch**maker	**róom** sharing

Compound nouns derived from corresponding phrasal verbs may be spelt with a hyphen or as one word. Consider the examples below.

(20)

True compounds derived from phrasal verbs			
a **ríp**-off	a **bláckout**	a **shów**-off	a **sét**back
a **dríve**-in	a **cráckdown**	a **sét**up	a **fáll**-back

Some true (initially-stressed) compounds are adjectives. They can also be spelt with a hyphen, or as one word, or as two separate words. The second element of the compound is an adjective. Consider the examples in (21) below.

(21)

Adjectival true compounds			
wátertight	**póverty**-stricken	**séa**sick	**héart**broken
sún-loving	**chéstnu**t coloured	**sóul**-destroying	**íll**-fated

True compounds may also function as verbs, especially if the second element of the compound is a verb. Check the examples in (22).

(22)

Verbal true compounds			
to **cháin**-smoke	to **dówn**grade	to **cóunter**sign	to **bélly**-dance
to **áir**-condition	to **báby**-sit	to **óut**líne	to **sún**bathe

As it appears from the examples in (18) to (22), compounds stressed on the first element may be spelt as a single word, or with a hyphen, or as two separate words. Compounds spelt as two separate words (*disc jockey, exchange rate, drinking water,* etc.) are often referred to as *invisible compounds* since the spelling does not indicate that the elements are to be pronounced as one word.

The stressing may be crucial in some cases because faulty stressing may lead to misunderstanding. Consider the examples in (23) below.

(23)

Phrasal constituent *both words are stressed*	*True compound* *the first word is stressed*
He is an **Èng**lish **téa**cher a teacher who is English, and does not necessarily teach English	He is an **Éng**lish teacher a teacher who teaches English, and is not necessarily English by nationality
She watched the **sùn sét**. noun + bare infinitive	She watched the **sún**set compound (corresponds to "naplemente")
He has a **rèd néck** adjective + noun	He is a **réd**neck compound noun "boorish person"

10.6.2 Phonologically obscured compounds

In a small group of initially-stressed compounds the second element contains a reduced vowel, e.g. *saucepan* /ˈsɔːspən/ or *necklace* /ˈnekləs/. These words are referred to as *obscured compounds* because they have become a single word in actual pronunciation and only the spelling suggests that the given item used to consist of two independent words. They are always stressed on the original initial element and the second element has lost its stress. This means that the native speaker does not treat these items as compounds but as monomorphemic units. And indeed, these words sound exactly like monomorphemic words such as *matter* /ˈmætə/ or *ladder* /ˈlædə/, where the initial syllable is stressed and the second is unstressed. This also means that the word boundary between the two items has been blurred and the word behaves as a real monomorphemic unit. Phonologically obscured compounds constitute a special (limited) group of words, whose pronunciation must be memorized one-by-one.

(24)

Phonologically obscured compounds	
nónsense /ˈnɒnsəns/	**bács**kwards /ˈbækwədz/
nécklace /ˈnekləs/	**nó**body /ˈnəʊb(ə)di/
fórehead /ˈfɒrəd/	**stráwberry** /ˈstrɔːbəri/
bréakfast /ˈbrekfəst/	**Strát**ham /ˈstrætəm/
víneyard /ˈvɪnjəd/	**wél**come /ˈwelkəm/

10.6.3 End-stressed compounds

End-stressed compounds are primary-stressed on their second element while the first element is secondary stressed, e.g. *frùit sálad, àpple píe*. These compounds are frequently referred to as *pseudo compounds* because their stress pattern is quite similar to that of phrases such as *bòring lécture* and *Jòhn's bóok*.

The reason why we regard, for example, *frùit sálad* and *àpple píe* as compounds rather than phrases is that their meaning and grammatical behaviour suggests that these are lexical units and not phrases. It must also be noted that the dividing line between phrases and end-stressed compounds is not always sharp. For example, the frequently used expression *glòbal wárming* appears to be an ordinary noun phrase on the basis of its stress pattern and syntactic distribution, yet its specialized meaning suggests that it is a compound rather than a phrase.

(25)

End-stressed compounds			
The resulting compound is a noun			
àpple píe	chèese sálad	plàstic búcket	rùbber bóots
pàper hándkerchief	mètal státue	pàper bág	ìron cúrtain
Lòrd Máyor	ìce-créam	Nèw Yórk	Lòndon Brídge
Sìxth Ávenue	potàto crísps	glàss éye	bày wíndow
twìn síster	Pìccadilly Círcus	bòy scóut	Kìng Álfred
sèlf-contról	sèlf-relíance	frònt dóor	dòllar bíll
Adjective + noun or Verb-ing + noun combinations			
blàck márket	yèllow féver	cìvil wár	prìme mínister
lìving mémory	wòrking cláss	rùnning wáter	frèezing cóld
Other examples of compound nouns			
dòuble-décker	còttage chéese	Wèstminster Ábbey	Còca Cóla
wèekénd	stànding ovátion	pedèstrian cróssing	Chrìstmas púdding
The resulting compound is an adjective			
àbsent-mínded	bàd-témpered	ùser-fríendly	dèep púrple
clèar-cút	pòp-éyed	stàrk náked	èmpty-héaded
The resulting compound is an adverb			
dòwnstréam	ùpstáirs	fàr awáy	Nòrth-Éast
Sòuth-Wést	òff-síde	wày óut	fàr-óff

Typical end-stressed compounds like *ìron cúrtain, Lòndon Brídge* or *brìck wáll* may cause some difficulty to the Hungarian learner of English, who might feel that these lexical items must be initially-stressed instead of being end-stressed and wrongly pronounce the above items as **íron curtain, *Lóndon Bridge* and **brík wall.*

There are no reliable criteria as to which compounds are initially stressed and which of them are end-stressed. The only reliable guideline is provided by the spelling, viz. if a compound is spelt as a single word, it is most probably initially stressed, cf. *blackboard*. If, however, the elements of the compound are spelt with a hyphen or separately, one has to memorize the stress pattern one by one. The end-stressed compounds in (25) above are listed according to word classes and the semantic relationship between the two elements.

End-stressed compound verbs are very rare, they are always spelt with a hyphen or as one word. Interestingly, most of them begin with an adverb, which is better regarded as a prefix, e.g. *dòwngráde, mìscálculate, òversléep*, etc. Since there are no straightforward rules as to which compound belongs to which stress pattern and the spelling does not provide a reliable guiding principle, we do not discuss the properties of compounds further in this introductory textbook. Initially-stressed and end-stressed compounds may be separated by examining the semantic relationship between the elements of the compound but this would take us beyond the scope of the present book. Likewise, we do not discuss the stressing of embedded compounds, i.e., items whose structure is embedded in the structure of longer compounds like e.g. *drínking water supply* or *fóreign language teacher*. This topic is left for a more comprehensive phonetics and phonology textbook.

EXERCISES

Unit 1

1. Which of the following articulators are active and which of the articulators are passive? Tick the appropriate box in the following table. Cf. Section 1.2.

Articulator	*Active*	*Passive*
alveolar ridge		
hard palate		
lips		
velum		
tongue		
teeth		

2. Give the appropriate phonetic symbol for the following definitions. Cf. Section 1.4.

Definition	*Phonetic symbol*
voiceless alveolar stop	/ /
voiced velar stop	/ /
voiceless bilabial stop	/ /
voiceless labio-dental fricative	/ /
voiced alveolar fricative	/ /
voiced palatal fricative	/ /
voiceless alveolar fricative	/ /
voiced alveo-palatal affricate	/ /
bilabial nasal	/ /
velar nasal	/ /
post-alveolar liquid	/ /
labiovelar glide	/ /
voiceless velar stop	/ /
alveolar-lateral liquid	/ /

3. Consider the following minimal pairs. Give the consonant phonemes that distinguish the following minimal pairs. Cf. Section 1.4.

Minimal pairs with consonants (one difference)	*Distinctive phonemes*
pack – back	/ / – / /
fight – tight	/ / – / /
team – beam	/ / – / /
elect – erect	/ / – / /
steep – sleep	/ / – / /
nose – hose	/ / – / /
frame – flame	/ / – / /
cap – cat	/ / – / /
cream – dream	/ / – / /
nose – hose	/ / – / /
tough – ton	/ / – / /
lethal – legal	/ / – / /
sin – sing	/ / – / /

4. True or false? Choose the correct answer by ticking the appropriate box in the table below. Cf. Section 1.4.

Statement	*True*	*False*
Only sonorants show voiceless – voiced opposition.		
There are sixteen obstruents in English.		
The vocal cords are situated in the glottis.		
The velum is also referred to as the soft palate.		
There are two liquids in English.		
The glottal stop is a phoneme in the English sound system.		
The glottal stop is produced by pressing the vocal folds together.		
There are four sonorants in English.		
The alveolar ridge is situated behind the upper teeth.		
The velar nasal is a phoneme in the English sound system.		
Dental fricatives do not exist in the Hungarian phoneme system.		
The larynx is also called the voice-box.		
Nasals are the most consonant-like consonants.		
There are four affricates in English.		
Fricatives are produced with a continuous outflowing airstream.		
Oral stops are produced with a continuous outflowing airstream.		
Lateral means that the air flows out through both sides of the tongue.		
The labiovelar glide requires double articulation.		

5. Fill in the following table with the appropriate phonetic symbols. Cf. Section 1.4.

Obstruents							*Sonorants*		
Manner →	*stops*		*fricatives*		*affricates*		*nasals*	*liquids*	*glides*
Place ↓	*vless*	*voiced*	*vless*	*voiced*	*vless*	*voiced*			
bilabial									
labio-dental									
(inter)dental									
alveolar									
post-alveolar									
palatal									
velar									
glottal									

6. Give the manner of articulation of the following phonemes by ticking the appropriate box. Cf. Section 1.4.

Phonetic Symbol	*Manner of articulation*					
	stop	*fricative*	*affricate*	*nasal*	*liquid*	*glide*
/f/						
/ŋ/						
/k/						
/l/						
/w/						
/tʃ/						

Unit 2

1. Tick the appropriate boxes that characterize the vowel phonemes in the left-hand column. Bear in mind that the rounded vs. unrounded opposition is relevant only for monophthongs, cf. Unit 2.

Phonetic Symbols	*Features*					
	short	*long*	*unrounded*	*rounded*	*monoph-thong*	*diph-thong*
/uː/						
/eɪ/						
/əʊ/						
/æ/						
/ɜː/						
/aɪ/						
/ɔː/						
/ɒ/						
/ɑː/						
/ɪə/						

2. Classify the following vowel phonemes according to tongue position. Tick the appropriate box in the table below. Note that diphthongs are classified according to their first element. Cf. Subsection 2.2.5.

