Az angol nyelv kiejtése

The Pronunciation of English

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Preface

This book contains twelve chapters introducing the basic characteristics of the pronunciation of standard English, and it is designed for a one-term course with twelve weekly topics elaborated on in ten to twenty pages on average. It is the authors' intention to keep both the amount of material covered and the students' reading load to the absolute minimum: the book leaves, on purpose, considerable time and space for practice, revision and assessment as well as for the inclusion of the personal preferences of the instructor teaching the course.

Primarily for pedagogical reasons, but also out of space limitations, the book describes the pronunciation of the standard dialects of English only, though reference is made, whenever relevant to the topic, to non-standard regional varieties, too. As usual in similar textbooks on English used in Hungarian higher education, the description focuses on standard British English pronunciation ("RP"), as this is the accent which most Hungarian students of English appear to be familiar with. However, an attempt is made to include the characterization of standard American English ("GA") as well, especially where the two reference accents significantly differ, both because neither of the standards should be considered inferior to the other and neglected, and because Hungarian students seem to be exposed to American English at least as much as, if not more than, to British English. In addition, the authors believe that all students holding a degree in English are required to be aware of what pronunciation differences are to be expected between native speakers of different linguistic backgrounds. Once the major varieties are introduced, it is generally accepted that the two together present a good starting point for the discussion of other dialects.

Throughout the book, a certain amount of preliminary knowledge of the basic notions of linguistics is assumed since most BA programmes contain an introductory tier with at least one course in elementary linguistics. Nevertheless, all the discussions aim to be as self-explanatory and self-contained as possible. At the end of this section you will find a list of the terms which are considered to be elementary.

The book is accompanied by a digital material, which contains exercises to practice and revise the topics covered by the readings. These exercises are primarily meant to be used in their interactive form as home practice for the weekly readings. Alternatively, their static version can be handed out in class – this is totally at the instructor's discretion.

As it has been mentioned several times, the book grants considerable freedom to the instructor, and ample opportunities for extension. Also, it covers so little phonological theory that it leaves the way open for advanced studies in both BA and MA programmes to elaborate on all the topics in more detail.

Before you study this book, check whether you are familiar with the following terms: adjective, adverb, allomorph, allophone, articulation, assimilation, bound morpheme, complementary distribution, compound, conjunction, consonant, demonstrative pronoun, diacritic, diphthong, distribution, free morpheme, free variation, function word, homophone, idiomatic, interrogative pronoun, lexical content word, loanword, manners of articulation, minimal pair, monomorphemic, monophthong, monosyllabic, morpheme, noun, phonetics, places of articulation, root, schwa, segment, speech organs, spelling, stem, stress, suffix, syllable, triphthong, verb, voicing, vowel, Wh-question, Yes/No question

1. English pronunciation: phonetics and phonology

This is a book on the pronunciation of English. No matter how obvious our topic might seem, it needs considerable clarification. Namely, we have to explain what we mean by "English" on the one hand, and "pronunciation" on the other.

English has as many as 400 million native speakers in the British Isles, North America, Australia and New Zealand as well as parts of Africa and Asia. It is the most popular language learnt and used as a second or foreign language. As you know, it is a member of the **Indo-European family of languages**, and as such, is genetically related to a number of tongues spoken all over Europe and Asia: from the Indian subcontinent to Western and Southern Europe. In contrast, Hungarian is of **Uralic** (more precisely, **Finno-Ugric**) origin, cognate to, among others, Finnish, Estonian, Lapp, and the Samoyed languages. Therefore, from a historical point of view, English and Hungarian could not be farther from each other. This results in numerous linguistic differences between the two languages, which is why the Hungarian student of English (as well as the English student of Hungarian) is faced with so many difficulties.

However, languages can not only be related **genetically** – English is not only related to the other Indo-European languages (and most closely, of course, to **West Germanic** German, Flemish, Dutch, Afrikaans, Frisian, and Yiddish). Compare English to German, for example: apart from the core of the word stock, they exhibit very few of the similarities one would expect from two languages that have evolved from a common ancestor. As far as linguistic structure is concerned, English shows more resemblances to Chinese (with its comparative lack of different word endings) than to any of

the other members of the Indo-European family. Languages, then, can also be related to each other according to what linguistic type they belong to, that is, **typologically**.

Finally, all languages are naturally related to others **culturally** through the contacts they come into. Therefore, English is so related to North American Indian languages: although they share neither early history nor (much) linguistic structure, they have borrowed a number of place names and terms from each other, in both directions. This is the way in which English can be considered as related to Hungarian, too. Even though the amount of English influence on Hungarian vocabulary is obviously larger, we are able to identify a handful of English words as words of Hungarian origin, including the well-known loanwords *coach* (from *kocsi* 'carriage') and *biro* ('ball-point pen', from the name of the inventor, László Bíró).

English does not only have contacts with non-Germanic languages outside the British Isles; even in its homeland English lives side by side with a couple of **Celtic languages**, which belong to another branch of the Indo-European family: Welsh (spoken in Wales), Irish (or Irish Gaelic, still spoken in parts of Ireland), and Scottish Gaelic (in the north-west of Scotland, especially the Hebrides Islands). It should be kept in mind that these are only distantly related to English, and are languages in their own right. (Unfortunately, all the Celtic languages formerly spoken on the European continent are now extinct, e.g., Gaulish, cf. Asterix and company).

Besides its intricate pattern of connections to other languages and its dominant status on the linguistic map of the world, English is very special in at least one more respect. Due to a series of historical events, a discussion of which is beyond the present purposes, English has developed two **standard varieties**, that is, two forms, both of which are equally accepted by the societies of their respective countries. One is Standard British English in

England, the other is Standard American English in the USA. As this book is exclusively concerned with pronunciation, henceforth we will concentrate on the pronunciation varieties (called **accents**[1]) of the two standards. The standard accent of England is traditionally referred to as **Received Pronunciation** (where *received* means 'accepted'), abbreviated to RP, whereas that of the USA is often referred to as **General American**, or GA for short. The two accents differ in many ways, most of which concern vowels. On the one hand, a number of systematic **sound correspondences** can be identified, e.g., whenever an RP speaker uses the vowel /əʊ/ as in *know, go, boat*, a GA speaker pronounces /oʊ/; RP /ɒ/ in *lot* and *dog* corresponds to a somewhat longer /ɑ/ in GA. On the other hand, there are differences which are not as general as that but only affect certain individual words. For example, a couple of words pronounced with /ɑː/ in RP, e.g., *after, ask, bath, can't, chance, class, dance, glass, grass, half, last, pass, past, path, rather, staff*, have /æ/ in GA. Further examples are given in the chart below:

	typical RP	typical GA
address	/əˈdres/	/ˈædres/
advertisement	/ədˈvɜːtɪsmənt/	/ˈædvərtaɪzmənt/
ate	/et/	/eɪt/
clerk	/klɑːk/	/klɜrk/
figure	/ˈfɪgə/	/ˈfɪgjər/
inquiry	/ɪŋˈkwaɪərɪ/	/ˈɪŋkwərɪ/
laboratory	/ləˈbɒrətrɪ/	/ˈlæbrətɔːrɪ/

[1] Notice that this sense of the word *accent* is much wider than in everyday use, where it basically coincides with what linguists refer to as a foreign accent. Here, in contrast, it is a general expression to refer to the pronounced form of any variety of any language, that is, the standard accent (standard English pronunciation, standard Hungarian pronunciation, etc.) is just another accent in the same way as geographically or otherwise localizable forms (e.g., Australian English, working class London English (called **Cockney**), **Black English** (that is, the African American vernacular), or the Szeged dialect of Hungarian). Every speaker has an accent.

leisure	/ˈleʒə/	/ˈliːʒər/
lieutenant	/lefˈtenənt/	/luːˈtenənt/
(n)either	/ˈ(n)aɪðə/	/ˈ(n)iːðər/
schedule	/ˈʃedjuːl/	/ˈskedʒuːl/
shone	/ʃɒn/	/ʃoʊn/
tomato	/təˈmɑːtəʊ/	/təˈmeɪtoʊ/
vase	/vɑːz/	/veɪs/
Z	/zed/	/ziː/

Although the two varieties of English mostly differ in pronunciation, there exists a certain amount of **vocabulary, spelling and grammatical differences** as well. Since these are irrelevant to the discussion in the rest of this book, we will mention just a few. The following table lists some of the notions that American English (AmE) and British English (BrE) use different words for.

AmE	BrE
apartment	*flat*
baggage	*luggage*
bill	*(bank) note*
cab	*taxi*
candy	*sweets*
closet	*wardrobe*
cookie	*biscuit*
corn	*maize*
diaper	*nappy*
elevator	*lift*
eraser	*rubber*
fall	*autumn*

AmE	BrE
faucet	*tap*
french fries	(*potato*) *chips*
garbage	*rubbish*
gasoline	*petrol*
hood (of a car)	*bonnet*
line	*queue*
(*potato*) *chips*	(*potato*) *crisps*
sidewalk	*pavement*
the first floor	*the ground floor*
truck	*lorry*
trunk (of a car)	*boot*
vacation	*holiday*

In contrast to pronunciation and vocabulary differences, the two systems of spelling and grammar do not deviate considerably. As to differences in spelling, there are two types again: some are systematic (e.g., words ending in *-our, -ise* and *-re* in British English end in *-or, -ize* and *-er* in American

English, e.g., *colour/color*, *realise/realize*[2]*, centre/center, theatre/theater*; in AmE final *-l* is not usually doubled, e.g., AmE *traveler, leveling* – BrE *traveller, levelling*), some characterize individual words only, e.g., BrE *cheque, gaol, plough, programme, pyjamas, tyre* correspond to AmE *check, jail, plow, program, pajamas, tire*. Grammatical differences do not abound, either; perhaps the most conspicuous concerns the usage of *have*, as in AmE *Do you have a problem*? vs. typical BrE *Have you got a problem*? In addition, American English uses simple past tense in some cases where British English has present perfect, e.g., AmE *He just went home*. As to verb forms, in British English the past tense and past participle of *burn, dream, lean*, *learn, smell, spell, spill* and *spoil* are typically irregular while in American English they are regular; *fit, quit* and *wet* are regular in British English but irregular in American English (all three forms being the same); *dive* is regular in British English but irregular in American English (*dive/dove/dived*); and the past participle of *get* is *gotten* in American English, *got* in British English. Finally, there are small differences in the use of prepositions, e.g., AmE *meet with sy* – BrE *meet sy*, AmE *stay home* – BrE *stay at home*, AmE *Monday through Friday* – BrE *Monday to Friday.*

Turning back to pronunciation, in the rest of the book the main emphasis falls on RP since it is the pronunciation most students of English as a foreign language are familiar with all over the world, but its occasional differences from GA (and some other accents) are not left unmentioned, either.

But what elements is pronunciation composed of? Let us first take a look at the basic mechanism that is used to produce speech sounds in English and in most Indo-European languages and also in Hungarian. The first phase

[2] In this book, we follow the British conventions for spelling. However, in words with alternative *-ise/ize*, *-ize* is used henceforth, as this form is getting so widespread that even major British publishers recommend it to their authors.

in the process of **articulation** (speech production) is called a **pulmonic egressive airstream mechanism**, meaning that the source of the air to be used in speech is the lungs ("pulmonic") and that the direction of the airflow is outward ("egressive"). It is important to note as other languages might use other kinds of airstream mechanisms to produce certain speech sounds – e.g., implosives, ejectives and clicks, which are not found in Indo-European languages or in Hungarian.

As the air leaves the lungs it continues upward in the windpipe (trachea), and enters the so-called vocal tract, where it is modified in various ways by the movements of the speech organs called articulators. All speech sounds can be classified according to where in the vocal tract this modification takes place (the so-called **place of articulation**) and how exactly this modification is carried out (the **manner of articulation**). As a third term in the description of speech sounds, we can specify how active the vocal cords are: whether they vibrate (in **voiced** sounds) or not (in **voiceless** sounds). A more detailed discussion of the articulation of English consonants is found in Chapter 2, of the articulation of English (more precisely, RP) vowels in Chapter 3, and of voicing and related phenomena in Chapter 6.

The features mentioned above characterize individual **segments**, that is, speech sounds – manner, place and voicing are the so-called **segmental features** of speech. However, larger chunks of pronunciation also have characteristics of their own – these are the so-called **suprasegmental features**. They are named so because in some sense of the word they are situated "above" segments, they affect elements which are higher up in the hierarchy of linguistic units: syllables, phrases, sentences. The two most significant suprasegmental features are **stress** (discussed in Chapters 7, 8, and 9) and **intonation** (Chapter 10). Notice that it is never a single consonant or vowel which is stressed, but the combination of consonants and vowels called

syllable; it is never a single consonant or vowel which has a characteristic intonational contour, but a whole phrase or sentence.

The scientific study of the segmental and suprasegmental features of speech is called **phonetics**. Although this is not clear from the above discussion, phonetics does not only deal with the process of articulation, that is, speech production, but it is concerned with **acoustics** (the way speech travels in the air in the form of sound waves) and speech perception (sometimes referred to as **auditory phonetics**), too. All the three aspects of pronunciation are of equal importance, nevertheless, in the rest of the book we will concentrate on articulation as it comprises a minimally necessary element of the physical properties of speech, which is at the same time sufficient for the present purposes.