Phonetic Symbols	*Features*					
	high	*mid*	*low*	*front*	*central*	*back*
/uː/						
/ɑː/						
/əʊ/						
/æ/						
/ɪ/						
/ɒ/						
/eə/						
/ɪə/						
/ɔː/						
/e/						

3. Give the appropriate phonetic symbol for the following definitions. Cf. Unit 2.

Definition	*Phonetic symbol*
high-front short monophthong	/ /
low-back long monophthong	/ /
mid-front short monophthong	/ /
mid-back long monophthong	/ /
mid-central long monophthong	/ /
low-front short monophthong	/ /
high-front centring diphthong	/ /
mid-central closing diphthong	/ /

4. Consider the following minimal pairs. Give the vowel phonemes that distinguish the following minimal pairs. Cf. Unit 2.

Minimal pairs with vowels	*Distinctive phonemes*
rack – rake	/ / – / /
collar – colour	/ / – / /
time – tame	/ / – / /
hit – hate	/ / – / /
priced – priest	/ / – / /
phonetics – fanatics	/ / – / /
peel – pill	/ / – / /
reach – wretch	/ / – / /
seem – psalm	/ / – / /
sheep – shop	/ / – / /
time – team	/ / – / /
town – teen	/ / – / /
Thames – tombs	/ / – / /
Steve – starve	/ / – / /

5. True or false? Choose the correct answer by ticking the appropriate box in the table below. Cf. Unit 2.

Statement	*True*	*False*
There are three high-front monophthongs in English.		
The phonetic symbol of the mid-front vowel is /æ/.		
There are five long monophthongs in English.		
Diphthongs ending in a schwa are called closing diphthongs.		
The diphthong /aʊ/ is a wide diphthong.		
The schwa occurs only in unstressed syllables.		
Weak vowels can occur only in unstressed syllables.		
There are five lip-rounded monophthongs in English.		
All unrounded monophthongs are front vowels.		

6. Fill in the following table with the appropriate phonetic symbols. Cf. Unit 2.

The vowels of English according to quality						
	Front		*Central*		*Back*	
	Long	*Short*	*Long*	*Short*	*Long*	*Short*
High						
Mid						
Low						

7. Consider the following word-pairs and decide which of the following pairs constitute homophones (two words that are pronounced exactly the same). Tick the appropriate boxes below. You may consult Subsection 2.2.7

Examples		*Homophones*	*Not homophones*
day	they		
wear	where		
steal	steel		
practise	practice		
said	sad		
torn	tone		
weak	week		
days	daze		
coarse	course		

Unit 3

1. Pronunciation practice. Pronounce the following words and observe the phonemic difference between the members of each pair. Transcribe the phonemes that distinguish one member of the pair from the other. Cf. also Unit 1 and Unit 2.

Minimal pairs with vowels					
test – taste		bed – bad		life – loaf	
harm – hum		ten – tan		spoon – span	
turn – tone		head – had		time – term	
now – know		bin – burn		fine – phone	
hurt – heart		nerve – knave		Clair – clear	

Minimal pairs with consonants					
sin – sing		psalm – farm		write – might	
herd – hurt		half – harm		bite – tight	
slim – skim		swear – spare		pair – bare	
might – knight		boat – note		fear - beer	
snore – store		toast – post		smear – sneer	

2. Consider the following pairs of words and indicate which pair constitutes homophones (words that are pronounced exactly the same), which is a minimal pair, and where do you find at least two differences between the members of the pair. Tick the appropriate box in the table below. Cf. Subsection 2.2.7 and Section 3.1.

Examples	*homophones*	*minimal pairs*	*2 or more diff.*
write – right			
peeling – peering			
letter – latter			
weight – wait			
tuner – tuna			
really – rarely			
warm – worm			
sinner – thinner			
expensive – expansive			
mayor – major			
colour – collar			
queue – cue			

Examples	*homophones*	*minimal pairs*	*2 or more diff.*
stalk – stork			
fury – fumy			
myth – miss			
curious – furious			
fright – freight			
steering – stealing			

3. Which of the following sequences of consonants is excluded from word-initial position in English? Tick the appropriate boxes in the table below. You may consult a dictionary before solving the exercise. Cf. also Subsection 8.3.1.

Word-initial consonant clusters		
consonant clusters	*exists*	*excluded*
# kn		
# wr		
# tr		
# ps		
# pr		
# tn		
# ks		
# pn		
# bl		

4. Sound identification test. Pronounce the following words and transcribe their stressed vowel. Each word contains a low vowel in stressed position, i.e., one of the following vowels: /æ, ʌ, ɑː, ɒ/. The letters that represent stressed vowels appear in boldface. Cf. Unit 2.

Sound identification test					
st**a**rry	/ /	**au**nt	/ /	c**o**mpany	/ /
b**a**rren	/ /	d**o**zen	/ /	l**au**gh	/ /
ps**a**lm	/ /	h**a**lf	/ /	c**ou**gh	/ /
mousta**c**he	/ /	s**o**lid	/ /	m**o**ral	/ /
g**o**ne	/ /	w**o**rry	/ /	b**a**rrow	/ /
g**u**n	/ /	c**a**lm	/ /	h**u**rry	/ /
sw**a**n	/ /	L**o**ndon	/ /	ad**a**pt	/ /
f**o**reign	/ /	cl**e**rk	/ /	c**au**liflower	/ /
c**o**mfort	/ /	ex**a**mple	/ /	c**o**lour	/ /
s**a**lmon	/ /	squ**a**sh	/ /	c**o**llar	/ /

5. The following words can be pronounced in two different ways, i.e., they constitute cases of free variation. Transcribe the stressed vowel of the free variants. Cf. Section 3.3.

Free variation					
example	*V1*	*V2*	*example*	*V1*	*V2*
v**i**tamin			pr**i**vacy		
p**a**triot			**e**go		
apricot			app**a**rent		
z**e**bra			c**y**clic		
either			p**a**tent		
gr**a**tis			forb**a**de		

6. The following list contains words in which there are silent consonant or vowel letters. Transcribe them according to the Gimsonian IPA. Cf. also Unit 8.

Silent letters remain unpronounced	
example	*transcription*
knife	
folk	
half	
xylophone	
psychology	
wrong	
clear	
pneumonia	
pterodactyl	

Unit 4

1. Consider the following minimal pairs with non-low front vowels. Give the phonetic symbols of the distinctive vowel phonemes in the spaces provided in the tables. Cf. also Unit 2.

Minimal pairs					*Symbol*
read	lead	scheme	bead	deem	
rid	lid	skim	bid	dim	

Minimal pairs: contrast before a dark l					*Symbol*
heal	meal	steal	deal	feel	
hill	mill	still	dill	fill	

Minimal pairs: contrast before a voiceless consonant					*Symbol*
heat	beat	weep	peach	seek	
hit	bit	whip	pitch	sick	

Minimal pairs with a long monophthong and a diphthong					*Symbol*
fees	read	tea	bead	bee	
fears	reared	tier	beard	beer	

Minimal triplets					*Symbol*
bead	read	reach	feed	litre	
bid	rid	rich	fid	litter	
bed	red	wretch	fed	letter	

2. Sound identification test. Pronounce the following words and transcribe their stressed vowel. Each word contains a non-low front vowel in stressed position, i.e., one of the following vowels: /iː, ɪ, ɪə, e/. Stressed vowels are shown in boldface in the table below.

Sound identification test					
prof**e**ssion	/ /	rh**y**thm	/ /	cl**ea**nse	/ /
h**e**re	/ /	pr**ea**ch	/ /	pl**ea**d	/ /
st**ee**r	/ /	cr**ea**ture	/ /	cl**ea**r	/ /
pl**ea**sure	/ /	dr**ea**ry	/ /	sph**e**re	/ /

Sound identification test					
l**e**gal	/ /	p**e**nguin	/ /	w**ee**d	/ /
cond**i**tion	/ /	w**ea**lth	/ /	cl**i**nch	/ /
adm**i**ssion	/ /	m**a**ny	/ /	Th**a**mes	/ /
st**ea**l	/ /	emp**i**rical	/ /	fr**ie**nd	/ /
st**ea**lth	/ /	cl**i**que	/ /	app**ea**r	/ /
sc**e**nery	/ /	**e**legant	/ /	Cz**e**ch	/ /

3. Consider the examples below and indicate which *l* is clear and which *l* is dark by ticking the appropriate box in the table below. Cf. Section 4.2.

Example	*Clear*	*Dark*	*Example*	*Clear*	*Dark*
look			tales		
penalty			will act		
legitimate			bolster		
belfry			millionaire		
flag			tell them		
tell us			will resign		
planner			channel		
carefully			call again		
fill in			finalize		
dribbling			illicit		
Alice			Alvin		

4. Read the sentences below with a natural uninterrupted rhythm. Circle all dark [ɬ]'s and underline all clear [l]'s. Cf. Section 4.2.

Clear l or dark l
He will kill all his neighbours if they trouble him.
Ronaldo walked along the street quite reluctantly.
Alex will answer your question in Bill's library.
It was an awfully irresponsible act to steal that painting by Leonardo.
All phonology lecturers are a little bit lunatic.
You will never understand these rules unless you spend a lifetime learning them.

5. Consider the examples below and indicate which *r* is pronounced and which *r* is unpronounced in BrE RP. Tick the appropriate box below. Cf. Sections 4.3 and 4.4.

Example	*Pron.*	*Unpron.*	*Example*	*Pron.*	*Unpron.*
wrong			carry		
curtain			clear-cut		
redeem			poorest		
admire			carwash		
adore			clear away		
crime			far-fetched		
port			never again		
betray			boredom		
beard			overall		
fair enough			certain		

6. In which of the following examples can an intrusive *r* occur? Tick the appropriate box below and put an /r/ in between the round brackets if it is possible. Cf. Section 4.5.

Example	*Possible*	*Imposs.*	*Example*	*Possible*	*Imposs.*
the spa ( ) in the village			law ( ) abiding		
high ( ) income			raw ( ) energy		
see you ( ) again			China ( ) and Japan		
pay ( ) attention			crazy ( ) answer		
Linda ( ) and John			tuna ( ) in the tin		

7. Read the sentences below with a natural uninterrupted rhythm. Circle all the *r*'s that are pronounced and underline all the *r*'s that remain silent. Indicate the position of an optional intrusive *r* by putting it in round brackets in the appropriate position. Cf Sections 4.3, 4.4, 4.5.