A different point of view is taken by the branch of linguistics called **phonology**. It also deals with speech and sounds, and it borrows the terms and notions of phonetics, but it only uses them as tools to achieve the ultimate objective: describe the functions the segments have in speech, the relationships they contract with each other, and the various systems and patterns they constitute. For example, the same sound, i.e., the same phonetic object, may serve as an independent unit (a **phoneme**) in one language but only as a form, a positional variant (an **allophone**) of a phoneme in another. Two phonemes always enter into such a relation that they contrast and distinguish words; allophones never do so but are predictable instead. For example, a plain [k] sound and its aspirated version [k^h] (with an extra puff of air following the consonant – see Chapter 6) are separate phonemes in, e.g., Hindi, where a lot of word pairs (called **minimal pairs**) like /kan/ and /k^han/ are distinguished by this very feature – and it *does* matter which word you mean as the former means 'ear' while the latter 'mime'. The same is not true for these sounds in English: in *skin* it is plain but in *kin* it is aspirated,

however, this is totally predictable as all word-initial *k*'s are aspirated unless they are preceded by a *s*, in which case they are always plain. Because of this it is impossible for them to appear in identical phonological positions, they mutually exclude each other, that is, are in **complementary distribution**.

Phonology also attempts to handle cases when a sound appears in different forms in different environments, i.e., when phonemes or allophones alternate. For example, the two types of English *k* above can be argued to stand in such a correlation: a common underlyer *k* is realized as aspirated at the beginning of words, as plain after an *s*. Such **alternations** in linguistics are commonly referred to as **rules**. A note of warning is in order here, though. The word *rule* should not be taken here in the same sense as in the case of, e.g., the rules of the Highway Code, or the rules of etiquette. Instead, the rules of language are more like the rules (or "laws") of physics or football: it is the rules which constitute the system, which cannot exist without these rules. There is no physical world without, say, gravitation, and a ball game in which the players are allowed to catch the ball cannot be football. In contrast, traffic *does* exist without the Highway Code (in fact, there used to be a time when cars were already used but no traffic signs had been invented yet; and we also know how often drivers and pedestrians break these rules without traffic as such coming to an end); and it *is* possible to show (some kind of) human behaviour without respect to the rules of politeness (and how many people do so at least in certain situations!). The rules of a language are not like that. Languages do not exist without their rules – in fact, the rules define the languages. A system in which all *k*'s are plain cannot be (native) English; pronunciations like that of *kin* with a plain *k* are **ill-formed** (or, **ungrammatical**), at least in standard English, and will henceforth be indicated with an **asterisk** (*), e.g., *[kɪn]. The word *rule* therefore denotes

the observation of some systematic regularity rather than a regulation which must be obeyed by all good citizens.

To summarize the discussion so far, we can state that phonetics treats speech sounds from the viewpoint of their physical properties, while phonology is concerned with their function and patterning within a linguistic system. Sometimes these two viewpoints arrive at totally different conclusions. For example, compare two vowels of English, the one at the beginning of *a̲bout* (called **schwa**) and the vowel of *bi̲rd*. Phonetically, they are almost identical: in both cases the airstream entering the vocal tract is only slightly modified, with the tongue resting in its neutral position. Phonologically, however, they are each other's opposites: the former can only occur in weak, unstressed syllables, whereas the latter can only occur in strong, stressed syllables. That is why no minimal pairs exist for these two sounds: they mutually exclude each other. Therefore, two phonetically nearly identical objects are evaluated by phonology as two distinct elements. A great number of further examples illustrate that the phonetic and the phonological classes of sounds do not necessarily coincide.

The two different points of view may also influence the notational conventions analysts use. No matter to what extent the **transcription** system of the International Phonetic Alphabet (**IPA** for short) is based on universal agreement, phonologists vary as to which symbols to use in their description. For instance, someone primarily governed by phonetic criteria will choose the same symbol for *a̲bout* and *bi̲rd*, e.g., /ə/; while phonology-oriented researchers will transcribe only *a̲bout* with a schwa (/ə/) and mark the *bird*-sound differently, e.g., with /ɜ/. Actually, both types exist in Englsh: the first solution characterizes the so-called **Jonesian notation** (found in, e.g., the old bilingual Országh-dictionaries) whereas the second one is utilized in the so-called **Gimsonian system** (e.g., the latest editions of *Oxford Advanced*

Learner's Dictionary). (You may have already guessed that both are named after the person who devised them.) The two transcription systems vary in several other respects as well; this book favours Gimson's version of the IPA.

The differences of phonetic detail versus phonological analysis in transcription can be highlighted by enclosing the two types in different **brackets**: usually square brackets [ ] denote a phonetic transcription while slant brackets / / stand for a phonological one. E.g., English *kin* [kʰɪn] can be phonologically transcribed as /kɪn/ since the aspirated *k* is simply a phonetic variant (allophone) of the phoneme /k/.

A crucial difference between phonology and phonetics lies in their status concerning native speakers: namely, the former is, but the latter is not, part of linguistic knowledge. Native speakers know when to aspirate their *k*'s because they are native speakers; they learn this when they acquire their mother tongue, and anybody who is ignorant of aspiration must be a non-native speaker. They also know, subconsciously of course, that the first vowel in *po̲lice* is not the same as the one in *pe̲arly*: only the former is weak enough to be dropped, for instance, so that /pəˈliːs/ frequently becomes /ˈpliːs/ (cf. Chapter 5), but the same is impossible with the latter: /ˈpɜ(r)lɪ/ is never */ˈplɪ/. As opposed to this, native speakers are typically unaware of phonetic facts like the near physical identity of the two vowels, or the exact articulatory gestures involved in their production (not to mention their acoustics).

Not only the phonetic aspect of a language is considered to lie outside the linguistic knowledge of native speakers – so is the history of the language (would you as a native speaker of Hungarian know that your mother tongue is a Finno-Ugric language had you not been taught this at school?) as well as the written form, the **spelling**.

The relationship between English pronunciation and spelling (also called **orthography**, and commonly given between angle brackets, < >) is worthy of interest in this book, for at least two reasons. On the one hand, the spelling system of English is a mixture of several different traditions and no major reforms have affected it for centuries – as a result, there are not too many one-to-one spelling-to-pronunciation correspondences, or **letter-to-sound rules**. The same sound, say /e/, can be spelt, with **single letters**, as <e> (in *bed*), <a> (in *many*), <u> (in *bury*), or with **digraphs** (combinations of two graphic symbols) like <ea> (in *head*) (for more detail on letter-to-sound rules, see Chapters 11-12). On the other hand, being non-native learners of English, we are very often first confronted with an unknown word in its spelt form and consequently we tend to overestimate its role: pronounce long consonants (called **geminates**) – erroneously – for double consonant letters (e.g., *Emma*), or pronounce silent letters (e.g., *iron, Wednesday*). Notice however, that human language is primarily spoken: children learn to speak first and are explicitly taught to read and write somewhat later (in fact, some native speakers never acquire the spelt form of their language and remain illiterate); and speech comes first in the history of language itself, too (writing systems have emerged to represent already existing spoken languages, and many cultures have never employed an orthography). Thus writing must be conceived of as a derived version of the spoken language, and not the other way round.

That component of linguistic knowledge that we are concerned with here is, therefore, phonology. Nevertheless, we are forced to make constant reference to other components as well, since phonology seems to be heavily influenced by the rules of word formation (**morphology**) and, to a more limited extent, the rules of sentence formation (**syntax**). In addition, most phonological processes have exceptions, which cannot be accounted for by

the rules but must be stored in the speakers' memory (called the **lexicon**). For example, the fact that stress falls on the first syllable in *personal* but on the second in *personify* is due to the morphological difference between these words (viz., they are derived from the same **stem**, *person*, using **suffixes** of different types); the fact that stress falls on the first syllable in *blackbird* ('feketerigó') but on the second in *black bird* ('fekete madár') is due to the syntactic difference between a single (compound) noun and a phrase composed of an adjective and a noun. Finally, the fact that stress falls on the first syllable in the noun *present* but on the second in *event* is an example of a mere idiosyncracy: the stress pattern of *event* must be memorized in the lexicon as irregular. (On stress placement, see Chapters 8 and 9.)

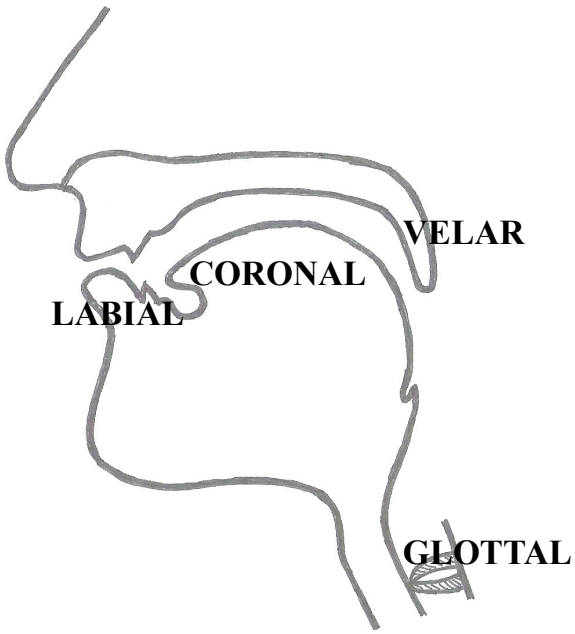
In the remaining eleven chapters follows a description of the main phonetic and phonological features of standard English pronunciation (RP and GA), together with all the morphological, syntactic and lexical conditions, which every student of English in higher education is expected to be aware of, be able to recognize in native speech, and consciously use in order to improve their pronunciation.

2. The phonology of English consonants: an introduction

Before you study this chapter, check whether you are familiar with the following terms: allophone, compound, deletion, free variation, GA, homophone, larynx, morpheme, nasal cavity, oral cavity, orthography, RP, schwa, soft palate (velum), stress, suffix, syllable, vocal cords

In this chapter we take a brief look at what phonological processes affect the consonants of English, especially those of RP and GA, and which aspect of sound structure determines their behaviour. Since we assume a knowledge of the basics of phonetics, the articulatory classification of consonants will only be touched upon and not discussed in great detail.

According to their articulation, the consonants of English can be classified along three terms: voicing, the place of articulation, and the manner of articulation. **Voicing** results from vocal cord vibration, and it is dealt with in considerable detail in Chapter 6. For the present purposes it is sufficient to say that when the vocal cords vibrate, we get voiced sounds, and when they do not, we get voiceless sounds. The place and manner of articulation refer to where and how the airflow is obstructed during the production of the consonant. There are four major **places of articulation**: **labial** (involving a lip or both lips), **coronal** (involving the blade of the tongue called the corona), **velar** (the back of the tongue moving towards the soft palate or velum), and **glottal** (involving some kind of manipulation of the opening between the vocal cords in the larynx called glottis), which are illustrated in the following diagram showing the cross-section of the head.

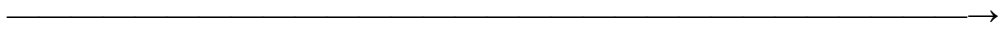


These places of articulation can be further divided into subcases, e.g., whether a labial makes use of both lips (bilabial) or just the lower one plus the upper teeth (labiodental). These are included in the consonant chart below.

According to the **manner of articulation**, there are several possible divisions of consonants. For example, some consonants are **oral** (the air escapes through the oral cavity and the mouth), others are **nasal** (the air escapes through the nasal cavity, i.e., the nose). If the articulation involves a total obstruction of the air in the larynx or the oral cavity, that is, if the air is stopped for a short period, we get **stops**, or, in other words, **noncontinuant** sounds. Otherwise the sound is **continuant**. One consonant, /l/, is special: although the tip of the tongue touches the alveolar ridge, which normally results in noncontinuant articulation, in this case the air is able to escape along the sides of the tongue (the name of this manner is **lateral**), and therefore it is generally assumed to belong to the continuants.

The major subclasses of consonants, however, stem from a further aspect of the manner of articulation: the degree of openness of the vocal tract, with the resulting relative loudness of sounds called **sonority**. The more open the vocal tract (that is, the smaller the degree of obstruction), the more sonorous the sound is. Accordingly, the following classes can be set up.

degree of sonority



oral stops (plosives) and affricates – fricatives – nasal stops – liquids – glides (semivowels) (– vowels)

As you can see, sonority increases from left to right, and this order of sound classes constitutes a **sonority scale**. That is, **oral stops** and **affricates** are the least sonorous as their production involves complete obstruction to the airflow. The most sonorous consonants are the **glides**, but the most sonorous sounds are the vowels. From **plosives** up to (and including) **fricatives** the obstruction is considerable; these consonants are called **obstruents**. The remaining classes (**nasals**, **liquids**, **glides**) are the **sonorant** consonants because they are dominated by sonority.