Pronounced or silent
President Carter declared a war on Russia.
There are three hundred litres of beer in that barrel.
The visa office is situated round the corner.
Tina impressed her geography teacher with her tremendous knowledge.
There are a lot of questions that remain unanswered.
The girls were running across the street in grey skirts and red trousers.
Your driving licence expires the day after tomorrow.
The spa is situated right across the street behind that grey wall.

8. Which of the following words have a lexical /uː/ and which of the following words have a lexical /juː/? Indicate the correct answer by ticking the appropriate box below. Cf. Section 4.6.

Example	*Lexical /juː/*	*Lexical /uː/*	*Example*	*Lexical /juː/*	*Lexical /uː/*
soup			neuter		
cube			lose		
move			few		
tune			prove		
tomb			tourist		
poor			feud		
jubilee			blue		
mood			fool		
bruise			clue		

9. In which of the following words is Yod-dropping obligatory and in which is it optional in BrE RP? Tick the appropriate box below. Cf. Subsections 4.6.1 and 4.6.2.

Obligatory and optional Yod-dropping		
Examples	*Obligatory Yod-dropping*	*Optional Yod-dropping*
illusion		
parachute		
evolution		
recruit		
presume		
intrusive		
assume		
ablution		
pursuit		
fluently		

10. In which of the following words is Yod-dropping forbidden? Tick the appropriate box in the table below. The stressed vowels appear in boldface and are underlined. Cf. 4.6.3.

Possible and impossible Yod-dropping		
Examples	*Possible Yod-dropping*	*Impossible Yod-dropping*
ass**u**me		
insulate		
v**o**lume		
l**u**crative		
v**e**nue		
v**a**lue		
S**u**san		
m**e**nu		

11. Consider the effect of Palatalization in the following examples, and give the phonetic symbols of the alternating phonemes in the appropriate boxes below. Cf. 4.6.4 and 4.7.

Palatalization			
	Phonetic symbols	*Examples*	*Phonetic symbols*
press > pressure	/ / > / /	proceed > procedure	/ / > / /
act > actual	/ / > / /	text > textual	/ / > / /
expose > exposure	/ / > / /	close > closure	/ / > / /
sense> sensual	/ / > / /	rite > ritual	/ / > / /

12. Consider the following examples of Lexical Palatalization and give the phonetic symbol of the palatalized consonant in the appropriate box below. Cf. 4.7.1.

Lexical Palatalization					
Example	*Symbol*	*Example*	*Symbol*	*Examples*	*Symbol*
mansion	/ /	gradual	/ /	fraction	/ /
leisure	/ /	visual	/ /	collision	/ /
fracture	/ /	rupture	/ /	posture	/ /
soldier	/ /	martial	/ /	luxury	/ /

13. Consider the following examples of voice assimilation. Give the correct pronunciation of the inflectional suffixes by ticking the appropriate box in the table below. Cf. 4.8.2.

Voice assimilation of inflectional suffixes							
Example	*Pronunciation*			*Example*	*Pronunciation*		
	/z/	/s/	/ɪz/		/d/	/t/	/ɪd/
maps				starved			
states				hinted			
flows				absorbed			
witches				blended			
badges				pushed			
boxes				betrayed			
plays				fetched			

14. In which of the following examples is glottal replacement (ʔ) of /t/ possible? Give the appropriate glottalized transcription in the appropriate "possible" box in the table below. Cf. Section 4.9.

Glottal replacement					
Example	*Possible*	*Impossible*	*Example*	*Possible*	*Impossible*
motley			retain		
pretend			Scotland		
settle			tape		
entire			bottle		
button			kitten		

15. Are the following statements true or false? Tick the appropriate box below. Cf. Unit 2. and Sections 4.9 and 4.10.

True or false		
Statement	*True*	*False*
Voiceless consonants are never voiced.		
Voiced stops and affricates can be glottalized.		
Voiced consonants can become devoiced.		
Voiced consonants are never aspirated.		
Voiced consonants shorten the preceding vowel.		
Voiced consonants are never glottalized.		

16. In which of the following words is the voiceless oral stop strongly aspirated, weakly aspirated or unaspirated? Tick the appropriate box in the table below. The letters representing the relevant voiceless stops are shown in boldface, stress is marked with an acute accent-mark. Cf. Section 4.10.

Degrees of aspiration							
Example	*Strong*	*Weak*	*Unaspirated*	*Example*	*Strong*	*Weak*	*Unaspirated*
re**t**áin				má**tt**er			
próof				be**t**ráy			
treméndous				váni**t**y			
hún**t**				**p**olíce			
togéther				a**cc**órding			
póol				im**p**réss			
s**t**áin				re**t**úrn			
búm**p**er				hús**k**y			
es**t**éem				whís**p**er			
in**t**úitive				**t**érrible			
re**p**ént				eléc**t**			
ra**c**óon				bá**k**er			

17. The following table contains minimal pairs with dental fricatives. Transcribe the pairs in the table below. Cf. 4.11.1.

Minimal pairs with dental fricatives			
Example	*Transcription*	*Example*	*Transcription*
thought		taught	
thin		sin	
through		true	
bathe		bade	
they		day	
bathe		base	
think		sink	
thorn		faun	
thong		song	
thirty		dirty	

18. Alveolar fricatives do not assimilate to dental fricatives. Transcribe the following expressions. Cf. 4.11.1.

Alveolar fricatives do not assimilate to dental fricatives	
Example	*Pronunciation*
case theory	
his thigh	
John's thinking	
chase them	

19. The following table contains examples in which flapping can take place. Give both the broad (phonemic) and the flapped pronunciation in the table below. Cf. 4.11.2.1.

The flapping of English /t/ and /d/		
Example	*Broad transcription*	*Flapped pronunciation*
letter		
anybody		
hit Anita		
better		
matter		

20. Alveolar stops frequently assimilate in place to a following bilabial or velar stop. Give the assimilated transcriptions in the right-hand column below. Cf. Subsection 4.11.2.2.

Place assimilation of alveolar stops	
Examples	*Transcription*
hit Paul	
not many	
good meal	
bad girls	
red coloured	
fat king	
good grammar	
mad concept	
read poems	
hot pancakes	

21. The following table contains words in which the letters *c* and *g* are pronounced with their regular soft or hard sound value or are irregular. Determine if *c* and *g* are pronounced with their regular value or irregularly. Tick the appropriate box. The first two examples have been done for you. Cf. Subsection 4.11.2.3.

The hard and soft pronunciations of 'c' and 'g'		
Example	*Regular*	*Irregular*
city	/ˈsɪti/	
eager		/ˈiːgə/
geometry		
soccer		
crucial		
Hungary		
vacuum		
begin		

22. In some of the following words Velar softening takes place, in others it does not. Transcribe the words in the appropriate column below. Cf. Subsection 4.11.3.

Velar softening and its absence		
Example	*No Velar softening*	*Velar softening*
frugal		
regiment		
musical		
legal		
critic		
catalogue		
genocide		
epical		
criticize		
technician		
romanticism		
analogue		

23. The following words contain velar nasal + voiced velar stop clusters. Transcribe the words below and decide if the stop part of the nasal + velar stop combination is pronounced or silent. Transcribe the words in the appropriate column. Be careful because the last three items are exceptional. The first two items have been done for you. Cf. Subsection 4.12.1.

The pronunciation of /ŋg/ clusters		
Example	*/g/ is silent*	*/g/ is pronounced*
king	/kɪŋ/	
anger		/ˈæŋgə/
mongrel		
singer		
kingship		
mango		
ring		
bingo		
strongly		
Hungary		
hungry		
stingy (‘having a sting’)		
stronger !		
longest !		
younger !		

24. The following words contain bilabial nasal + voiced bilabial stop clusters. Transcribe the words below and decide if the /b/ is pronounced or silent. Transcribe the words in the appropriate column. The first two items have been done for you. Cf. Subsection 4.12.2.

The pronunciation of /mb/ clusters		
Example	*/b/ is silent*	*/b/ is pronounced*
comb	/kəʊm/	
lumber		/ˈlʌmbə/
number (noun)		
number (adjective)		
numb (adjective)		
plumber		
combo		
climber		

The pronunciation of /mb/ clusters		
Example	*/b/ is silent*	*/b/ is pronounced*
scramble		
limb		
limbo		
limbless		

25. The following words contain a glide-*i* or a glide-*u*. This means that these words can be pronounced in two alternative ways. In slow, careful speech they are pronounced with a syllabic /i/ or /u/ followed by a schwa /ə/, while in fast, colloquial speech they are pronounced with a non-syllabic /j/ or /w/ followed by a schwa /ə/. Transcribe the following words below with both possible pronunciations. The first two items have been prepared for you. Cf. 4.13.

The pronunciation of glide-i and glide-u		
Example	*syllabic (vowel before /ə/)*	*non-syllabic (/j/ or /w/ bef. /ə/)*
manual	/ˈmænjuəl/	/ˈmænjwəl/
tedious	/ˈtiːdiəs/	/ˈtiːdjəs/
gradual		
tutorial		
obedience		
arial		
intellectual		
happier		
spiritual		
perpetual		

26. In which of the following words is the letter *h* pronounced? Transcribe the words in the appropriate box below. Stress is marked with an acute accent. Cf. Section 4.14.

The pronunciation of 'h'		
Example	*'h' pronounced*	*'h' unpronounced*
véhicle		
vehícular		
behínd		
Stráthaм		

Unit 5

1. Consider the following minimal pairs with non-high front vowels. Give the phonetic symbols of the distinctive phonemes in the last column. Cf. also Unit 2.

Minimal pairs (the distinctive vowel is before a voiced consonant)					*Symbol*
head	shell	merry	send	Ben	
had	shall	marry	sand	ban	

Minimal pairs (the distinctive vowel is before an oral or nasal stop)					*Symbol*
set	mention	bet	letter	expensive	
sat	mansion	bat	latter	expansive	

Minimal pairs (with a monophthong and a diphthong)					*Symbol*
bat	back	fad	hat	tax	
bait	bake	fade	hate	takes	

Minimal pairs (with a monophthong and a diphthong)					*Symbol*
test	best	special	wells	sent	
taste	based	spatial	Wales	saint	

Minimal triplets					*Symbol*
Ed	merry	Ben	dead	bed	
aired	Mary	bairn	dared	bared	
add	marry	ban	dad	bad	

2. Sound identification test. Pronounce the following words and transcribe their stressed vowel. Each word contains a non-high front vowel in stressed position, i.e., one of the following vowels: /e, eɪ, eə, æ/. Stressed vowel letters are shown in boldface. Cf. also Unit 2.