The following chart includes all places and manners of articulation relevant to the description of English consonants. When consonants appear in pairs, the one on the right is voiced, the one on the left is voiceless. Unpaired obstruents are voiceless; all sonorants are voiced.

				LABIAL		CORONAL					
Place of articulation ⇨				**Bilabial**	**Labio-dental**	**(Inter)-dental**	**Alveo-lar**	**Palato-alveolar**	**Palatal**	**Velar**	**Glottal**
				Two lips together	Lower lip and upper teeth	Blade of tongue against upper teeth / between teeth	Tip of tongue against alveolar ridge	Midway between palatals and alveolars	Tongue blade towards (hard) palate	Tongue body against velum	Between vocal cords
Manner of articulation ⇩											
OBSTRUENTS	Obstruction to airflow	**Plosives (oral stops)**	3 phases: complete closure, build-up of pressure, release	p b			t d			k g	ʔ
		Fricatives	Narrow opening, friction		f v	θ ð	s z	ʃ ʒ			h
		Affricates	Begin as plosives, end as fricatives					tʃ dʒ			
SONORANTS	Gretaer degree of resonance, all voiced	**Nasals**	Velum lowered, air passes through nose	m			n			ŋ	
		Liquids (approximants)	Obstruction insufficient to cause closure or friction				l	r			
		Glides (approximants)		w					j	(w)	

The obstruents in the shaded cells (s z ʃ ʒ tʃ dʒ) are the hissing and hushing sounds called **sibilants**. The consonant /w/ is produced with two important articulatory gestures, and consequently appears in the chart twice: it involves considerable lip rounding on the one hand, and a velar gesture on the other. For this reason, it is sometimes termed **labio-velar**.

After this brief introduction to the phonetics of consonants, we turn to their phonology, that is, what processes they undergo and trigger. First, let us see one of the most salient differences between RP and GA: the pronunciation of orthographic <r>. Consider a pair of rhymes in the song *An Englishman in New York* by British pop musician Sting, with the rhyming words underlined:

You can hear it in my accent when I talk
I'm an Englishman in New York

The two words, *talk* and *York*, rhyme because Sting (along with millions of English speakers) does not pronounce the <r> in *York*, which is not true for, e.g., the speakers of GA. (Notice that the <l> in *talk* is not pronounced in any accent of English, therefore this word contains three sound segments only.) The result is /tɔːk/ for *talk* and, more importantly, /jɔːk/ for *York*. The process whereby certain spelt <r>'s are not pronounced, that is, are deleted in certain accents of English is traditionally called **R-dropping**. Those accents of English whose speakers pronounce all orthographic <r>'s are referred to as **rhotic accents** (after the name of the corresponding letter in the Greek alphabet, *rho*). These include GA, Canadian English, British English in North and South-West England, Scottish English, and Irish English. In contrast, RP, Southern British English (including Cockney and London English), Welsh English, Australian English, New Zealand English, South African English, and American English in New England and parts of Southern US are **non-rhotic**, that is, their speakers drop the <r> when it is followed by a consonant

or a pause (i.e., nothing in speech), and they only pronounce it when it is followed by a vowel. The following chart illustrates this with a few examples.

no /r/				pronounced /r/		
before a consonant		before a pause		before a vowel		
(a)	(b)	(c)	(d)	(e)	(f)	(g)
York	*tired*	*your*	*tire*	*ring*	*crow*	*tiring*
party	*iron*	*car*	*bore*	*routine*	*pray*	*boring*
bird	*aren't*	*err*	*care*	*rhyme*	*tribute*	*error*
allergy	*feared*	*refer*	*lyre*	*refer*	*shrimp*	*referee*
leopard	*retirement*	*teacher*	*restore*	*restore*	*Africa*	*fiery*
particular	*fires*	*particular*	*more*	*retirement*	*poetry*	*furry*
bears	*rarely*	*bear*	*centre*	*rarely*	*arrive*	*rarest*

In non-rhotic accents like RP, then, no /r/ is pronounced before a consonant, as in the examples in column (a). Sometimes the consonant is a suffix, e.g., *bears*. Very often the letter <r> is immediately followed by a vowel letter which is not pronounced, as in column (b) – in such cases the <r> really *is* before a consonant and behaves accordingly. The most frequent silent letter is <e>, so it can be misleading when some other vowel letter, e.g., the <o> in *iron*, is unpronounced. (You may be able to recall a Bob Marley song entitled *Iron Lion Zion*, which makes good use of those three rhyming words. Notice that Jamaican English is also non-rhotic.) The <r>'s in (c) and (d) are in final position – again, silent letters (in (d)) do not count.

When the <r> is followed by a vowel, however, it is pronounced even in non-rhotic accents, be it at the beginning (column (e)) or the middle (column (f)) of the word. In the word *rhyme* in (e), the letter <h> is not pronounced, so the /r/ is followed by a vowel, /aɪ/. In (g), the following vowel, which enables the <r> to be pronounced, is part of a suffix. Notice

that word-final <r>'s are like ghosts: sometimes you see them, sometimes you do not. You "see" them when they are followed by a vowel-initial morpheme like *-ing, -er/-or, -ee, -y,* etc. (those /r/'s are often called **Linking-R**), but they disappear when they are final or when they are followed by a consonant-initial morpheme like *-(e)d* (the <e> is mostly silent), *-ment*, *-ly*, etc., as in *retirement* and *rarely* in column (e) above. Hence the difference between *tire/ tired* vs *tiring*, *bore* vs *boring*, *err* vs *error*, *refer* vs *referee*, and *fur* vs *furry*.

Note that it never matters whether the /r/ is spelt as a single letter <r> or double <rr>. Also, remember that non-rhotic accents are named so not because they do not pronounce *any* /r/ sounds, but because they do not pronounce *certain* orthographic <r>'s, as opposed to rhotic accents, which pronounce all <r>'s that are present in spelling. In fact, there are some cases when rhotic speakers do not pronounce an /r/, and there is no <r> in spelling, however, most non-rhotic speakers (perhaps except only for conservative RP, i.e., RP spoken by older generations) pronounce one, e.g., in *sawing* /ˈsɔːrɪŋ/, *gnawing* /ˈnɔːrɪŋ/, *rumbaing* /ˈrʌmbərɪŋ/, *subpoenaing* /səˈpiːnərɪŋ/ 'summoning sy to appear in a lawcourt', *guffawing* /gəˈfɔːrɪŋ/ 'giving a noisy laugh', *baahing* /ˈbɑːrɪŋ/ *(of sheep)*, *blaher* /ˈblɑːrə/ 'more mediocre'. This is called **Intrusive-R**. Intrusive-R is only found in non-rhotic accents, and it only appears at (certain) morpheme boundaries, after certain vowels. We learn more about this in Chapter 7.

An interesting consequence of R-dropping in non-rhotic accents is that new homophones emerge, so *sore* sounds the same as *saw*, *pour* sounds the same as *paw*, *aren't* sounds the same as *aunt*. Further examples include *farther – father*, *fort – fought*, *source – sauce*, *more – maw*, *tuner – tuna*, *sort – sought*, *court – caught*, *spar – spa*, *career – Korea*.

When a word ends in an <r>, it can not only "escape" being dropped when a vowel-initial suffix is attached to the word as in the examples in column (g) in the chart above, but in fact any vowel-initial morpheme following the word is able to produce the same effect, even a following vowel-initial word. Therefore, Linking-R is heard in phrases like *more exciting*, *your eyes*, (*to*) *err is* (*human*), *care about*, *centre of*, *tire us*, etc. This can even happen between two sentences, e.g., *He doesn't car*. *I do* or *There's a spider*. *I'm scared*. Similarly, under the same conditions as between a word and a suffix, Intrusive-R appears between the two words in *visa application*, (*the*) *idea is*, (*the*) *Shah of* (*Persia)*, *schwa insertion*, *law and* (*order*), *Gloria Estefan*, (*cats*) *claw at* (*the furniture*), (*the giant*) *panda is* (*an endangered species*), etc., and between the two sentences in *Try that sofa._It's softer* or *Call Maria._I need her.* Further homophones arise, e.g., *vanilla ice – vanilla rice*, *Amanda Avon – Amanda Raven*, *the spa is broken – the spar is broken*, *put the tuna in the box – put the tuner in the box*. Such homophones are only possible in the non-rhotic accents of English exhibiting Intrusive-R.

Now we turn to another consonant, /l/. As exemplified by the word *talk* mentioned above, the letter <l> is also sometimes not pronounced, but this time we are only concerned with the sound /l/, that is, when the <l> is pronounced. In several dialects of English, it has two possible pronunciations, i.e., two allophones. In certain positions, the /l/ is the same alveolar lateral as in Hungarian; the traditional name of this sound is **clear-L** (or light-L). In other positions, however, it becomes **velarized**, that is, its articulation involves the movement of the tongue towards the soft palate (velum); this is usually called **dark-L**. Roughly, in RP the /l/ is only pronounced clear when followed by a vowel, and it becomes dark (the IPA

symbol of dark-L is [ɬ]) when a consonant or pause follows. This is the rule of **L-darkening**. The following chart shows the details.

dark-L		clear-L		
bef. a cons.	bef. a pause	before a vowel		before /j/
(a)	(b)	(c)	(d)	(e)
spi<u>l</u>t	*pi<u>ll</u>*	*<u>l</u>ip*	*s<u>l</u>ip*	*va<u>l</u>ue*
be<u>l</u>ch	*be<u>ll</u>*	*<u>l</u>ook*	*sp<u>l</u>endid*	*ce<u>ll</u>ular*
A<u>l</u>bert	*rebe<u>l</u>*	*<u>L</u>inda*	*Ash<u>l</u>ey*	*mi<u>ll</u>ion*
e<u>l</u>se	*sta<u>l</u>e*	*<u>l</u>ateral*	*co<u>l</u>on*	*eva<u>l</u>uate*
ki<u>ll</u>ed	*ki<u>ll</u>*	*<u>l</u>ibido*	*ki<u>ll</u>ing*	*vo<u>l</u>ume*
ta<u>ll</u>ness	*ta<u>ll</u>*	*<u>l</u>ullaby*	*ta<u>ll</u>er*	*schoo<u>l</u>yard*

As you can see above, the /l/ is dark when it is followed by a consonant sound (column (a)) or when final in the word (column (b)). Spelling does not count, so <l> and <ll> behave identically since they are both pronounced in the same way: short /l/. Do not let silent letters (e.g., *kill<u>e</u>d*, *stal<u>e</u>*) mislead you. In the three columns on the right, the /l/ is clear because it is prevocalic, either word-initially (column (c)) or medially (column (d)), or it precedes a /j/ sound (column (e)), which may be part of the complex vowel /juː/ or its reduced counterparts /jʊ, jə/, or may result from the reduction of an unstressed /ɪ/ (e.g., *million* /ˈmɪljən/). If we compare the examples *killed – kill – killing* and *tallness – tall – taller*, we find that word-final /l/ is only dark when followed by a consonant or a pause, but it becomes clear when a vowel-initial suffix follows. In *schoolyard*, the /l/ is at the end of the word *school*, but it is followed by a /j/ in the compound, and therefore it is clear.

Within and across sentences, the pronunciation of word-final /l/ is determined by the following segment in the same way. While it is dark in *feel* and *feel me*, it is clear in *feel at home*; dark in *spell* and *spell this word* but

clear in *spell it*. Compare *kill* and *kill Bill* with *kill you*, *smile* and *smile back* with *smile at me*. There is one type of word-final /l/, however, which is always dark and which no following vowel can "rescue". In words like *cycle* [ˈsaɪk̩ɫ], *martial* [ˈmɑːʃ̩ɫ], or *channel* [ˈtʃæn̩ɫ], the /l/ is found in a syllable that lacks a vowel: notice that in the second syllables of these examples, the /l/ constitutes the syllable along with another consonant. Since in such cases the /l/ is considered to take up the role of the vowel and constitute the syllable, it is usually referred to as a **syllabic** /l/, and is transcribed [ɫ̩] (syllabicity is indicated in the IPA by a short vertical line under the main symbol). For some reason, syllabic /l/ is always dark, even if it is followed by a vowel sound in the next syllable, so it is also dark in *cycling* [ˈsaɪkɫ̩ɪŋ], *martial arts* [ˈmɑːʃ̩ɫ ˈɑːts], or *Channel Islands* [ˈtʃæn̩ɫ ˈaɪləndz].

Let us emphasize at this point that the discussion of L-darkening refers to RP only. In other accents of English, the distinction between clear and dark-L may not be present at all (as in GA, where /l/ is usually dark in all positions), or may have slightly different conditions. In several non-standard varieties of English, dark-L is often articulated as an [o]-like vowel, e.g., *milk* [mɪok], *shelf* [ʃeof], *feel* [fiːo]. This is called **L-vocalization**, as the consonant /l/ is replaced by a vowel.

Finally, we take a look at plosives in English, especially voiceless plosives, since they exhibit a wide range of allophones. Word-initially and before a stressed vowel, the voiceless plosives (= /p t k/) are followed by a short [h]-like sound. This phenomenon is referred to as **aspiration**, and a detailed description of its articulatory basis is given in Chapter 6. Phonetically, i.e., in physical reality, there are various degrees of aspiration, with word-initial pre-stress plosives having the strongest possible aspiration, word-medial pre-

stress plosives and unstressed initial plosives having somewhat less, and other word-internal ones and those in word-final position having even less. In one case, however, they are definitely unaspirated: after an /s/. This is illustrated in the chart below. The accents on top of vowel letters in the example words denote stress (the acute accent <ˊ> means stronger stress than the grave accent <ˋ> – see Chapter 8 for the degrees of stress in English).

aspirated			unaspirated 1		unaspirated 2
(a)	(b)	(c)	(d)	(e)	(f)
pát	*repéat*	*potáto*	*léopard*	*ráp*	*spíll*
póker	*suppórt*	*políce*	*clípper*	*gállop*	*wásp*
tén	*retúrn*	*tomáto*	*tomáto*	*cút*	*stóp*
tíger	*detér*	*today*	*vánity*	*suppórt*	*stándard*
kíll	*índicàte*	*cajóle*	*quáker*	*póke*	*scúll*
cút	*raccóon*	*collápse*	*póker*	*láck*	*skín*

The columns (a)-(f) give examples of the degrees of aspiration from strong in (a) to zero in (f). The chart also shows that on the basis of the behaviour, i.e., the possible pronunciations, of the plosives, we can identify a phonologically relevant binary distinction between aspirated and unaspirated. In (a)-(c), only aspirated plosives are pronounced by speakers of English, and it is just the degree of the aspiration which distinguishes the subcases. The other columns, however, differ in that aspiration is either optional ("unaspirated 1" in (d)-(e)) or impossible ("unaspirated 2" in (f)). The optionality of aspiration in (d)-(e) means that in the positions in question other allophones can also appear. Besides a plain unaspirated plosive, in GA or informal-colloquial British English /t/ is frequently realized as a so-called **tap** (or **flap**) in the cases in (d) (i.e., before an unstressed vowel), the IPA symbol of which is [ɾ], and the

process is referred to as **tapping** (or **flapping**). (In fact, this is also true for /d/, which is, of course, not a voiceless plosive but a voiced one, so it does not undergo aspiration.) Examples include *tomato* [tʰəˈmeɪɾəʊ], *vanity* [ˈvænɪɾɪ], *matter* [ˈmæɾə(r)], *butterfly* [ˈbʌɾəflaɪ], *nobody* [ˈnəʊbərɪ], *little* [ˈlɪɾɬ]. In (e), that is, word-finally, the voiceless plosives /p t k/ (and also /tʃ/) are usually unreleased and/or are accompanied by a short closure of the vocal cords called the glottal stop (symbolized by [ʔ] in the IPA), and the phenomenon is accordingly dubbed **glottalization**. E.g., *sleep* [sliʔp], *match* [mæʔtʃ], *not* [nɒʔt]. (See Chapter 6.)

Turning back to aspiration, it actually has two realizations. One is the short [ʰ]-like sound following the plosive, mentioned above. The other manifestation of aspiration is the **devoicing** of a following sonorant consonant. In *pr̥ay* [pr̥̥eɪ], *pl̥ug* [pl̥̥ʌg], *simpl̥icity, attr̥act, qu̥een* [kw̥̥iːn], *cu̥be* [kjuːb], *liqueu̥r, tw̥ist*, the underlined sonorant consonants are voiceless. In /tr/ sequences, the /t/ is aspirated and therefore the /r/ is devoiced, and the resulting [tr̥̥] sounds very much like a /tʃ/, as if it was an affricate. Notice how minimal the difference is between *train* and *chain*.

If we take consonant sequences (called **clusters**) under closer scrutiny, we make an interesting observation. In words like *attractive, betray*, the /t/ is aspirated and thus the /r/ is devoiced. In contrast, in examples such as *Atlantic, Scotland*, the /t/ is glottalized and the /l/ is fully voiced. In both cases the voiceless plosive is followed by a sonorant consonant. Where can the difference come from? Notice that, crucially, thousands of English words start with a /tr/ cluster (*tray, trip, trombone*, etc.), but there are no such examples with /tl/. This cannot be an accident. In addition, most native speakers of English would insist that the /t/ in *attractive* belongs to the

second syllable of the word along with the /r/, whereas in *Atlantic* there is a syllable division (or **syllable boundary**, customarily indicated by a dot) between the /t/ and the /l/. This yields *a.ttrac.tive* (the double <t> in spelling stands for a single /t/ sound) but *At.lan.tic*. In conclusion, /tr/ is a frequent syllable-initial cluster, while in /tl/ the /t/ is at the end of one syllable and the /l/ is at the beginning of the next one. This also explains why /tr/ is possible at the beginning of words (after all, the beginning of the word is, at the same time, the beginning of the (first) syllable), and why /tl/ never occurs in that position (the /t/ is at the end of a syllable and not at the beginning). Now, it appears that the pronunciation of the /t/ (and the other voiceless plosives as well) depends on its position within the syllable: it is aspirated when syllable-initial but glottalized when syllable-final. If we (or rather: native speakers of English) syllabify the example words given above and repeated here for convenience (only the relevant syllable divisions are indicated), we identify a syllable boundary to the left of all the "aspirated" cases: in (a) and (c), the plosive is at the beginning of the word, while in (b) there is a unanimous agreement among speakers as to the syllable boundary. In (e) and (f), this clearly does not hold: the plosive is either word- (that is, syllable-) final or medial but certainly not initial.

aspirated			unaspirated 1		unaspirated 2
(a)	(b)	(c)	(d)	(e)	(f)
pát	*re.péat*	*potáto*	*léo.p.ard*	*ráp*	*spíll*
póker	*su.ppórt*	*políce*	*clí.pp.er*	*gállop*	*wásp*
tén	*re.túrn*	*tomáto*	*tomá.t.o*	*cút*	*stóp*
tíger	*de.tér*	*todáy*	*váni.t.y*	*suppórt*	*stándard*
kíll	*índi.càte*	*cajóle*	*quá.k.er*	*póke*	*scúll*
cút	*ra.ccóon*	*collápse*	*pó.k.er*	*láck*	*skín*

Column (d) is, however, problematic. When a single consonant is followed by an unstressed vowel, native intuition fails to make unambiguous judgments: some speakers would opt for *leop.ard*, others for *leo.pard*, yet others "feel" as if the /p/ belonged to both syllables – i.e., the syllabification of such consonants is ambivalent. (In the chart, we have indicated this hesitation by dots assigned to both possible locations.) For this reason, phonologists often refer to such a situation as **ambisyllabicity**, and to such consonants as **ambisyllabic**. We can conclude, then, that ambisyllabic voiceless plosives can be plain or weakly aspirated, ambisyllabic /t/ and /d/ may even be tapped. Our findings are summarized in the following table.

Syllabic position	Pronunciation
initial	strongly aspirated
ambisyllabic	weakly aspirated or tapped
final	unaspirated glottalized

For the sake of experiment, let us revisit the allophonies discussed earlier, and investigate into syllable boundaries in the examples. The chart illustrating R-dropping is repeated presently.

no /r/				pronounced /r/		
before a consonant		before a pause		before a vowel		
(a)	(b)	(c)	(d)	(e)	(f)	(g)
York	*tired*	*your*	*tire*	*ring*	*crow*	*ti.r.ing*
par.ty	*iron*	*car*	*bore*	*routine*	*pray*	*bo.r.ing*
bird	*aren't*	*err*	*care*	*rhyme*	*tribute*	*e.rr.or*
aller.gy	*feared*	*refer*	*lyre*	*refer*	*shrimp*	*refe.ree*
leopard	*retire.ment*	*teacher*	*restore*	*restore*	*A.frica*	*fie.r.y*
par.ticular	*fires*	*particular*	*more*	*retirement*	*poe.try*	*fu.rr.y*
bears	*rare.ly*	*bear*	*centre*	*rarely*	*a.rrive*	*ra.r.est*

The position of the relevant syllable divisions reveal that R-dropping affects syllable-final /r/, which can be absolute final (as in, e.g., *party* in (a), and all the example words in (c)-(d)) or part of a final cluster (as in, e.g., *leopard*). Syllable-initial /r/, whether absolute initial (in (e) and in *arrive* and *referee*) or part of an initial cluster (in (f)), escapes being dropped, and so does ambisyllabic /r/ (in (g)).

Syllabic position	Pronunciation
initial	pronounced
ambisyllabic	pronounced
final	dropped

Notice that initial and ambisyllabic consonants have something in common: they (can) occupy the beginning of the syllable.

Now here is the chart for L-darkening.

dark-L		clear-L		
bef. a cons.	bef. a pause	before a vowel		before /j/
(a)	(b)	(c)	(d)	(e)
spilt	*pill*	*lip*	*slip*	*va.l.ue*
belch	*bell*	*look*	*splendid*	*ce.ll.ular*
Al.bert	*cancel*	*Linda*	*A.shley*	*mi.ll.ion*
else	*stale*	*lateral*	*co.l.on*	*eva.l.uate*
killed	*kill*	*libido*	*ki.ll.ing*	*vo.l.ume*
ill.ness	*ill*	*lullaby*	*i.ll.er*	*schoo.l.yard*

In the first two columns, the /l/ is always at the end of a syllable: it is either absolute final (as in, e.g., *Albert*, *illness*, and the examples in column (b)) or part of a final cluster (as in the rest of the words in (a)). Notice that *killed* goes under exactly the same rubric as *spilt*, *belch* or *else*: the <e> in the *-ed* suffix is silent, so the /l/ is immediately followed by the final consonant /d/.

In the remaining three columns, however, the /l/ is syllable-initial (including cases when it is part of an initial cluster) or ambisyllabic. In column (e), it is always ambisyllabic since it may end the syllable to the left, but it may as well form an initial cluster with the following /j/ – words like *lucid* /ˈljuːsɪd/, *lucrative* /ˈljuːkrətɪv/, *ludicrous* /ˈljuːdɪkrəs/ exemplify /lj/, at least in one possible pronunciation (the other alternative does not contain the /j/ – see Yod-dropping in Chapter 5). Therefore, we can conclude the following.

Syllabic position	Pronunciation
initial	clear
ambisyllabic	clear
final	dark

Careful readers must have noticed that in L-darkening, just like in the allophony of plosives and in R-dropping, the ambisyllabic situation patterns with the initial rather than the final position. The only exception is tapping, which is possible when the /t/ or /d/ is ambisyllabic but impossible when it is clearly initial. Apparently, /l/ is clear and /r/ is pronounced in *at least partial* initial position, whereas for a plosive to be (considerably) aspirated it must *exclusively* occupy the beginning of the syllable.

When we look at the "fate" of word-final consonants (e.g., the /r/ in *more*, the /l/ in *feel*, or the /t/ in *get*) in phrases and sentences, things become particularly exciting. In isolation or at the end of an **utterance** (i.e., a stretch of speech uttered without a pause), they are, obviously, syllable-final. But how are strings like *mo<u>r</u>e exciting*, *you<u>r</u> eyes*, *fee<u>l</u> at home*, *spe<u>ll</u> it* and *ge<u>t</u> up* syllabified? As we have just stated, the underlined consonants *can* be syllable-final, but notice that they can also start the following syllable – after all, there are a whole lot of English words beginning with /r/, /l/ and /t/. Consequently, the syllabification of such consonants is not unambiguous –

they are ambisyllabic. (This is also reflected by the fact that phrases like *a nice cream* and *an ice-cream* are indistinguishable. In fact, this phenomenon is not only observable in English but in other languages, e.g., Hungarian, as well: the native intuition concerning the position of, e.g., the /z/ in *az* 'the' is readily illustrated by the title of a Miklós Vámos book, *Zenga zének* 'the song resounds', or the Hungarian translation of *Heffalump*, *Zelefánt*, in the cartoon *Micimackó és a Zelefánt*, *Pooh's Heffalump Movie*). Therefore, the relevant syllable boundaries can be located as *mo.re. exciting*, *you.r. eyes*, *fee.l. at home*, *spe.ll. it*. (Remember to ignore the silent <e> at the end of *more*.) This straightforwardly explains why such /r/'s are pronounced and such /l/'s are clear. The same is not true, however, of phrases like *more beautiful* and *feel me*, where ambisyllabicity is ruled out, and as a result, such /r/'s are dropped and such /l/'s are dark. As far as syllabic consonants are concerned, they are necessarily always syllable-final, since no English syllable can start with one (that is why no English word starts with one). It follows, then, that syllabic /l/, as in *Channel Islands*, is always dark.

In light of the above discussion, you could have guessed by now what happens to a final /t/ in a phrase like *get up*: since it is ambisyllabic, it can only be moderately aspirated, what is more, it must be tapped in the so-called tapping dialects like GA or informal-colloquial British English. This prediction is supported by the facts: in GA, for example, the underlined /t/ in *right away*, *not a joke*, *get up*, *at all* is usually pronounced as a tap.