Sound identification test							
b**e**st	/	/	ch**a**se	/	/	m**a**ny	/ /
qu**e**st	/	/	s**a**lad	/	/	f**ai**r	/ /
r**a**nger	/	/	**a**pricot	/	/	**a**nimal	/ /
pl**ay**	/	/	ch**a**mpion	/	/	s**a**me	/ /
m**ay**or	/	/	p**a**triot	/	/	sc**a**rce	/ /

Sound identification test							
pr**ay**er	/	/	sp**a**re	/	/	m**a**rathon	/	/
comp**a**rison	/	/	th**e**re	/	/	p**ai**r	/	/
c**a**rrot	/	/	**a**ny	/	/	f**a**me	/	/
p**a**rent	/	/	st**ai**r	/	/	sw**ea**r	/	/
angel	/	/	Cl**ai**r	/	/	Am**e**rica	/	/
sk**e**leton	/	/	w**a**ggon	/	/	t**e**sting	/	/

3. The following words contain one of the six "full" short vowels of English in stressed position. Transcribe the words in the spaces provided in the table below. Cf. also Unit 2.

Transcription of the six "full" short vowels			
Example	*Transcription*	*Example*	*Transcription*
ant		ton	
box		love	
head		pity	
tan		empty	
maxim		pun	
then		hut	
pin		hat	
hit		sugar	

4. The following words contain one of the five long monophthong vowels of English in stressed position. Transcribe the words in the spaces provided in the table below. Cf. also Unit 2.

Transcription of the five long monophthong vowels			
Example	*Transcription*	*Example*	*Transcription*
part		preach	
teach		spa	
pool		board	
pardon		cue	
lose		delete	
fuse		burning	
call		fallen	
turn		faun	

5. Consider the following examples and transcribe the words in the Plain-tense and Broken-tense column. Observe the difference between the stressed vowels. Cf. Section 5.2.

Pre-R Breaking			
Example	*Plain-tense*	*Example*	*Broken-tense*
cape		care	
stake		stare	
puke		pure	
cute		cure	
moon		moor	
peek		peer	
steep		steer	
explode		explore	
fine		fire	
south		sour	

6. Breaking is a structure-dependent rule. In which of the following examples does Pre-R Breaking not take place? Give the phonemic transcription of the words below in the appropriate column. Cf. Subsection 5.2.1.

The structure-dependence of Pre-R Breaking		
Example	*Breaking*	*No breaking*
Hungarian		
keyring		
security		
reread		
rural		
new record		
clearing		
showroom		
stay ready		
curious		
careful		

7. In which of the following examples is Pre-R Breaking of low diphthongs optional? Tick the appropriate box below. Cf. Subsection 5.2.2.

Optional/obligatory breaking of wide diphthongs		
Example	*Obligatory breaking*	*Optional breaking*
tired		
virus		
admire		
tyrant		
flower		
irony		
sour		
Moira		

8. In the following examples Pre-R Broadening takes place. Transcribe the words with their broad-lax vowel in stressed position. Cf. Section 5.3.

Pre-R Broadening			
Example	*Transcription*	*Example*	*Transcription*
bursary		starving	
prefer		hermit	
purse		morning	
pork		storm	
pardon		burden	
orthodox		occurring	
girls		parliament	
turner		corpulent	
stardom		murder	
skirt		German	
artisan		marginal	
turbulence		flirt	
lurch		sport	
burning		porch	

9. Pre-R Broadening is a structure-dependent rule. Some of the following words undergo Pre-R Broadening while in other cases Pre-R Broadening is blocked by the "Carrot-rule". Transcribe the following words in the appropriate column. Cf. 5.3.1 and 5.4.

The structure-dependence of Pre-R Broadening		
Example	*Broadening*	*No broadening (Carrot-rule)*
important		
mirror		
barren		
skirmish		
hurry		
furry		
starry		
carry		
current		
turtle		

10. The following words contain a full vowel in word-final position and hence they undergo word-final lengthening. Transcribe the words below paying attention to word-final lengthening. Cf. Section 5.6.

Word-final lengthening			
Example	*Transcription*	*Example*	*Transcription*
menu		pedigree	
swallow		limbo	
statue		venue	

11. The words in the table below contain a hiatus (two adjacent vowels in neighbouring syllables). The prevocalic vowel is strong in some cases but weak in others. Transcribe the words below in the appropriate column. Cf. Section 5.7.

Hiatus and prevocalic tenseness		
Example	*Weak prevocalic vowel*	*Strong prevocalic vowel*
ritual		
player		
sociology		
fluid		

Hiatus and prevocalic tenseness		
Example	*Weak prevocalic vowel*	*Strong prevocalic vowel*
hiatus		
variation		
poetry		
fluctuate		
neon		
video		

12. The words in the tables below have alternative pronunciations due to the rule of Smoothing. Transcribe the *careful*, *smoothed, broken* and *simplified* alternants in the appropriate boxes below. Cf. Section 5.8.

Smoothing					
Example	*Careful*	*Smoothed*	*Example*	*Careful*	*Smoothed*
mausoleum			Buick		
seeing			to attract		
plea again			you appeared		
Smoothing and breaking					
Example	*Careful*	*Smoothed*	*Example*	*Careful*	*Smoothed/Broken*
dual			appearing		
Korean			rural		
cruel			dreary		
European			security		
Smoothing of closing diphthongs					
Example	*Careful*	*Smoothed*	*Example*	*Careful*	*Smoothed*
quiet			flying		
vowel			allowance		
now and then			pliers		

The simplification of [aə] sequences			
Example	*Careful*	*Smoothed*	*Simplified*
diet			
trial			
towel			
coward			

13. The underlined vowel letters in the table below sometimes represent full vowels, sometimes reduced vowels. Give the phonetic symbol representing the pronunciation of the underlined vowel letters in the spaces enclosed by the slashes. Stressed vowel letters carry an acute accent. Cf. Section 5.9.

Vowel reduction			
Stressed (full)	*Unstressed (weak)*	*Stressed (full)*	*Unstressed (weak)*
á<u>t</u>om / /	<u>a</u>ttráct / /	l<u>é</u>tter / /	re<u>s</u>ént (v) / /
h<u>á</u>nd / /	tén<u>a</u>nt / /	sp<u>é</u>cial / /	sp<u>e</u>cífic / /
br<u>á</u> / /	Cúb<u>a</u> / /	l<u>á</u>ce / /	néckl<u>a</u>ce / /
b<u>ú</u>mper / /	s<u>u</u>ppóse / /	c<u>á</u>ge / /	pássage / /
h<u>ó</u>me / /	ápr<u>o</u>n / /	<u>ó</u>pera / /	<u>o</u>btáin / /
b<u>é</u>tter / /	mátt<u>e</u>r / /	can<u>á</u>l / /	fín<u>a</u>l / /
j<u>ú</u>ry / /	léct<u>u</u>re / /	t<u>ó</u>nic / /	ább<u>o</u>t / /
m<u>á</u>tter / /	quót<u>a</u> / /	pret<u>é</u>nd / /	pr<u>e</u>ténd / /

14. The words in the table below contain weak /i/, /ɪ/, /iː/ in their unstressed syllable. Transcribe the words using the appropriate phonetic symbol for the underlined weak vowels that appear in boldface. Stresses are marked with an acute accent mark. Cf. Subsection 5.9.1.

The distribution of weak /iː/, /i/ *and* /ɪ/ *sounds*					
Example	*Word-final*	*Example*	*Pre-vocalic*	*Example*	*Pre-consonantal*
pédigr**ee**		r**e**áct		r**e**pláce	
júbil**ee**		prév**i**ous		ván**i**ty	
fúnn**y**		pát**i**o		mér**i**t	
táx**i**		soc**i**ólogy		wánt**e**d	

15. The following words contain an unstable weak /ɪ/. Transcribe the two possible pronunciations of the underlined weak vowel letters that appear in boldface in the table below. Stress is always on the first syllable. Cf. Subsection 5.9.2.

Vacillating pronunciation between /ɪ/ *and* /ə/ *in weak syllables*					
Example	*Transcription*	*Transcription*	*Example*	*Transcription*	*Transcription*
madn**e**ss			kitch**e**n		
poss**i**ble			pal**a**ce		
san**i**ty			van**i**ty		

16. The minimal pairs in the following table are produced by weak /ɪ/, and /ə/ before consonants, and by weak /i/ and /ə/ word-finally. Transcribe the minimal pairs in the table below. Cf. Subsection 5.9.2.

Minimal pairs with /ɪ/ and /ə/ or /i/ and /ə/					
Example	*Transcription*	*Example*	*Transcription*	*Example*	*Transcription*
teaches		Lenin		tasty	
teachers		Lennon		taster	
Betty		except		illusion	
better		accept		allusion	

17. Unstable weak /u/ can be pronounced in four different ways /(j)u:/, /(j)u/, /(j)ʊ/ or /ə/. Decide which pronunciation is possible and transcribe the words in the appropriate column using the correct phonetic symbol. Sometimes more than one solution is acceptable. Cf. Subsection 5.9.3.

The pronunciation of the unstable weak /u/				
Example	*Pre-vocalic*	*Pre-consonantal*	*Word-final*	*_r, _CC, _C#*
immaculate				
statue				
graduate				
pleasure				
vacuous				
menu				
regular				
consultation				

18. The following words may be pronounced in two different ways: in careful slow speech with an /ə/ followed by a non-syllabic consonant (less natural) or in colloquial fast speech without an /ə/ but with a syllabic consonant. Transcribe the two alternatives in the appropriate box below. Cf. Section 5.10.

Syllabic consonant formation		
Example	*ə + a non-syllabic consonant*	*syllabic consonant*
gravel		
penalty		
weakening		
masonry		
penalize		
passionate		
cattle		
prism		
tunnel		
rhythm		
marble		
travelling		

Unit 6

1. Consider the following minimal pairs with low monophthongs. Give the phonetic symbols of the distinctive vowels in the boxes provided in the tables. Cf. also Unit 2.

Minimal pairs					*Symbol*
hut	gun	colour	luck	nut	
hot	gone	collar	lock	not	

Minimal pairs					*Symbol*
part	cast	last	mark	passable	
pot	cost	lost	mock	possible	

Minimal pairs					*Symbol*
come	bun	some	hut	stuff	
calm	barn	psalm	heart	staff	

Minimal pairs					*Symbol*
hat	cat	pat	bad	match	
heart	cart	part	bard	march	

Minimal pairs					*Symbol*
hat	flag	lag	black	Max	
hot	flog	log	block	mocks	

Minimal triplets (low monophthongs contrasted with mid front /e/)					*Symbol*
fen	ten	pen	bet	beg	
fan	tan	pan	bat	bag	
fun	ton	pun	but	bug	

2. Transcribe the stressed vowel of the following words. Each word contains a low monophthong in stressed position, i.e., one of the following vowels: /æ, ʌ, ɑː, ɒ/.