In sum, this chapter has shown what major phonological processes affect the consonants of English, and how these processes are driven by the position the consonants occupy within the syllable. The next two chapters introduce the phonology of English vowels, but in Chapter 5 we take up the discussion of syllable structure again, and discover some of its further aspects.

3. The phonology of English vowels: an introduction

Before you study this chapter, check whether you are familiar with the following terms: back, central, close, consonant cluster, diphthong, front, full vowel, half-close, half-open, high, lax, low, manner of articulation, mid, monophthong, open, place of articulation, rounded, schwa, stress, suffix, syllable, tense, triphthong, unrounded, vowel shift, weak vowel

In this chapter we take a look at English vowel sounds and their possible classifications, compare them with the Hungarian vowel system and see what typical vowel alternations occur in English.

Vowels differ from consonants in two very important ways: they are articulated without any kind of obstruction in the oral cavity – i.e., the articulators do not form a complete or partial closure or a narrowed passage in the way of the exhaled air. On the other hand, vowels differ from consonants in their behaviour, too: while consonants typically occur in syllable marginal positions – they appear at the peripheries of the syllable –, vowels form the very core of the syllable and occur in syllable central position.

As suggested in Chapter 1, vowel sounds may be classified according to two types of factors: phonetic and phonological. In the first case, classification is based on some articulatory characteristics while in the second it is some aspect of vowel behaviour that serves as the basis for classification.

Let us first examine what **phonetic classes** may be defined in the English vowel system. In some vowels the position of the tongue is relatively stable during articulation; such vowels are called **monophthongs**. In other vowels, though, the position that the tongue occupies at the beginning of the vowel differs significantly from what it occupies at the end of the vowel; i.e.,

some tongue movement is involved. Such vowels are referred to as **diphthongs** (and **triphthongs**). We may also think of this difference as a difference in how many vowels are found within one syllable: in monophthongs there is one – e.g., /ɪ, e, ʊ, ɔː, ɑː/ –, in diphthongs there are two – e.g., /aɪ, eə, əʊ/ – while in triphthongs there are three – e.g., /aɪə, aʊə/. Note though that triphthongs are not found in all dialects of English: those dialects that pronounce all underlying /r/'s – the so-called rhotic dialects, cf. Chapter 2 – typically lack triphthongs – and even some of the diphthongs as we will show in Chapter 4.

On the other hand, vowels may be short – e.g. /ɪ, e, ʊ/ – or long – e.g., /ɔː, ɑː, eə, əʊ, aɪə/ – depending on their **duration**: long vowels are approximately twice as long as short ones. Note that diphthongs and triphthongs are just as long as long monophthongs. Whenever we refer to long vowels, we always mean long monophthongs, diphthongs and triphthongs together. Note that length in English varies depending on the environment – i.e., length is not a stable property. For more on length alternations, see Chapter 6. The vowels of RP are the following:

Short vowels	Long vowels		
ɪ, ʊ, e, ɒ, ʌ, æ	ɑː, iː, uː, ɔː, ɜː	eɪ, aɪ, ɔɪ, aʊ, əʊ, ɪə, eə, ʊə	aɪə, aʊə
Monophthongs		Diphthongs	Triphthongs

To further demonstrate that length is not a purely phonetic property of English vowels, we may refer to the **controversy of length marking**: the vowel length of monophthongal – or pure – vowels is indicated with a colon. However, one of the so-called short monophthongs, the vowel /æ/ is just as long in actual pronunciation as any of the long monophthongs or diphthongs and it even undergoes the very same shortening process as long vowels do

(see Chapter 6). However, its length is not indicated in transcription with the colon. The vowel /æ/ is categorized as a short vowel because it behaves like other short vowels do. The phonetic length of /æ/ may be due to the fact that during its production the lower jaw and the tongue are in their most open position, a gesture which might take long enough to cause a perceivable length difference.

Another important note concerning vowel length is due here: while most Hungarian **short-long vowel pairs** consist of vowels of more or less the same quality with just a length difference (e.g., /y/-/yː/ *tüze* 'his/her/its fire' vs. *tűz-e* 'does he/she/it stitch?', /ø/-/øː/ *kör* 'circle' vs. *kőr* 'hearts (in cards)', /i/-/iː/ *Sirok* (a placename) vs. *sírok* 'I cry'), English short-long vowel pairs always involve a quality difference, that is, there is no English short-long vowel pair in which the qualities of the two vowels are the same. This is also reflected in the phonetic symbols used to indicate them. Consequently, while there is a short /ɪ/ and a long /iː/, there is no /ɪː/; similarly, while there is a short /ʊ/ and a long /uː/, there is no /ʊː/. The only exception to this rule is the vowel pair /ə/-/ɜː/, mentioned in Chapter 1, where the quality of the vowels is the same. However, in this case it is the full vowel-weak vowel distinction, to be discussed presently, that justifies the use of the different symbols.

As far as **phonological classifications of vowels** are concerned, the two major phonological classes are based on the type of syllable the vowel appears in. English behaves quite differently from Hungarian as far as stressed and unstressed syllables are concerned. On the one hand, while it is always the first syllable of the word that carries the main stress in Hungarian, it may be the first, second, third, etc. syllable of an English word that carries primary stress.[1] On the other hand, English unstressed syllables have **reduced**

[1] For the degrees of stress, see Chapter 8.

vowels only, in the sense that these vowels are shorter, weaker in energy and closer to schwa /ə/ in place of articulation. Thus, in unstressed syllables only weak vowels – /ə/, /ɪ/ and /ʊ/ – may be found while in stressed syllables we may only find so-called **full vowels** – i.e., all the other vowels of English, also including /ɪ/ and /ʊ/, which, besides occurring in unstressed syllables, may also function as full vowels.

Within the class of full vowels we may distinguish two subclasses: **tense and lax vowels**. One has to be very careful when using these two terms as they are often used as phonetic labels, too. In a phonetic sense, these terms refer to the muscle bundles located at the backmost part of the tongue, against the back wall of the pharynx (throat). Whenever these muscles are tense, the vowel is tense (in a phonetic sense); when such muscle tenseness is not present, the vowel is lax (phonetically). However, we will use these terms in a purely phonological sense, i.e., to refer to a certain kind of vowel behaviour. (We might just as well call the two types of vowel Type1 and Type2 was it not for our wish to follow the tradition.) As we will show below, tense and lax vowels (in a phonological sense) occur in different types of environment.

	Tense	Lax
Monophthongs	iː, uː, ɔː[3]	ɪ, e, æ, ʌ, ʊ, ɒ, ɑː, ɜː, ɔː[1], ɔː[2]
Diphthongs and triphthongs	aɪ, eɪ, ɔɪ, aʊ, əʊ, ɪə, eə, ʊə, aɪə, aʊə	

There are a few generalizations to be drawn on the basis of the above table: all short vowels are lax and all diphthongs and triphthongs are tense while long monophthongs are divided between the two classes. Non-high long monophthongs – that is /ɑː/, /ɜː/ and /ɔː/ – are lax, except in the case of /ɔː/[3].

The behaviour of /ɔː/ is twofold: sometimes it is tense, in other cases it is lax. There are two general types of spellings that indicate a lax /ɔː/ while a further set of spellings represents the tense variant.

/ɔː/[1]	Lax	No <r> in spelling	*ball, called, saw, bought, broad, Shaw, clause, fault*
/ɔː/[2]		<ar> or <or> in spelling in word-final position or followed by a consonant letter	*for, horde, morning, gorgeous, cord, north, war, dwarf, quarter, horn, sport*
/ɔː/[3]	Tense	<or> in spelling followed by a (pronounced or silent) vowel letter	*before, historian, store, more, adore, bored, shore*
		<oar>, <oor>, <our>, <aur> in spelling	*soar, boar, roar, door, floor, four, pour, aura, Laura*

The behaviour and alternations of tense and lax vowels are discussed below and also in Chapter 4, where we take a look at their behaviour before <r>. The following table sums up what we have discussed about the manner of articulation and the behaviour of vowels so far.

	Full vowel			Weak vowel
	lax		tense	
	short	long	long	
Monophthong	ɪ, e, æ, ʌ, ʊ, ɒ	ɑː, ɜː, ɔː	iː, uː, ɔː	ɪ, ʊ, ə
Diphthong	-	-	aɪ, eɪ, ɔɪ, aʊ, əʊ, ɪə, eə, ʊə	-
Triphthong	-	-	aɪə, aʊə	-

Let us now turn to the **places of articulation of vowels**. Before we actually discuss these we have to point out that places of articulation are not as clearcut for vowels as for consonants for the very simple reason that while in consonants the place of articulation refers to the articulators producing some

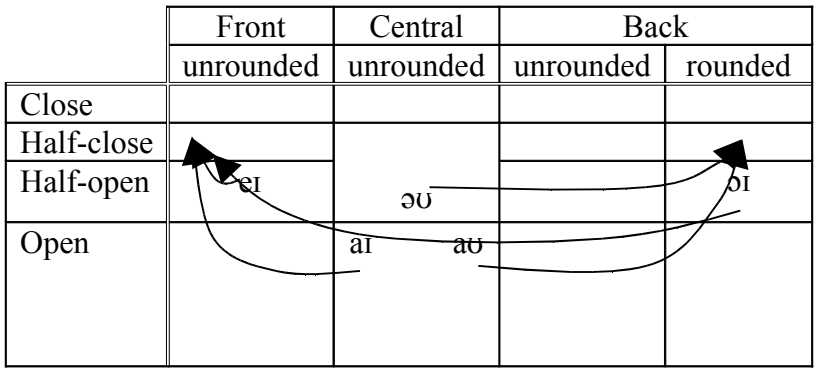
degree of obstruction, in vowels it is simply inapplicable as they do not involve any kind of obstruction. Instead of referring to obstruction sites, we will use three criteria to classify vowels according to horizontal tongue position, vertical tongue position and lip rounding.

The **places of articulation of the monophthongs** of RP are the following:

	Front	Central	Back	
	unrounded	unrounded	unrounded	rounded
Close	/iː/ *beat*	-	-	/uː/ *boot*
Half-close	/ɪ/ *bit*	/ə/ *ago*	-	/ʊ/ *put*
Half-open	/e/ *bet*	/ɜː/ *burn*	-	/ɔː/ *bought*
Open	/æ/ *bat*	/ʌ/ *but*	/ɑː/ *bar*	/ɒ/ *Bob*

We have to note that besides the terms used in the table above, close vowels are often referred to as **high**, open vowels as **low**, while the ones inbetween as **mid**. As it can be seen from the above table the following generalizations may be drawn: front and central vowels are unrounded while back vowels are rounded, except for /ɑː/.

The **places of articulation of the diphthongs** of RP are the following:



	Front	Central	Back	
	unrounded	unrounded	unrounded	rounded
Close				
Half-close	ɪə			ʊə
Half-open	eə			
Open				

/ɪə/ *beer*

/eə/ *bear*

/ʊə/ *boorish*

Diphthongs may be classified according to several factors. On the one hand, we may distinguish them according to their second component: if it is a schwa /ə/, then we talk about **centring diphthongs**. In all other diphthongs the second component is more close than the first, and these are thus called **closing diphthongs**; those that end in /ɪ/ are **fronting** (and closing) while those ending in /ʊ/ are **backing** (and closing). On the other hand, closing diphthongs may be classified according to the articulatory distance between the two components: the diphthongs /eɪ/, /əʊ/ are **narrow** (and closing), while the rest, /aɪ/, /aʊ/, /ɔɪ/ are the so-called **low-starting** or **wide diphthongs**. This is summarized in the table below:

	Centring	Closing	
		Fronting	Backing
Narrow	ɪə, eə, ʊə	eɪ	əʊ
Wide	-	aɪ, ɔɪ	aʊ

As shown in the following table, unlike English, Hungarian also has front rounded vowels. In addition, Hungarian back vowels are all rounded – note that /aː/ is a central vowel. Attention must also be paid to the fact that the traditional **Hungarian terminology** might be misleading: the so-called "magas (hangrendű)" vowels are actually front – and not high –, while "mély (hangrendű)" vowels are central or back – and not low –, i.e., *magas* and

mély do not refer to tongue height, but are metaphors for the acoustic effect made by the vowel.

The **places of articulation of Hungarian vowels** are the following:

	Front		Central	Back
	unrounded	rounded	unrounded	rounded
Close	/iː/ *hív* /i/ *ki*	/yː/ *tűz* /y/ *üt*	-	/uː/ *út* /u/ *kulcs*
Half-close	/eː/ *kér*	/øː/ *nő* /ø/ *kör*	-	/oː/ *tó* /o/ *hoz*
Half-open	/ɛ/ *kert*	-	-	-
Open	-	-	/aː/ *ház*	/ɒ/ *kar*

Let us now turn back to phonology and the discussion of tense and lax vowels. One of the differences between them is in what positions they may appear in a word. In English, unlike in Hungarian, when a word is suffixed, often it is the pronunciation of the word stem that changes and not that of the suffix. One such alternation involves the change of an original tense vowel into a lax one. The phenomenon is called **vowel shift**, a historical version of which – the Great Vowel Shift – applied to English long vowels around the 15th century.

The vowel shift is thus a case of tense-lax alternations. Tense vowels of word stems become lax in certain environments. The tense-lax vowel pairs are as follows:

Regular type		Vowel letter		Before R
1. /eɪ/-/æ/	*grade-gradual* *sane-sanity* *vane-vanity*	**A**	*compare-comparison* *prepare-preparatory* *barbarian-barbaric*	1. /eə/-/æ/
2. /iː/-/e/	*meter-metric* *secret-secretary* *keep-kept*	**E**	*imperial-imperative* *severe-severity* *hero-heroine*	2. /ɪə/-/e/
3. /aɪ/-/ɪ/	*final-finish* *decide-decision* *Bible-biblical*	**I** or **Y**	*satire-satirical* *tyrant-tyranny* *lyre-lyrical*	3. /aɪə/-/ɪ/
4. /əʊ/-/ɒ/	*holy-holiday* *know-knowledge* *sole-solitude*	**O**	*historian-historical* *explore-exploratory* *flora-florist*	4. /ɔː/-/ɒ/

There are two types of word pair: one in which the stressed vowel is followed by the letter <r> and one in which it is not. As vowels may be influenced by a following <r> – Pre-R Breaking for tense vowels and Pre-R Broadening for lax vowels, for details see Chapter 4 – we have to consider pre-R cases separately. Note that in the examples relevant to the present discussion, Pre-R Breaking does apply for tense vowels (that is, tense vowels differ according to what follows them) but Pre-R Broadening does not (that is, the same lax vowels appear in both the first and the last columns of the table).

It is also clear from the table that some of the tense vowels, namely /(j)uː/, /ɔɪ/, and /aʊ/ have no lax counterparts and as a result do not participate in the alternation (they are **non-laxable**). There are a few untypical pairings that may occur: /aʊ/-/ʌ/ *pronounce-pronunciation*, /ɔɪ/-/ʌ/ *join-juncture,* /uː/-/ʌ/ *do-does*, etc. Also, there are a few cases that involve some alternation but

it is either not one of the regular vowel pairs above – e.g., /ɪə/-/æ/ *cl<u>ea</u>r-cl<u>a</u>rity*, /eɪ/-/e/ *br<u>ea</u>k-br<u>ea</u>kfast* – or they involve lax-lax or tense-tense alternations – /ɑː/-/e/ *ex<u>a</u>mple-ex<u>e</u>mplify*, /aɪə/-/ɪə/ *emp<u>i</u>re-imp<u>e</u>rial*. Let us now turn to the environments in which vowel shift may occur.

Probably the most influential such **laxing process** is **Trisyllabic Laxness**, in which a stressed vowel in (at least) the third-last syllable must be lax – e.g., *s<u>a</u>ne-s<u>a</u>nity, gr<u>a</u>de-gr<u>a</u>dual, comp<u>a</u>re-comp<u>a</u>rison*. As we have noted above, this rule has regular exceptions: the tense vowels /uː/, /juː/ and their variants /ʊə/, /jʊə/ are regular exceptions, i.e., they freely occur in trisyllabic environments, e.g., *<u>u</u>nity, p<u>u</u>rify, st<u>u</u>pefy*. Besides these, there are irregular exceptions, too. In a few cases other tense vowels may also occur in trisyllabic environments, e.g., *n<u>i</u>ghtingale, <u>A</u>braham, n<u>o</u>tify, <u>i</u>solate*. What makes this rule problematic is that there is a great number of exceptions, both regular and irregular. Also, the rule is sensitive to the morphological structure of the word: it applies if certain suffixes are attached to the stem but not if others are added. That is, it seems that the syllables of certain suffixes are counted when we count the three syllables from the end of the word while others are not. Whether to count the syllables of the suffix or not depends on whether the suffix is a regular, **productive suffix**, which can be added to almost all members of a category (noun, verb, adjective, etc.) to produce a large number of words, or a **non-productive suffix** which is only added to certain stems of a class and therefore has fewer examples. Some of the typical examples of the two suffix classes are shown in the following table.

Productive suffixes not counted in Trisyllabic Laxness		Non-productive suffixes counted in Trisyllabic Laxness	
-ness	*lazy-laziness, tidy-tidiness*	*-ity*	*grave-gravity, sane-sanity*
-ly	*total-totally, lazy-lazily*	*-al*	*crime-criminal*
-ary/-ery/-ory	*advise-advisory*	*-ative*	*provoke-provocative*
-ing	*pilot-piloting*	*-ible*	*divide-divisible, eat-edible*

We must mention here that Trisyllabic Laxness is not just an active phonological rule that applies to certain roots if they are followed by certain suffixes but also a so-called **morpheme structure condition**, a passive constraint that requires that a stressed vowel which is in at least the third syllable from the end of the word must be lax – even if no suffix is added to it.

/æ/	/e/	/ɪ/	/ɒ/
animal, stamina, fantasy, cannibal, janitor, character	*penetrate, separate, demonstrate, several, decorate, intelligent*	*irritate, miracle, similar, limerick, stimulate, frivolous*	*opera, positive, sonorant, homonym, dominate, oracle*

/ʌ/	/ɜː/	/ɑː/	/ɔː/
company, gullible, succulent, Gulliver	*terminal, permanent, pertinent, courtesy*	*participle, harmony, carnival, parsimony*	*orthodox, auditor, audible, autism*

Short /ʊ/ is missing from the charts above simply because it is so rare in present-day standard English that it is almost impossible to find relevant examples, e.g., *bulletin*.

Another laxing process applies if a so-called **laxing ending** is added to the word stem: a stressed syllable followed by one of the laxing endings must be lax. Examples include monosyllabic suffixes typically spelled with <i> or <e>: e.g., *-ic, -ish* (n/v), *-id, -it, -et, -el,* as in *m<u>e</u>tre-m<u>e</u>tric, f<u>i</u>nal-f<u>i</u>nish, sat<u>i</u>re-sat<u>i</u>rical*, etc. As indicated in brackets, *-ish* (n/v) is a laxing ending only if the word ending in *-ish* is a noun or a verb. However, if it is an adjective, the ending is non-laxing and the preceding stressed vowel may remain tense. Compare the sample words *f<u>i</u>nish* (n/v), *v<u>a</u>nish* (v) and *gr<u>ee</u>nish* (adj), *Sw<u>e</u>dish* (adj). The first two examples are nouns and verbs and thus the stressed vowel must be lax as opposed to the other two examples which are both adjectives and, as a result, the suffix does not influence the pronunciation of the stressed vowel.

Just as in the case of trisyllabic laxness, there are exceptions to this laxing rule, too. On the one hand, the vowels /uː/, /juː/ and their variants /ʊə/, /jʊə/ are regular exceptions; stressed /uː/ and /juː/ vowels are not affected by this laxing process: *c<u>u</u>be-c<u>u</u>bic, st<u>u</u>pe-st<u>u</u>pid, C<u>u</u>pid*. There are irregular exceptions as well; some roots resist laxing, e.g., *b<u>a</u>se-b<u>a</u>sic*. It is important that this rule does not only apply if the endings are separate morphemes attached to a root but also if they are just part of the root. For instance, the ending *-ic* causes the laxness of the stressed vowels in the names *<u>E</u>ric, P<u>a</u>trick* although the very same stressed vowels would be tense where they are followed by some other kind of ending, e.g., *<u>e</u>ra* [ˈɪərə], *p<u>a</u>tron* [ˈpeɪtrən]. It is clear then that this rule is not just an active phonological rule but also a **letter-to-sound rule** that determines how letters must be pronounced depending on the environment.

The third relevant laxing rule is triggered by the presence of a consonant cluster – a sequence of at least two consonants – immediately after the stressed vowel, and thus a stressed vowel followed by at least two

consonants must be lax: e.g., *interv<u>e</u>ne- interv<u>e</u>ntion, rec<u>ei</u>ve-rec<u>e</u>ption*, etc. This regularity is sometimes dubbed **Pre-cluster Laxness**.

There are two more rules that may cause the laxness of a vowel but they are clearly not phonological rules but letter-to-sound rules, that is they tell us how to pronounce vowel letters in certain environments in spelling. For this reason we just mention them here very briefly and they will be discussed in detail in Chapters 11-12, where we discuss letter-to-sound rules exhaustively.

The first such rule is **Laxing by free U**, which requires that if the stressed syllable is followed by a free U – roughly, a letter U followed by a vowel letter (as in *venue, statue*) – then the stressed vowel must be pronounced lax, e.g., *gr<u>a</u>de-gr<u>a</u>dual, r<u>i</u>te-r<u>i</u>tual*, etc. Just like in all other laxing rules, the vowels /(j)uː/ and /(j)ʊə/ are regular exceptions, they stay tense before a free U, e.g., *<u>u</u>se-<u>u</u>sual*.

The other letter-to-sound rule causing laxness is the so-called **CiV Laxing rule**, which forces a stressed vowel letter – spelled with <i> or <y> – to be pronounced lax /ɪ/ when followed by a consonant letter, another letter <i> and one more vowel letter. That is, the stressed vowel letter <i/y> is followed by the CiV configuration in spelling, hence the name of the rule, e.g., *dec<u>i</u>de-dec<u>i</u>sion, rev<u>i</u>se-rev<u>i</u>sion, <u>i</u>diot, fam<u>i</u>liar*, *S<u>y</u>ria*, etc. It is important to note that all the other vowel letters undergo **CiV Tensing** in the same environment, i.e., other vowel letters must be pronounced with a tense vowel, e.g., *m<u>a</u>nic-m<u>a</u>nia, Alb<u>a</u>nia, C<u>e</u>lia, Gl<u>o</u>ria, s<u>e</u>nior, r<u>a</u>dio*, etc. Interestingly, this rule is able to block the application of the laxing rules. In all the sample words above the stressed vowel is the third-last vowel from the end of the word, still, Trisyllabic Laxness does not apply and make them lax. The reason for this is that CiV tensing is more powerful and robust than the laxing rules, and thus it can override their effect. Of course, there are exceptions to the

CiV tensing rule as well, in which the stressed vowel is lax even though it is followed by CiV, e.g., *national, special, Italian*, *Daniel*, etc.

Besides CiV Tenseness, there is another regularity in English which requires a vowel in a certain position to be tense. It is called **Prevocalic Tenseness**, as its effect is to ensure that all stressed vowels preceding other vowels are tense. The situation when two separate vowels (the centres of their respective syllables) are adjacent is generally referred to as **hiatus**, e.g., the underlined portions of *Noam, Leo, hiatus*. Prevocalic Tenseness does nothing but describe the observation that in English the first member of a hiatus, if stressed, is always tense, namely /əʊ iː aɪ/ in the examples above. Note that it does not apply to unstressed vowels, e.g., *react*, which are of course reduced. In addition, it is only relevant to pronunciation: compare *Leo* to *mean* or *people* – the underlined vowel letter is pronounced as a separate sound in *Leo* only, in the others it combines with the following vowel letter to represent a single sound. That is, in *mean* and *people* there is no hiatus, and consequently Prevocalic Tenseness is not applicable.

Similarly to CiV Tenseness, Prevocalic Tenseness is also stronger than the laxness rules: in *variety*, for instance, either Trisyllabic Laxness or Prevocalic Tenseness could in principle take effect, but it is the latter that "wins".

In this chapter we saw that, although sometimes English chooses a tense vowel systematically, in many situations tense vowels are replaced by their lax counterparts. There are numerous examples where the originally tense stressed vowel becomes lax although none of the above environments may be blamed for the change. In such cases we may only say that these are unexplained, idiosyncratic cases of vowel shift, the surviving effects of older rules which are no longer active in the language, e.g., *read* (present)-*read* (past)*, life-live* (v)*, shade-shadow, mead-meadow.*

Although the above discussion of the phonetic and phonological classification of vowels concentrated on RP, most of it is valid in the case of GA, too. The tense-lax distinction applies to GA in the same way, together with the tenseness and laxness rules, with just a handful of examples where the two dialects diverge, e.g., *apricot*, pronounced (irregularly) with /eɪ/ in RP but very often (conforming to Trisyllabic Laxness) with /æ/ in GA. There are only a few minor differences in the vowel inventories, e.g., recall from Chapter 1 that all RP /əʊ/'s correspond to /oʊ/ in GA. Some of these also affect the classification of vowels, e.g., RP /ɒ/ in *lot, odd, wash* is usually long and unrounded /ɑː/ in GA, still, the vowel behaves as lax in the same way in the two accents: cf. *tone – tonic* RP /təʊn/ – /ˈtɒnɪk/, GA /toʊn/ – /ˈtɑːnɪk/, etc. As we will see in the next chapter, the rest of the dialectal deviations are caused by the differing distribution of /r/.