Sound identification test					
p**a**rt	/ /	w**a**ggon	/ /	r**ou**gh	/ /
c**ou**ntry	/ /	w**o**rry	/ /	d**a**nce	/ /
f**o**reign	/ /	c**ou**rage	/ /	c**a**rry	/ /
sw**a**llow	/ /	f**u**n	/ /	qu**a**lity	/ /
p**a**th	/ /	gl**o**ve	/ /	ban**a**na	/ /

Sound identification test					
d**o**zen	/ /	pl**o**t	/ /	p**a**rrot	/ /
m**a**nner	/ /	ad**o**pt	/ /	tr**ou**ble	/ /
g**o**ne	/ /	g**o**vernment	/ /	b**o**ttom	/ /
g**u**n	/ /	c**o**mfortable	/ /	c**a**rrot	/ /

3. The following words contain one of the eight diphthongs of English. Transcribe the words in the spaces provided in the table below. Cf. also Unit 2.

Transcription of diphthongs			
Example	*Transcription*	*Example*	*Transcription*
town		fairly	
hate		scarce	
join		poor	
fight		pint	
stone		toy	
stairs		house	
curious		stain	
beer		phone	
crime		dreary	
know		now	

4. The following words are affected by Trisyllabic Laxness. Consider the examples and give the phonetic symbol of the stressed vowels in the spaces provided in the table below. Stressed vowels are marked with an acute accent mark. Cf. Section 6.2.

Trisyllabic Laxness							
Example	*Symbol*	*Example*	*Symbol*	*Example*	*Symbol*	*Example*	*Symbol*
ánalyse		spécify		díligent		dóminate	
sácrament		celébrity		prímitive		sónorant	
bálustrade		pétulant		abílity		ópera	
cómpany		ártery		pérsonal		córdial	
súmmary		márvellous		términate		córpulent	
núnnery		pártisan		pérmanent		fórmulate	
círcular		míracle		módify		hésitate	
régiment		élegant		gúllible		lúxury	
ánnotate		móderate		vánity		spéculate	

5. The following words are also affected by Trisyllabic Laxness. Transcribe the words provided in the table below. Stresses are marked with an acute and a grave accent mark. Cf. Section 6.2.

Trisyllabic Laxness in the 4th and 5th syllables from the end			
Example	*Transcription*	*Example*	*Transcription*
céremony		phàrmacólogy	
córonary		dèmocrátic	
áristocrat		spíritual	

6. The following words constitute regular exceptions to Trisyllabic Laxness. Transcribe the words provided in the spaces in the table below. Cf. Subsection 6.2.1.1.

The vowels /uː/ *and* /juː/ *resist Trisyllabic Laxness*			
Example	*Transcription*	*Example*	*Transcription*
fúneral		púnity	
músical		júvenile	
cúcumber		spúrious	
únity		júbilee	

7. Words affected by C*i*V Tensing resist Trisyllabic Laxness. Transcribe the words provided in the spaces below. Cf. Subsection 6.2.1.2.

C*i*V *Tensing overrides Trisyllabic Laxness*			
Example	*Transcription*	*Example*	*Transcription*
sódium		rádiant	
hélium		expédient	
mániac		sálient	

8. Words ending in a *-Vry* sequence resist Trisyllabic Laxness with the proviso that the stressed vowel letter must be followed by a single consonant letter. Transcribe the words in the table below. Cf. Subsection 6.2.1.3.

*Words ending in a -*V*ry sequence override Trisyllabic Laxness*			
Example	*Transcription*	*Example*	*Transcription*
nótary		bákery	
refínery		rósary	
bínary		plénary	
scénery		bríbery	

9. There are some irregular exceptions to Trisyllabic Laxness. Transcribe the words in the table below. Cf. Subsection 6.2.1.4.

Irregular exceptions to Trisyllabic Laxness			
Example	*Transcription*	*Example*	*Transcription*
pátriot (!)		fávourite	
níghtingale		ísolate	
stábilize		códify	
nótify		Ábraham	
obésity		dýnamite	

10. Trisyllabic Laxness is a structure-dependent rule. In some of the following word-pairs Trisyllabic Laxness takes place, in others it does not. Transcribe the second member of each pair in the appropriate column below and put the suffix/ending in the relevant box (+ = synthetic) or (# = analytic). Cf. Subsection 6.2.2.

Structure-dependence of Trisyllabic Laxness				
Example	*Trisyllabic Laxness*	*No Trisyllabic Laxness*	+	#
fever – feverish				
nation – national				
creed – credible				
total – totally				
sole – solitude				
sane – sanity				
bribe – bribery				
reason – reasonable				
grade – graduate				
tidy – tidiness				
compete – competitor				
secret – secretly				
penal – penalty				
grade – gradable				
crime – criminal				
maiden – maidenhood				

11. The following word-pairs exemplify one of the regular types (I, II, III, IV or their pre-r subtype) of Vowel Shift or are untypical stem-vowel alternations. Give the phonetic symbols of the alternating vowels and specify which type they belong to. Finally, give the reason for the Vowel Shift: Trisyllabic Laxness, Laxing ending, Laxness due to a free *U*, Laxing by consonant-cluster, C*i*V Laxing or unexplained Vowel Shift. In the case of untypical pairings or unexplained Vowel Shift no reason needs to be given. The first four examples are prepared for you. Cf. Section 6.3.

Types of Vowel Shift			
Example	*Alternating vowels*	*Type*	*The reason for the shift*
grade – gradual	/eɪ/ – /æ/	I	Laxing by free *U* + Trisyll.
divine – divinity	/aɪ/ – /ɪ/	III	Trisyllabic Laxness
obese – obesity	/iː/ – /iː/		No shift, untypical
compete – competitor	/iː/ – /e/	IV	Trisyllabic Laxness
metre – metric			
valency – valid			
deceive – deception			
decide – decision			
shade – shadow			
Jesus – Jesuit			
clear – clarify			
redeem – redemption			
weep – wept			
tone – tonic			
preside – presidium			
feed – fed			
example – exemplify			
reduce – reduction			
mode – modify			
vacant – vacuous			
know – knowledge			
state – stature			
final – finish			

12. The following words exemplify Vowel Shift as free variation. These words can be pronounced in two different ways without difference in grammar or meaning. The choice depends purely on the speaker. One or the other pronunciation is more typical of a certain dialect/accent in some cases. Interestingly, the vowel-pairs that produce these free variants also figure in regular types of Vowel Shift. Transcribe the following words with both possible pronunciations. Cf. Subsection 6.3.2.7.

Vowel Shift as free variation		
Example	*Pronunciation 1*	*Pronunciation 2*
vitamin		
privacy		
patriot		
patent		
zebra		
cyclic		
ego		
apricot		

Unit 7

1. Consider the following minimal pairs with back vowels. Give the phonetic symbols of the distinctive vowels in the boxes provided in the tables. Cf. Unit 2.

Minimal pairs					*Symbol*
Luke	pool	fool	suit	Boole	
look	pull	full	soot	bull	

Minimal pairs					*Symbol*
part	bark	fart	lark	hark	
put	book	foot	look	hook	

Minimal pairs					*Symbol*
cord	born	score	lord	stork	
card	barn	scar	lard	stark	

Minimal pairs					*Symbol*
shore	floor	door	craw	morn	
shoe	flu	do	crew	moon	

Minimal pairs					*Symbol*
heart	park	mark	lark	darn	
hot	pock	mock	lock	don	

Minimal pairs					*Symbol*
Luke	boon	brew	who'd	boo	
lark	barn	bra	hard	bar	

Minimal triplets					*Symbol*
part	cart	card	park	cast	
port	court	cord	pork	coursed	
pot	cot	cod	pock	cost	

2. Sound identification test. Pronounce the following words and transcribe their stressed vowel. Each word contains a back vowel in stressed position, i.e., one of the following vowels: /ɑː, ɒ, ɔː, (j)uː, (j)ʊə, (j)ʊ/. Cf. Unit 2.

Sound identification test					
sport	/ /	almond	/ /	foreign	/ /
putrid	/ /	cart	/ /	poor	/ /
collar	/ /	court	/ /	pure	/ /
fasten	/ /	fury	/ /	bosom	/ /
moustache	/ /	depart	/ /	bra	/ /
cauliflower	/ /	spa	/ /	fuel	/ /
womb	/ /	sure	/ /	jury	/ /
mutiny	/ /	butcher	/ /	bull	/ /
butcher	/ /	start	/ /	gone	/ /
curious	/ /	sewer	/ /	aunt	/ /
swan	/ /	boredom	/ /	bald	/ /
mural	/ /	swallow	/ /	dollar	/ /

3. The following table contains all the regular sound values for single vowel-graphemes. Give a representative example for each sound value in the appropriate box below. Cf. Section 7.2.

Single vowel letter	*Tense*		*Lax*	
	Plain-tense	*Broken-tense*	*Plain-lax*	*Broad-lax*
A	/eɪ/	/eə/	/æ/	/ɑː/
E	/iː/	/ɪə/	/e/	/ɜː/
I=Y	/aɪ/	/aɪə/	/ɪ/	/ɜː/
O	/əʊ/	/ɔː/	/ɒ/	/ɔː/
U	/juː/ /uː/	/jʊə/ /ʊə/	/ʌ/	/ɜː/

4. The table below contains the regular sound values for vowel digraphs. Bear in mind that the overwhelming majority of vowel digraphs only have regular tense sound values – plain or broken – depending on the presence versus absence of a historical /r/. Try to find lexical items in which the given digraph represents the corresponding sound value, and put them in the spaces provided in the table below (next to each phonetic symbol). Cf. Section 7.3.

Vowel digraph	*Tense*		*Lax*	
	Plain-tense	*Broken-tense*	*Plain-lax*	*Broad-lax*
AI=AY	/eɪ/	/eə/		
EI=EY	/eɪ/	/eə/		
EA	/iː/	/ɪə/		
EE	/iː/	/ɪə/		
IE	/iː/	/ɪə/		
OA	/əʊ/	/ɔː/		
AU=AW				/ɔː/
OO	/uː/	/ʊə/		
EU=EW	/juː/ /uː/	/jʊə/ /ʊə/		
UI	/juː/ /uː/	/jʊə/		
OI=OY	/ɔɪ/	(ɔɪə)		
OU=OW	/aʊ/	/aʊə/		

5. Consider the following deviating words and transcribe them in the boxes provided in the table below. Name the group where they belong according to Table (6) given in Section 7.4 above.