4. R-influence on vowels

Before you study this chapter, check whether you are familiar with the following terms: allophone, centring diphthong, complementary distribution, diphthong, distribution, foreignism, fricative, full vowel, GA, hiatus, homophone, Intrusive-R, labial, lax, letter-to-sound rule, Linking-R, low-starting diphthong, minimal pair, monophthong, morpheme, nasal, non-productive suffix, non-rhotic accent, phoneme, productive suffix, rhotic accent, R-dropping, RP, tense, triphthong

This chapter mainly focuses on the behaviour of full vowels before an /r/, the phonological and letter-to-sound rules related to this behaviour and some further phenomena concerning vowels. As it is demonstrated in Chapter 2 the two main accent types of English, rhotic and non-rhotic accents, are most easily distinguished by whether an /r/ is pronounced in all positions or not. In General American, a rhotic accent, all /r/'s are pronounced while in Received Pronunciation, a non-rhotic variant, only prevocalic ones are. Besides this, these – and other – dialects may also be distinguished by the behaviour of stressed vowels before an /r/, briefly mentioned in the previous chapter.

To remind the reader of the most important vowel classes that will be referred to we repeat one of the tables from Chapter 3 for convenience.

	Tense	Lax
Monophthongs	iː, uː, ɔː[3]	ɪ, e, æ, ʌ, ʊ, ɒ, ɑː, ɜː, ɔː[1], ɔː[2]
Diphthongs and triphthongs	aɪ, eɪ, ɔɪ, aʊ, əʊ, ɪə, eə, ʊə, aɪə, aʊə	

Recall that we have come up with a few generalizations in Chapter 3, namely that all short vowels are lax, all diphthongs and triphthongs are tense, non-high long monophthongs are lax, except for /ɔː/, which behaves in an ambiguous way: sometimes it is tense, in other cases it is lax. For the details of this controversy, see Chapter 3.

Let us first consider the behaviour of tense vowels and the rule called **Pre-R Breaking**. Tense vowels may be further classified into two subgroups on the basis of their distribution, i.e., the environments in which they may occur.

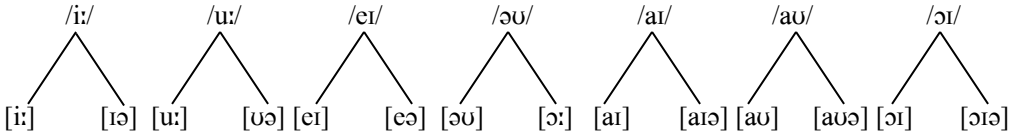
	Non-low-starting				Low-starting		
Plain-Tense	iː	(j)uː	eɪ	əʊ	aɪ	aʊ	ɔɪ
Broken-Tense	ɪə	(j)ʊə	eə	ɔː[3]	aɪə	aʊə	ɔɪə

The rule of Pre-R Breaking seems to be a very simple allophonic rule at first sight: the members of the Plain-Tense – Broken-Tense vowel pairs appear to occur in complementary distribution: Broken-Tense vowels only appear before *r* within the same word while Plain-Tense vowels occur everywhere else but never before *r* within the word.

Plain-Tense	Broken-Tense
b<u>ea</u>d [iː]	*b<u>ea</u>rd* [ɪə]
t<u>ea</u> [iː]	*t<u>ea</u>r* (n) [ɪə]
coh<u>e</u>sion [iː]	*adh<u>e</u>rence* [ɪə]
c<u>u</u>te [juː]	*c<u>u</u>rious* [jʊə]
f<u>u</u>tile [juː]	*f<u>u</u>rious* [jʊə]
<u>u</u>nity [juː]	*<u>Eu</u>rope* [jʊə]
b<u>a</u>by [eɪ]	*b<u>a</u>re* [eə]
st<u>a</u>ple [eɪ]	*st<u>a</u>ring* [eə]
Rum<u>a</u>nian [eɪ]	*Hung<u>a</u>rian* [eə]
st<u>o</u>ne [əʊ]	*st<u>o</u>ry* [ɔː][3]
cl<u>oa</u>kroom [əʊ]	*r<u>oa</u>ring* [ɔː][3]
br<u>o</u>ken [əʊ]	*gl<u>o</u>rious* [ɔː][3]

Plain-Tense	Broken-Tense
f<u>i</u>ght [aɪ]	*f<u>i</u>re* [aɪə]
toni<u>gh</u>t [aɪ]	*admi<u>r</u>e* [aɪə]
p<u>i</u>ne [aɪ]	*p<u>i</u>rate* [aɪə] or [aɪ]
p<u>i</u>nt [aɪ]	*<u>i</u>ron*[1] [aɪə]
t<u>ow</u>n [aʊ]	*h<u>ou</u>r* [aʊə]
cl<u>ou</u>d [aʊ]	*fl<u>ou</u>r* [aʊə]
D<u>ow</u>ning [aʊ]	*d<u>ow</u>ry* [aʊə] or [aʊ]
m<u>oi</u>st [ɔɪ]	*M<u>oi</u>ra* [ɔɪə] or [ɔɪ]

Since the members of the pairs are in complementary distribution and are phonetically quite similar to each other, we may just as well assume that they are variants, allophones of the same phoneme.



[1] Be careful with the word *iron* since its second vowel letter, <o> is silent, and the pronunciation of the <r> is determined accordingly: dropped in RP /ˈaɪən/, but not in GA /ˈaɪ(ə)rn/.

The vowel phonemes in the upper row of the chart on p.46 are divided into two major classes: the last three, the so-called low-starting diphthongs - /aɪ/, /aʊ/, /ɔɪ/, appearing in lighter shaded cells in the table, and the rest of the vowels - /iː/, /uː/, /eɪ/, /əʊ/. The differences between these two groups are twofold: on the one hand, in non-low-starting tense vowels the broken tense variant is typically a centring diphthong except for /ɔː/, in the darker shaded cell in the table. This tense /ɔː/[3] variant historically derives from the centring diphthong */ɔə/ now always pronounced as /ɔː/. Also, in these four vowel phonemes the second half of the vowel is changed into /ə/, if we think of a long monophthong as consisting of two identical short components (as opposed to diphthongs whose two components are different). In low-starting diphthongs the broken tense variant contains an extra element, /ə/, that is, it is always a triphthong.

Also, there is a difference between the nature of Breaking in the two vowel groups. While in non-low-starting tense vowels it is always obligatory, that is, whenever a tense vowel from this group is followed by an *r* in the same word it is always replaced by its Broken-Tense counterpart, in low-starting diphthongs it is not always so: in low-starting diphthongs Breaking is only obligatory if the *r* is at the end of a word or followed by a productive suffix (cf. Chapter 3). For instance, in words like *fire* /faɪə(r)/ the *r* is word-final; in *fired* /faɪəd/ and *firing* /ˈfaɪərɪŋ/ it is followed by a productive suffix (-*ed* and -*ing*) and as a result the stressed vowel always has to be realized by a Broken-Tense vowel, [aɪə]. On the other hand, if the low-starting diphthong is followed by an *r* which is morpheme-internal or followed by a non-productive suffix, then Breaking is optional, and the vowel may be Plain or Broken-Tense, e.g., *pirate* /ˈpaɪərət/ or /ˈpaɪrət/, *biro* /ˈbaɪərəʊ/ or /ˈbaɪrəʊ/.

A process that is closely related to Pre-R Breaking is the simplification of Broken-Tense vowels in fast casual speech, Smoothing, and its extreme form, the complete monophthongization of diphthongs or triphthongs. **Smoothing** influences the triphthongs resulting from the above-mentioned mechanism of obligatory or optional Breaking of low-starting diphthongs. Typically the middle component, [ɪ] or [ʊ], of the triphthong is dropped in casual speech; in faster speech even the last component, schwa [ə] may be dropped: this process is known as **monophthongization**. To make up for the loss of the second and third components of the triphthong, the first part is lengthened, a process often referred to as **compensatory lengthening** (for more detail, see below).

Triphthong	Middle component dropped	Last component dropped + first component lengthened
fire [ˈfaɪə(r)]	[ˈfaə(r)]	[ˈfaː(r)]
tired [ˈtaɪəd]	[ˈtaəd]	[ˈtaːd]
hours [ˈaʊəz]	[ˈaəz]	[ˈaːz]
dowry [ˈdaʊərɪ]	[ˈdaərɪ]	[ˈdaːrɪ]

It is interesting to note that in many dialects of English, for instance in Southern dialects of American English, the low-starting diphthongs /aɪ/ and /aʊ/ may also be simplified, i.e., replaced by a long monophthong, in a non-pre-R environment:

Diphthong	Second component dropped
wh<u>y</u> [waɪ]	[waː]
I'm [aɪm]	[aːm]
w<u>o</u><u>w</u> [waʊ]	[waː]
ab<u>ou</u>t [əˈbaʊt]	[əˈbaːt]

Another similar process by which certain diphthongs become simplified concerns the pronunciation of the diphthongs /(j)ʊə/ and /eə/. The tendency especially in the speech of younger speakers of RP is to pronounce /(j)ʊə/ as /(j)ɔː/ and /eə/ as a long half-open unrounded front /eː/. In some dialects, like Australian English for instance, /eɪ/ is also being replaced by [eː], that is, the tendency does not only influence the Broken-Tense but also the Plain-Tense variant of the vowel.

/(j)ʊə/ [ɔː]	/eə/ [eː]
poor [pʰɔː(r)]	stairs [steːz̥]
purify [ˈpj̩ɔːrɪfaɪ]	parent [ˈpʰeːrənt]
Europe [ˈjɔːrəp]	hairy [ˈheːrɪ]
rural [ˈrɔːr̬]	repair [rɪˈpʰeː(r)]
tourist [ˈtʰɔːrɪst]	Hungarian [hʌŋˈgeːrɪən]
bureau [ˈbjɔːrəʊ]	fairness [ˈfeːnɪs]

Note, however, that this monophthongization only affects those /(j)ʊə/'s which are the result of Breaking; the same sequence arising from hiatus, as in *f<u>ue</u>l* or *rit<u>ua</u>l*, is left uninfluenced.

Pre-R Breaking, then, is one of the most salient allophonic rules affecting RP vowels. Some might argue, on the basis of minimal pairs like *bee* /biː/ vs. *beer* /bɪə/, *bead* /biːd/ vs. *beard* /bɪəd/, that the plain and broken vowels are independent phonemes, at least in non-rhotic accents like RP. However, notice that the spelling of Broken-Tense vowels always involves an <r> (cf. *beer, beard*), which means two things. On the one hand, Pre-R Breaking also qualifies as a letter-to-sound rule: whenever a tense vowel is followed by the letter <r> within the word, it is broken. On the other hand, it is possible to analyse all Broken-Tense vowels as the outputs of R-influence, in such a way that the trigger itself (the /r/) is subsequently deleted if the conditions of R-dropping are met. All in all, the status of Pre-R Breaking in English phonology is not straightforward, therefore we will simply follow the traditional practice of indicating Plain-Tense and Broken-Tense vowels separately in phonological transcriptions, that is, *beer* /bɪə/, *beard* /bɪəd/, etc.

As regards GA, the lack of the rule of R-dropping results in the absence of apparent minimal pairs like *bee* and *beer*, GA /biː/ and /bɪ(ə)r/, respectively. It is also shown in the transcriptions that consequently, Pre-R Breaking is never obligatory in GA, not even in the case of non-low-starting tense vowels (except for the /oʊ/-/ɔː/ pair, which behaves in the same way as in RP, cf. *stone – story* GA /stoʊn/ – /ˈstɔːrɪ/), and it practically never occurs before a syllable-initial /r/ (e.g., *hairy* /ˈherɪ/). As a further result, descriptions of GA do not normally consider Pre-R Breaking as either a phonological rule or a letter-to-sound regularity – the occasional appearance of the schwa is usually taken to be the result of an optional schwa-insertion rule taking place before syllable-final /r/. A consequence of this is that the GA inventory of diphthongs is much smaller than that of RP (no centring diphthongs) and triphthongs are missing altogether. It also follows that smoothing and

monophthongization are not as extensive in GA: *fire* is always /faɪ(ə)r/, *sure* and *poor* are usually /ʃʊ(ə)r/ and /pʊ(ə)r/, respectively, and in *stairs* and *hairy* the monophthong is automatically created if the schwa is not inserted (cf. /ste(ə)rz/, /ˈherɪ/).

Let us now turn our attention to the other major group of full vowels, and their behaviour before *r*. Lax vowels may also be divided into two major groups: Plain-Lax vowels and Broad-Lax vowels. Short (lax) vowels all belong to the former group while the three long lax vowels all fall into the latter as indicated in the following table:

Plain-Lax	æ	ɒ	e	ɪ	ʌ	ʊ
Broad-Lax	ɑː	ɔː[2]	ɜː			

The rule of **Pre-R Broadening** seems to be very similar to Pre-R Breaking as Broad-Lax vowels will replace their Plain Lax counterparts before *r*. Note, however, that this is not so as it will be clear from the discussion below. Instead, it will turn out that Pre-R Broadening is a practical rule concerning the relationship between the spelling and pronunciation of vowel letters before *r*. Also, from the table above it is obvious that four of the Plain Lax vowels, namely /e, ɪ, ʌ, ʊ/ share a Broad Lax counterpart, /ɜː/, which also makes Pre-R Broadening different from Pre-R Breaking as in the latter all Plain-Tense vowels had a Broken-Tense counterpart of their own.