Groups of deviating words		
Example	*Transcription*	*Group where it belongs*
dwarf		
wander		
calm		
work		
pizza		
path		
country		
early		

Groups of deviating words		
Example	*Transcription*	*Group where it belongs*
meant		
example		
clerk		
mother		
trouble		
London		
chauffeur		
young		
tomb		
crook		

6. In the following words the letter *o* is always pronounced /ʌ/. They belong to the set usually referred to as LOVE-words. Transcribe the words in the boxes. Cf. Section 7.4, Table (7).

Love-words (letter o pronounced /ɒ/)			
Example	*Transcription*	*Example*	*Transcription*
ton		stomach	
honey		dove	
comfort		front	
company		some	
frontier		shovel	
month		accomplish	
slovenly		monkey	
glove		London	
brother		dozen	
none		comfy	
above		monk	
covert		among	
tongue		sponge	
son		mother	
done		constable	

7. The following table contains some very rare and difficult combinations of vowel letters, whose pronunciation is totally unpredictable from the spelling. Transcribe the words in the appropriate boxes below. Cf. Section 7.4, Table (8).

Very rare, difficult combinations of vowel letters			
Example	*Transcription*	*Example*	*Transcription*
Caesar		gaol	
leopard		phoenix	
Geoffrey		people	
bureau		amoeba	

8. Examine the graphic position of the vowel letters in the examples below and tick the box they belong to. The stressed vowel letters are shown in boldface. The first five examples are prepared for representative purposes. Cf. Subsection 7.5.2.

Graphic positions of vowel letters					
Examples	*Free graphic position*			*Covered gr. position*	
	VCV	***VV***	***V#***	***VCC***	***VC#***
ch**a**os		√			
fl**u**			√		
m**a**ke	√				
ch**a**pter				√	
c**a**p					√
b**u**tter					
f**a**t					
l**i**on					
st**a**te					
g**o**					
m**i**ster					
tr**u**ant					
sh**e**lter					
h**a**m					
sk**y**					
st**o**ne					
p**o**rridge					
den**y**					

Graphic positions of vowel letters					
Examples	*Free graphic position*			*Covered gr. position*	
	VCV	*VV*	*V#*	*VCC*	*VC#*
st**e**p					
sh**a**me					
n**e**on					
h**i**t					
g**e**nder					
pr**u**dent					
m**e**					
action					
sk**u**a					

9. The table below contains examples most of which contain special letter combinations. As discussed in Subsection 7.5.2 above, some letter combinations count as a single consonant letter for the purposes of calculating graphic positions, while there is a special consonant letter that must be counted twice, that is as CC. Tick the appropriate boxes below. The first three examples have been prepared for representative purposes. Cf. Subsection 7.5.2.

Graphic positions of vowel letters (with special combinations included)					
Examples	*Free graphic position*			*Covered gr. position*	
	VCV	*VV*	*V#*	*VCC*	*VC#*
m**e**tre	√				
st**a**ble	√				
t**a**xi				√	
c**a**ndy					
h**y**phen					
b**u**xom					
scr**u**ple					
h**u**nter					
apron					
c**i**pher					
m**a**xim					
p**a**thos					

10. The table below contains words in which the stressed vowel letters are pronounced lax in spite of the fact that they occupy a free graphic position. The reason for this is that the Free Position Basic Rule (FPBR) is overridden by stronger regularities. Specify the reason for the laxness of the stressed vowels (shown in boldface) and tick the appropriate box. The first two examples have been prepared for representative purposes. Cf. Subsection 7.5.3.

Free position laxing rules				
Example	*Trisyll. laxness*	*Laxing ending*	*Laxing by free* U	C*i*V *Laxing*
p**o**verty	√			
t**e**net		√		
bl**e**mish				
tr**i**vial				
t**o**nic				
cont**i**nue				
animal				
cr**e**dit				
v**a**cuum				
p**a**rody				
l**e**vel				
gr**a**dual				
m**o**dify				
gr**a**vel				
v**i**cious				
m**e**nu				
abol**i**tion				
g**e**neral				
pres**i**dium				
intr**e**pid				
m**a**nual				
fam**i**liar				
pet**i**tion				
pl**a**net				

11. The following table contains examples in which the stressed vowel letter is pronounced lax in free graphic position. In some of the cases this is explainable by one of the overriding laxing rules as with the words in the previous exercise, while in other cases the words are truly irregular in defiance of the Free Position Basic Rule. If the laxness of the vowel is explainable by a rule, name the rule in the appropriate column. If the laxness of the vowel is truly irregular, put a tick in the "Truly irregular" box. The first two examples are prepared to help you with the rest. Cf. Subsection 7.5.3.5.

Stressed vowel letters pronounced lax in free position (explainable or truly irregular)		
Example	*Explainable by rule*	*Truly irregular*
r**i**ver		√
ch**e**rish	Laxing by ending	
c**e**metery		
pl**a**net		
f**o**reign		
Adam		
f**i**nish		
m**e**lon		
m**o**del		
l**i**ver		
v**a**nish		
el**e**ven		
tr**a**vel		
n**e**ver		
v**a**lue		
b**a**ron		
pr**i**son		
p**e**trol		
est**a**blish		
st**u**dy		
f**a**bric		
sch**o**lar		
r**e**bel		
l**e**mon		
intr**e**pid		

Stressed vowel letters pronounced lax in free position (explainable or truly irregular)		
Example	*Explainable by rule*	*Truly irregular*
phon**e**tic		
p**e**dal		
idiot		
v**i**car		
v**a**lid		
Alan		
dram**a**tic		
c**o**py		
c**a**sual		
t**e**pid		
d**e**vil		

12. The stressed vowel-letters in the examples below are situated in a covered graphic position. In some of them they are pronounced lax in accordance with the Covered Position Rule, while in others they are pronounced tense because they are truly irregular. Consider the examples and tick the appropriate box. The first two examples have been prepared for illustrative purposes. Cf. Subsection 7.5.2.

Exceptions to the Covered Position Rule		
Example	*Regular*	*Irregular*
ch**a**nge		√
b**o**xer	√	
m**i**st		
k**i**nd		
h**o**st		
r**u**bber		
p**o**st		
b**e**lt		
h**i**nd		
m**i**nd		
f**o**ld		
r**i**nd		
r**a**ndom		

Exceptions to the Covered Position Rule		
Example	*Regular*	*Irregular*
f**a**ctor		
r**u**thless		
empty		
ancient		
r**e**ckless		
al**i**gn		
gr**i**nd		
t**e**ndon		
p**a**stry		

13. The table below contains words that illustrate Laxing by free *U* or C*i*V Tensing. If the word resists these rules, it will be regarded as irregular even if it is pronounced tense in accordance with the free position rule. Tick the appropriate boxes in the table below. The first two examples have been prepared as usual. Cf. Subsections 7.5.3.3, 7.5.3.4.

Laxing by free U, CiV Tensing or irregular			
Example	*Laxing by free U word*	*CiV Tensing word*	*Irregular*
tr**i**bute	√		
cl**o**sure			√
s**a**lient			
v**a**cuum			
p**o**dium			
n**a**ture			
compl**e**tion			
exp**o**sure			
m**a**nia			
Nig**e**ria			
proc**e**dure			
v**a**lue			

Unit 8

1. Consider the following minimal pairs with the mid-long vowels (/eə, ɜː, əʊ, ɔː/). Give the phonetic symbols of the distinctive vowels in the boxes provided in the tables. Cf. Unit 2.

Minimal pairs					*Symbol*
her	fur	cursed	burst	earn	
hoe	foe	coast	boast	own	

Minimal pairs					*Symbol*
stair	pair	spare	air	hair	
stir	purr	spur	err	her	

Minimal pairs					*Symbol*
fair	pairs	glare	blare	stare	
foe	pose	glow	blow	stow	

Minimal pairs					*Symbol*
pair	stare	hair	flair	rare	
paw	store	whore	floor	roar	

Minimal pairs					*Symbol*
pose	phone	stowed	bone	cone	
pause	faun	stored	born	corn	

Minimal pairs					*Symbol*
pause	whores	war	store	court	
purrs	hers	were	stir	Curt	

Minimal triplets					*Symbol*
bairn	flare	rare	fair	wear	
bone	flow	row	foe	woe	
born	floor	raw	four	war	

2. Sound identification test. Pronounce the following words and transcribe their stressed vowel. Each word contains a mid-long vowel in stressed position, i.e., one of the following vowels: /eə, ɜː, əʊ, ɔː/. Stressed vowel letters are shown in boldface in the table below.

Sound identification test					
w**o**rm	/ /	c**o**ne	/ /	t**o**ld	/ /
sk**i**rmish	/ /	p**u**rrs	/ /	gl**o**ry	/ /
ch**au**ffeur	/ /	p**a**ws	/ /	p**o**ny	/ /
w**ea**r	/ /	p**o**se	/ /	c**u**rtain	/ /
w**o**re	/ /	p**ai**rs	/ /	sc**a**rce	/ /
w**oe**	/ /	h**o**e	/ /	h**o**st	/ /
w**e**re	/ /	h**e**r	/ /	c**o**lonel	/ /
st**o**ne	/ /	h**ai**r	/ /	w**o**n't	/ /
att**o**rney	/ /	wh**o**re	/ /	f**u**rnish	/ /
b**o**th	/ /	t**oa**st	/ /	p**o**st	/ /

3. Consider the following consonant clusters and decide if they can occur word-initially and word-medially, word-finally and word-medially or only word-medially. Give an example with each consonant-cluster in the appropriate box below. The first three examples are given for illustrative purposes. Pay special attention to the last three items. Cf. Section 8.3.

Phonotactics: different types of consonant clusters			
Example	*Onset (initial+medial)*	*Coda (medial+final)*	*Bogus (only medial)*
pr	pray, apron		
dl			medley
mp		ample, jump	
ŋk		monkey, tank	
lp			
bl			
ft			
ml			
fr			
tl			
ʃr			
kl			
nt			

Phonotactics: different types of consonant clusters			
Example	*Onset (initial+medial)*	*Coda (medial+final)*	*Bogus (only medial)*
lf			
kr			
lt			
dr			
st !			
sk !			
sp !			

4. The following consonant clusters are impossible sometimes as binary, sometimes as ternary branching onsets, and the syllable boundary will lie somewhere between the elements of the cluster. Transcribe the words below and indicate the position of the syllable boundary with a dot. The first two examples have been prepared for you. Stressed vowel letters are shown in boldface. Cf. Subsection 8.3.1.

Phonotactics: clusters impossible as onsets			
Example	*Transcription*	*Example*	*Transcription*
actor	/ˈæk.tə/	**e**ntry	
abst**ai**n	/əb.ˈsteɪn/	r**a**nsom	
Sc**o**tland		expl**ai**n	
h**e**lmet		w**i**nter	
b**u**tler		c**a**psule	
Hung**a**rian		b**e**lfry	
w**i**ndow		**e**ngine	
c**o**ntract (*n.*)		m**o**nster	
t**a**xi		c**a**ndy	
empl**oy**		**a**ction	
M**i**lton		b**a**thtub	
v**e**ctor		t**a**nker	

5. The consonants or consonant clusters in the examples below are permissible as onsets. Moreover, the syllable following the consonant or the consonant cluster is strong and, therefore, the *Onset Maximization Principle* must be observed, i.e., we have to maximize the onset of the right-hand syllable to the extent we can. Transcribe the following words indicating syllable boundaries with a dot. The first two examples have been prepared for you. Strong vowel letters are shown in boldface and carry an acute accent if also primary stressed. Cf. Subsection 8.4.2.

Onset maximization: consonants and clusters permissible as onsets			
Example	*Transcription*	*Example*	*Transcription*
rep**é**nt	/rɪ.ˈpent/	repr**á**ise	
decl**í**ne	/dɪ.ˈklaɪn/	restr**í**ct	
susp**é**nd		abst**á**in	
attr**á**ct		betr**á**y	
esc**á**pe		índic**a**te	
betw**é**en		constr**á**in	
er**é**ct		rest**ó**re	
displ**á**y		destr**ó**y	
res**ó**lve		pénetr**a**te	

6. The consonants or consonant clusters below are permissible as onsets. The syllable following the consonant or the cluster is weak and thus *ambisyllabicity* must also be taken into account. Transcribe the following words marking ambisyllabicity with hyphens on both sides of the ambisyllabic consonant. Stressed vowel letters are shown in boldface and carry an acute accent.

Ambisyllabicity: the right-hand syllable is weak			
Example	*Transcription*	*Example*	*Transcription*
narr**á**tor	/nəˈreɪ-t-ə/	r**é**levant	
l**é**tter	/ˈle-t-ə/	**á**tom	
s**á**cred	/ˈseɪ-k-rɪd/	m**á**ttress	
c**ó**py		h**á**tred	
b**ú**tter		p**á**tron	
l**á**dder		fant**á**stic	
p**ó**ker		p**í**llar	
m**í**grant		t**éa**cher	
équal		cat**á**strophe	

Unit 9

1. Transcribe the words in the table below and specify the stress degree of each syllable in the spaces provided, using the numbers (0, 1, 2, 3) as given in Section 9.2, Table (1) above. The first two examples have been prepared for you. Primary-stressed vowel letters are shown in boldface. Cf. Section 9.2.

Degrees of stress		
Examples	*Transcription*	*Pattern*
part**i**cular	/pəˈtɪkjʊlə/	0 1 0 0
democr**a**tic	/ˌdeməˈkrætɪk/	2 0 1 0
b**oo**kshelf		
rectific**a**tion		
horiz**o**ntal		
p**a**rticle		
c**u**pboard		
pers**o**nify		
deriv**a**tion		
irregul**a**rity		
associ**a**tion		
int**i**midate		
r**e**cord (*n.*)		
rec**o**rd (*v.*)		
symb**o**lic		
fl**u**ctuate		
harm**o**nious		
constit**u**tional		
addr**e**ss		
p**e**nalize		
el**e**ctrifying		
ec**o**nomize		
analysable		
attr**a**ct		

2. The following pairs of words illustrate the phenomena of derivational and iambic secondary stress. Transcribe the pairs marking primary and secondary stresses in the appropriate box provided in the table below. The first three examples have been prepared for you. Primary stressed vowel letters are shown in boldface and carry an acute accent, secondary stressed vowel letters are underlined. Cf. Section 9.4.

Derivational vs. iambic secondary stress		
Example	*Derivational*	*Iambic*
opp**ó**se – o̲pposí**t**ion		/əˈpəʊz/ – /ˌɒpəˈzɪʃ(ə)n/
ch**á**racter – cha̲racterí**s**tic	/ˈkærəktə/ – /ˌkærəktəˈrɪstɪk/	
int**é**nsify – inte̲nsifi**c**á**t**ion	/ɪnˈtensɪfaɪ/ – /ɪnˌtensɪfɪˈkeɪʃ(ə)n/	
r**é**cognize - re̲cogní**t**ion		
Ch**í**na – Chin**é**se		
ref**ó**rm – re̲formá**t**ion		
p**ú**rify – pu̲rifi**c**á**t**ion		
supp**ó**se – su̲posí**t**ion		
r**é**ctify – re̲ctifi**c**á**t**ion		
ac**á**demy – a̲cad**é**mic		
inv**í**sible – inv̲isib**í**lity		
cont**í**nue – co̲ntin**ú**ity		

3. Transcribe the words in the table below and specify the type of ending/suffix that determines the placement of primary stress as discussed in Section 9.5 above. Stressed vowel letters appear in boldface. The first three examples have been prepared for you.

The influence of endings/suffixes on word-stress		
Examples	*Transcription*	*Pattern*
par**t**i**c**ular	/pəˈtɪkjʊlə/	Gen. disyll. post-tonic suffix
democr**a**tic	/ˌdeməˈkrætɪk/	Monosyll. post-tonic suffix
Chin**e**se	/tʃaɪˈniːz/	Stressed ending
intr**e**pid		
div**i**sible		
repl**e**nish		
perp**e**tual		
an**a**lysis		
kitchen**e**tte		

The influence of endings/suffixes on word-stress		
Examples	*Transcription*	*Pattern*
phil**o**sophy		
rep**e**titive		
phon**e**mic		
crit**i**que		
hyp**o**crisy		
dem**o**lish		
rac**oo**n		
therm**o**meter		
questionn**ai**re		
incr**e**dible		
mon**o**poly		
bout**i**que		
volunt**ee**r		
ge**o**graphy		

4. The following words contain the monosyllabic post-tonic suffix *-ic*. In some cases *-ic* fails to attract the primary stress on the preceding syllable and behaves "irregularly". Transcribe the words and specify if the stress regularly falls before *-ic* or if it is irregular. Tick the appropriate box. The first two examples have been prepared for you. Cf. Subsection 9.5.2.1.

Exceptions to the monosyllabic pre-stressed (post-tonic) suffix -ic			
Example	*Transcription*	*Regular*	*Irregular*
l**u**natic	/ˈluːnətɪk/		√
democr**a**tic	/ˌdeməˈkrætɪk/	√	
fant**a**stic			
symb**o**lic			
phon**e**tics			
h**e**retic			
rh**e**toric			
path**e**tic			
p**o**litic(s)			
Arabic			

5. The words in the table below contain multiple occurrences of post-tonic suffixes. As it was pointed out in Subsection 9.5.2.2.4 above, the rightmost post-tonic suffix attracts the primary stress on the preceding syllable in these cases. Transcribe the words below marking primary and secondary stresses. Primary stressed vowels appear in boldface. The first two examples have been done for you.

Multiple suffixation with post-tonic suffixes			
Example	*Transcription*	*Example*	*Transcription*
constitution**a**lity	/ˌkɒnstɪˌtjuːʃəˈnæləti/	histor**i**city	
technol**o**gical	/ˌteknəˈlɒdʒɪkəl/	colonial**i**stic	
acad**e**mic		democr**a**tic	
monogr**a**phic		hypocr**i**tical	
academ**i**cian		personific**a**tion	
intellectu**a**lity		contextu**a**lity	
anat**o**mical		astron**o**mical	

6. The words in the table below all contain a *weak suffix* (cf. 9.5.3 above). Transcribe the words in the table below and observe how the attachment of a weak suffix may influence stress assignment in certain cases. The first two examples have been prepared for you. Stressed vowels are given in boldface.

Suffixation with "weak" suffixes			
Example	*Transcription*	*Example*	*Transcription*
origin	/ˈɒrɪdʒɪn/	or**i**ginal	/əˈrɪdʒənəl/
s**y**nonym	/ˈsɪnənɪm/	syn**o**nymous	/sɪˈnɒnəməs/
anecdote		anecd**o**tal	
orient		ori**e**ntal	
anonym		an**o**nymous	
p**a**rent		par**e**ntal	
hor**i**zon		horiz**o**ntal	
extr**a**vagant		extr**a**vagance	
int**e**lligent		int**e**lligence	
f**a**mily		fam**i**liar	
orchestra		orch**e**stral	

7. The following words contain stress-neutral suffixes. Transcribe the word-pairs in the table below and observe that the primary stress remains in the same position even after suffixation. Stressed vowel letters are given in boldface. The first two examples have been done for you. Cf. Subsection 9.5.4.

Suffixation with stress-neutral suffixes			
Example	*Transcription*	*Example*	*Transcription*
s**o**cial	/ˈsəʊʃəl/	s**o**cialize	/ˈsəʊʃəlaɪz/
r**e**cognize	/ˈrekəgnaɪz/	r**e**cognizing	/ˈrekəgnaɪzɪŋ/
educate		**e**ducated	
m**a**nage		m**a**nagement	
p**a**tronize		p**a**tronizingly	
n**a**tional		n**a**tionalist	
d**e**corate		d**e**corator	
r**a**dical		r**a**dicalize	
analyse		**a**nalysable	
det**e**rmine		det**e**rminer	
m**e**rcy		m**e**rciless	
n**a**tion		n**a**tionhood	

8. The words in the table below contain "mixed" suffixes. Some of these suffixes influence the placement of stress, others do not. Transcribe the words paying due attention to the difference between suffixes that "move" the stress and those that do not. The first two examples have been prepared for you. Primary stressed vowel letters appear in boldface below. Cf. Subsection 9.5.4.

Suffixation with mixed suffixes			
Example	*Transcription*	*Example*	*Transcription*
s**o**cial	/ˈsəʊʃəl/	s**o**cialize	/ˈsəʊʃəlaɪz/
s**o**lid	/ˈsɒlɪd/	sol**i**dify	/səˈlɪdɪfaɪ/
educate		**e**ducator	
p**e**rson		pers**o**nify	
p**e**rson		p**e**rsonally	
c**o**lony		col**o**nial	
c**o**lony		c**o**lonize	
p**e**nalize		p**e**nalizing	
m**o**derate		m**o**derator	
h**i**story		hist**o**rian	
m**i**racle		mir**a**culous	
c**o**nstitute		const**i**tuent	
r**e**ctify		r**e**ctifying	
cr**i**minal		cr**i**minalize	
m**o**dify		modific**a**tion	
analyse		anal**y**tic	
m**a**nage		m**a**nageable	

Unit 10

1. The following English verbs are stressed according to the Basic Stress Rule for Verbs. Transcribe the words in the table below and determine why the primary stress falls on the given syllable by ticking the appropriate boxes. The first three examples have been prepared for you. This time the stressed vowel letters are not shown but you have to calculate the position of the stress from the structure of the word. Cf. Section 10.2.

The Basic Stress Rule for Verbs				
Examples	*Transcription*	*Heavy ult*		*Light ult*
		2 syllables	*More than 2 syll.*	
delete	/dɪˈliːt/	√		
recognize	/ˈrekəgnaɪz/		√	
elicit	/ɪˈlɪsɪt/			√
personify				
intimidate				
erect				
develop				
petrify				
believe				
persist				
astonish				
refrain				
vomit				
supplement				
satisfy				
summon				
pretend				
ravel				
denounce				
dignify				
reckon				
modify				
calculate				

2. The following verbs contain stress-neutral prefixes that are stressed themselves to a certain degree. Since they are separated from their base with an analytic (#) boundary, this may lead to a 2#1 stress pattern if the base is stressed on the first syllable and the prefix is monosyllabic. It is not customary to mark the secondary stress in transcription in these cases. If, however, the prefix is at least disyllabic and/or if the stress of the base does not fall on the initial syllable of the base, the secondary stress falling on the prefix must be indicated in transcription. Transcribe the words below accordingly. The first three examples have been prepared for you. Cf. Subsection 10.3.1.

The transcription of stress neutral prefixes			
Example	*Transcription*	*Example*	*Transcription*
deactivate	/diˈæktɪveɪt/	presuppose	
misguide	/mɪsˈgaɪd/	reanalyse	
underestimate	/ˌʌndərˈestɪmeɪt/	deforest	
foretell		unbutton	
reread		reactivate	
preoccupy		overthrow	
overflow		unravel	
miscalculate		prefabricate	
outnumber		undermine	
misunderstand		overshadow	

3. The following words consist of a monosyllabic Latinate base combined with a monosyllabic Latinate prefix. The prefixes always remain unstressed in these cases and the stress will always fall on the stem. We have included two items among the examples that are not Latinate prefix+base combinations and are stressed according to the Basic Stress Rule for Verbs. Transcribe the words, the first two items have been prepared for you. Cf. Subsection 10.3.2, Table (5).

The transcription of Latinate monosyllabic prefix+base combinations			
Example	*Transcription*	*Example*	*Transcription*
select	/səˈlekt/	limit	
remit	/rɪˈmɪt/	regress	
reduce	/rɪˈdjuːs/	compel	
resent		vomit	
defend		admit	
confess		reduce	
omit		repel	

4. The following items contain a disyllabic Latinate prefix and a monosyllabic base. According to the Morphological stress rule, these items will be primary stressed on the base. Consequently, the initial syllable will be secondary stressed due to the Early Stress Requirement. The first two examples have been prepared for you. Transcribe the remaining ones. Cf. Subsection 10.3.2, Table (6).

Disyllabic Latinate prefixes combined with a monosyllabic heavy base			
Example	*Transcription*	*Example*	*Transcription*
intro=duce	/ˌɪntrəˈdjuːs/	contra=vene	
inter=rupt	/ˌɪntəˈrʌpt/	inter=vene	
inter=sect		inter=act	
super=sede		contra=dict	

5. The following words contain a monosyllabic Latinate prefix combined with disyllabic bases that all have a light ult. Interestingly, the base will be stressed according to the Basic Stress Rule for Verbs (the penult is stressed) and the prefix will be completely unstressed. Transcribe the words below, the first two items have been transcribed for you. Cf. Subsection 10.3.2. Table (7).

Monosyllabic Latinate prefixes combined with disyllabic bases having a light ult			
Example	*Transcription*	*Example*	*Transcription*
in=hibit	/ɪnˈhɪbɪt/	de=liver	
de=termine	/dɪˈtɜːmɪn/	ex=hibit	
re=member		con=sider	
re=linquish		de=velop	

6. The following words contain double Latinate prefixes combined with a monosyllabic heavy base. These items are also stressed on the base and consequently the first prefix will be secondary stressed in accordance with the Early Stress Requirement. Transcribe the words in the table below. The first two items have been done for you. Cf. Subsection 10.3.2. Table (8).

Examples with double Latinate prefixes combined with a monosyllabic heavy stem			
Example	*Transcription*	*Example*	*Transcription*
re=pre=sent	/ˌreprɪˈzent/	com=pre=hend	
re=sur=rect	/ˌrezəˈrekt/	re=pre=hend	
re=col=lect		cor=res=pond	

7. The table below contains words with Latinate prefixes followed by a base combined with a synthetic suffix. Interestingly, these items all obey the Basic Stress Rule for Verbs. Since these words are longer than two syllables and they have a heavy ult, stress will fall on the antepenultimate syllable, no matter if the antepenultimate syllable is situated in the base or the prefix. Transcribe the words in the table below. Cf. Subsection 10.3.2. Table (9).

Examples with a Latinate prefix followed by a base combined with a synthetic suffix			
Example	*Transcription*	*Example*	*Transcription*
im=plic+ate	/ˈɪmplɪkeɪt/	im=person+ate	
re=cogn+ize	/ˈrekəgnaɪz/	com=plic+ate	
inter=rog+ate		in=demn+ify	
con=fisc+ate		con=fabul+ate	

8. The following nouns are all stressed according to the Basic Stress Rule for Nouns. Transcribe the words in the table below and determine why the primary stress falls on the given syllable by ticking the appropriate boxes. The first four examples have been prepared for you. Cf. Section 10.4.

The Basic Stress Rule for Nouns					
Examples	*Transcription*	*Disyllabic noun, penult stressed*	*Longer than two syllables*		
			Long V in ult	*Short vowel in the ult*	
				heavy penult	*light penult*
butter	/ˈbʌtə/	√			
horizon	/həˈraɪzən/			√	
parent	/ˈpeərənt/	√			
amplitude	/ˈæmplɪtjuːd/		√		
ladder					
nightingale					
agenda					
hurricane					
animal					
textile					
fantasy					
ticket					
inspector					
skeleton					
alibi					

9. In spite of the Basic Stress Rule for Nouns, there are a lot of English nouns that are stressed on the ult. The worst irregularity comes with end-stressed nouns having a short-vowelled ult as in *Budapést.* Transcribe the following end-stressed nouns and specify the reason why they are stressed on the ult. The first four examples have been prepared for you. Cf. Section 10.5.

End-stressed nouns					
Example	*Transcription*	*Stressed ending*	*Derived from V*	*Irregular*	
				Long V in ult	*Short V in ult*
parade	/pəˈreɪd/	√			
Berlin	/bəˈlɪn/				√
demand	/dɪˈmɑːnd/		√		
kangaroo	/ˌkæŋgəˈruː/			√	
Japan					
violin					
racoon					
debate					
employee					
cigarette					
police					
magazine					
return					
hotel					
critique					
Budapest					
canal					
brigadier					
regime					
arrest					
Peru					

10. The following compounds are initially-stressed true compounds (cf. 10.6.1 above). Transcribe the items in the table below paying attention to the compound stress pattern. The first element of the compound will be primary stressed while the second element will be strong unstressed. The first three items have been prepared for you.

Initially stressed true nominal compounds			
Example	*Transcription*	*Example*	*Transcription*
bookshelf	/ˈbʊkʃelf/	orange juice	
armchair	/ˈɑːmtʃeə/	police station	
matchmaker	/ˈmætʃmeɪkə/	turning point	
exam paper		ashtray	
skateboard		blackboard	
milestone		briefcase	
stock market		exchange rate	
river bank		driver's licence	
moonlight		department store	
fingerprint		bookcase	
folk singer		speech-writer	
head-hunter		fundraising	
waterstone		freemason	
language teacher		shoplifter	
bricklayer		birthday party	

11. The following compounds are initially-stressed true nominal compounds derived from phrasal verbs. Transcribe the items in the table below. The first two examples have been done for you. Cf. Subsection 10.6.1.1.

Initially stressed true nominal compounds derived from phrasal verbs			
Example	*Transcription*	*Example*	*Transcription*
(a) drive-in	/ˈdraɪv ɪn/	(a) setup	
(a) blackout	/ˈblækaʊt/	(a) show-off	
(a) rip-off		(a) crackdown	

12. The following compounds are initially-stressed true non-nominal (adjectival or verbal) compounds. Transcribe the items in the table below. Cf. Subsection 10.6.1.1.

Initially stressed true non-nominal compounds			
Example	*Transcription*	*Example*	*Transcription*
watertight	/ˈwɔːtətaɪt/	chain-smoke	
(to) outline	/ˈaʊtlaɪn/	downgrade	
orange coloured	/ˈɒrɪndʒ kʌləd/	heartbroken	
(to) air-condition		seasick	
(to) countersign		sunbathe	

13. The words in the table below are reduced (phonologically obscured compounds). This means that the native speaker no longer treats these items as compounds from a phonological point of view, since their stress pattern corresponds to that of monomorphemic words where the stressed syllable is followed by a reduced (weak) syllable as in *butter* /ˈbʊtə/. Transcribe the reduced compounds below. The first three items have been prepared for you. Cf. Subsection 10.6.2.

Reduced (phonologically obscured compounds)			
Example	*Transcription*	*Example*	*Transcription*
breakfast	/ˈbrekfəst/	postman	
saucepan	/ˈsɔːspən/	England	
forehead	/ˈfɒrəd/	welcome	
necklace		Clapham	
cupboard		milkman	

14. End-stressed compounds are primary-stressed on their second element, while the first element is secondary-stressed. These compounds are often referred to as pseudo compounds because their stress pattern is quite similar to that of phrases. Transcribe the following end-stressed compounds by putting the primary stress mark on the second element of the compound and the secondary stress mark on the first element. The first three examples have been prepared for you. Cf. Subsection 10.6.3.

End-stressed compounds			
Example	*Transcription*	*Example*	*Transcription*
apple pie	/ˌæp(ə)l ˈpaɪ/	working class	
black market	/ˌblæk ˈmɑːkət/	user-friendly	
pedestrian crossing	/pɪˌdestrɪən ˈkrɒsɪŋ/	off-side	
double-decker		downstream	
Coca Cola		London Bridge	
running water		bay window	
prime minister		potato crisps	
bad-tempered		New York	
cottage cheese		boy scout	
deep purple		Westminster Abbey	

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