On the other hand, Pre-R Broadening, unlike Pre-R Breaking, cannot be considered an allophonic rule as the distribution of Plain-Lax and Broad-Lax vowels is not complementary, i.e., the two types of vowel do appear in the same environment – with certain limitations. Since these Plain-Lax – Broad-Lax vowel pairs do not occur in complementary distribution, the

sample word pairs have been set up on the basis of spelling: the Plain-Lax – Broad-Lax vowel pairs are represented by the very same vowel letter in the pairs.

Plain-Lax	Broad-Lax
c<u>a</u>t [æ]	*c<u>a</u>r* [ɑː]
f<u>a</u>n [æ]	*f<u>a</u>r* [ɑː]
b<u>a</u>d [æ]	*b<u>a</u>r* [ɑː]
f<u>o</u>nd [ɒ]	*f<u>o</u>r* [ɔː][2]
b<u>o</u>nd [ɒ]	*ab<u>o</u>rt* [ɔː][2]
cl<u>o</u>ck [ɒ]	*l<u>o</u>rd* [ɔː][2]
st<u>e</u>m [e]	*st<u>e</u>rn* [ɜː]
s<u>e</u>nd [e]	*s<u>e</u>rve* [ɜː]
h<u>ea</u>d [e]	*h<u>ea</u>rd* [ɜː]

Plain-Lax	Broad-Lax
f<u>i</u>t [ɪ]	*f<u>i</u>rm* [ɜː]
b<u>i</u>ngo [ɪ]	*b<u>i</u>rd* [ɜː]
st<u>i</u>ck [ɪ]	*st<u>i</u>r* [ɜː]
h<u>u</u>t [ʌ]	*h<u>u</u>rt* [ɜː]
c<u>u</u>tlery [ʌ]	*c<u>u</u>rl* [ɜː]
sp<u>u</u>n [ʌ]	*sp<u>u</u>r* [ɜː]
p<u>u</u>t [ʊ]	*p<u>u</u>rr* [ɜː]
b<u>u</u>sh [ʊ]	*b<u>u</u>rst* [ɜː]
b<u>u</u>ffet [ʊ]	*b<u>u</u>rp* [ɜː]

Having taken a look at the examples containing a Broad-Lax vowel, we may notice that although there is always an *r* in spelling in these words, it is not pronounced in non-rhotic accents like RP, either because it is followed by a consonant – e.g., *abort*, *stern*, *bird*, *burp* – or it is word-final and is followed by a pause – e.g., *car*, *for*, *stir*, *purr*.

Thus we can conclude that Pre-R Broadening does apply if the *r* after the Lax vowel is silent, i.e., it is dropped because of the R-Dropping rule (Chapter 2). As a result of this one might easily find a very attractive explanation for the lengthening component of broadening: since the *r* is dropped in these environments, its now empty position becomes available for the vowel before it. That is, the vowel lengthens to make up for the loss of

the *r* in the word – the kind of process referred to above as **compensatory lengthening**.

The diagrams above demonstrate compensatory lengthening: the X's stand for timing units. If a sound segment is linked to one timing unit, it is short while if it is linked to two, it takes twice the time to pronounce, i.e., it is long. Both *star* and *hard* originally contain four short segments. When the *r* in the words is dropped, its "place" is preserved, and the preceding lax vowel lengthens by becoming linked to this empty timing unit, as the broken lines indicate. The process is very similar to what frequently happens in certain non-standard varieties of Hungarian, where the other liquid, *l*, can be dropped before a consonant.

bolt 'shop' *zöld* 'green'

In such Hungarian examples the *l* is deleted but its timing unit is retained, and as a result the preceding vowel is lengthened. Notice that the effect of compensatory lengthening is very similar to the so-called law of mass preservation in the physical world: we have the same amount of material – that is, the same number of timing units – on both sides of the equation.

Pre-R Broadening, then, can be accounted for with reference to compensatory lengthening. Nevertheless, note that however attractive this

explanation may be, it cannot be true in all cases. While there is evidence that there is an /r/ phoneme in words like *star* as the word final /r/ is often realized as a Linking-R (see Chapter 2), words like *hard* pose a problem for babies aquiring a non-rhotic dialect like RP. They will always hear such words pronounced without *r* as there is no environment in which the *r* of *hard* would be present in actual pronunciation, and as a result they will have to assume that these words do not contain an /r/ phoneme. However, if there is no /r/, then it is actually not dropped and thus the vowel is not lengthened *because* the *r* has been dropped.

While it seems that we have to give up our idea of compensatory lengthening as a *motivation* for Pre-R Broadening, in many cases it can be shown to be a *component* of this rule, and it still is a useful kind of explanation when teaching pronunciation. All the more so as a major difference between RP and GA can only be accounted for if we separate Broadening proper (influencing the quality of the target vowel) and compensatory lengthening (responsible for vowel quantity). As GA is a rhotic accent, no *r*'s are dropped; consequently, compensatory lengthening is impossible. Therefore in GA we find the same vowels in *car, lord, stern, firm, hurt* as in RP, only they are short: /kɑr/, /lɔrd/, /stɜrn/, /fɜrm/, /hɜrt/ – Broadening, but not compensatory lengthening, has taken place.

The next question that we turn to is what happens if the *r* following the lax vowel is realized in pronunciation. Let us take a look at some sample words containing such a sequence:

[æ]	[ɒ]	[e]	[ɪ]	[ʌ]
b<u>a</u>rrier	*b<u>o</u>rrow*	*b<u>e</u>rry*	*<u>i</u>rritate*	*b<u>u</u>rrow*
c<u>a</u>rrot	*c<u>o</u>rridor*	*b<u>u</u>ry*	*l<u>y</u>rical*	*c<u>ou</u>rage*
ch<u>a</u>riot	*M<u>o</u>rris*	*J<u>e</u>rry*	*m<u>i</u>racle*	*c<u>u</u>rrent*
H<u>a</u>rry	*s<u>o</u>rrow*	*m<u>e</u>rit*	*m<u>i</u>rror*	*c<u>u</u>rry*
m<u>a</u>rriage	*s<u>o</u>rry*	*s<u>e</u>rendipity*	*p<u>i</u>rouette*	*f<u>u</u>rrier* (n)
n<u>a</u>rrow	*tom<u>o</u>rrow*	*t<u>e</u>rrible*	*p<u>y</u>ramid*	*f<u>u</u>rrow*
wheelb<u>a</u>rrow	*t<u>o</u>rrent*	*t<u>e</u>rror*	*sp<u>i</u>rit*	*h<u>u</u>rry*

There are two possible conclusions that can be drawn on the basis of the data in the table: on the one hand, it does not contain sample words containing an [ʊ] before a pronounced [r] as this vowel does not regularly appear in such a position with a few exceptions like *courier* /ˈkʊrɪə(r)/; on the other hand, it is also clear that Pre-R Broadening does not apply in any of the above words. Thus we may claim that Pre-R Broadening only applies if the *r* is dropped, i.e., the *r* is syllable-final (cf. Chapter 2). As the absence of Broadening is typical in words like *carrot*, where the *r* is followed by a pronounced vowel, this regular absence of Broadening is usually referred to as **the Carrot-Rule**. The Carrot-Rule is often indicated in spelling by the doubling of the *r*, e.g., *marriage, borrow, Jerry, mirror, curry*, although it does not always happen, e.g., *bury, miracle, courage*.

We have seen so far that normally it is Broad-Lax vowels that occur before an *r*. If the /r/ is not silent, however, the lax vowel before it will be a Plain-Lax vowel as the Carrot-Rule will block the application of Broadening, i.e., it results in a group of regular exceptions. The Carrot-Rule itself is not without exceptions, either. In GA, for instance, although in most cases it applies in the same way as in RP, a few irregular words are exempt from it – that is, Broadening *does* take place even though the following /r/ is not

syllable-final. E.g., *cour*age, *c*urrency, *c*urrent, *c*urry, *h*urry, *M*urray, *occ*urrence, *t*urret, *w*orry, all with /ʌ/ in RP but /ɜ/ in GA, and *squ*irrel RP /ɪ/ vs. GA /ɜ/.

In certain cases when the *r* is pronounced, i.e., the Carrot-Rule should block Broadening, it does not do so and as a result Broadening will apply resulting in a Broad-Lax vowel before a pronounced *r*. This is the case when the *r* is followed by a vowel-initial productive suffix (again! – cf. the discussion of Pre-R Breaking above) or a vowel-initial word. Non-productive suffixes, on the other hand, behave as if they were not separate morphemes and the word was morphologically simple. For example, Broadening affects both *occur* (with a syllable-final /r/) and *occurring* (with productive -*ing*), in contrast to *occurrence* (with non-productive -*ence*), which exhibits the same pattern as, say, *current*.[2]

syllable-final		followed by non-productive suffix	
*occ*ur	/əˈkɜː(r)/	*occ*urr+*ence*	/əˈkʌrəns/
*b*ar	/bɑː(r)/	*b*arr+*en*	/ˈbærən/
*e*rr	/ɜː(r)/	*e*rr+*or*	/ˈerə(r)/
*cl*ergy	/ˈklɜːdʒɪ/	*cl*er+*ical*	/ˈklerɪkl/

[2] Note, however, the differences between RP and GA, discussed above, concerning words like *occurrence* and *current*.

syllable-final		followed by productive suffix	
occ<u>u</u>r	/əˈkɜː(r)/	*occ<u>u</u>rring*	/əˈkɜːrɪŋ/
bl<u>u</u>r	/blɜː(r)/	*bl<u>u</u>rring*	/ˈblɜːrɪŋ/
ref<u>e</u>r	/rɪˈfɜː(r)/	*ref<u>e</u>rring*	/rɪˈfɜːrɪŋ/
f<u>u</u>r	/fɜː(r)/	*f<u>u</u>rry*	/ˈfɜːrɪ/
b<u>a</u>r	/bɑː(r)/	*b<u>a</u>rring*	/ˈbɑːrɪŋ/
st<u>a</u>r	/stɑː(r)/	*st<u>a</u>rring*	/ˈstɑːrɪŋ/

It is clear from the tables above that if a non-productive suffix follows – e.g., *-ence*, *-ical* –, then the Carrot-Rule will block the application of Broadening as expected. However, if the *r* precedes a productive suffix – e.g., *-ing*, *-y* –, then the Carrot-Rule will not be able to block Broadening, which will hence normally apply to the vowel making it Broad-Lax.

Thus it seems that one half of the original suggestion concerning Broadening has already been borne out: before an *r* lax vowels are not always Broad-Lax as in some cases, as a result of the Carrot-Rule, they will remain Plain-Lax. Let us now take a look at the other half of the story and see some examples in which Broad-Lax vowels appear in environments other than before *r*, i.e., cases of **Broadness without *r***.[3]

[3] Most of these examples are repeated in Chapter 12 as groups of deviating words.

/ɑː/
1. Foreignisms imitating the original Greek, French or Italian pronunciation (so called DRAMA-words): *bourgeois* /ˈbʊəʒwɑː/, *bra* /brɑː/, *drama* /ˈdrɑːmə/, *gratis* /ˈgrɑːtɪs/, *Shah* /ʃɑː/, *sonata* /səˈnɑːtə/, *spa* /spɑː/.
2. The vowel letter <a> followed by a voiceless fricative or a nasal+consonant cluster (so called ASK-words): *ask* /ɑːsk/, *aunt* /ɑːnt/, *bath* /bɑːθ/, *brass* /brɑːs/, *can't* /kɑːnt/, *class* /klɑːs/, *dance* /dɑːns/, *last* /lɑːst/, *laugh* /lɑːf/, *pass* /pɑːs/, *path* /pɑːθ/, *task* /tɑːsk/.[4]
3. The vowel letter <a> followed by a silent <l>+labial consonant cluster (so called CALM-words): *almond* /ˈɑːmənd/, *balm* /bɑːm/, *calm* /kɑːm/, *palm* /pɑːm/, *calf* /kɑːf/, *half* /hɑːf/, *halve* /hɑːv/, *psalm* /sɑːm/.[5]
4. Irregular cases: *father* /ˈfɑːðə(r)/, *lather* /ˈlɑːðə(r)/, *rather* /ˈrɑːðə(r)/.[6]

/ɔː/
1. The vowel letter *a* followed by a pronounced *l*+consonant or nothing or by silent *l+k* (so called CALL-words): *bald* /bɔːld/, *ball* /bɔːl/, *calling* /ˈkɔːlɪŋ/, *fallen* /ˈfɔːlən/, *stalk* /stɔːk/, *talk* /tɔːk/, *tall* /tɔːl/, *walk* /wɔːk/, *wall* /wɔːl/.
2. *-ough* or *-augh* (so-called THOUGHT-words): *bought* /bɔːt/, *caught* /kɔːt/, *fought* /fɔːt/, *sought* /sɔːt/, *thought* /θɔːt/.
3. *-au* or *-aw* word-finally, before a voiceless consonant or a nasal (so-called SAUCE-words): *author* /ˈɔːθə(r)/, *claw* /klɔː/, *dawn* /dɔːn/, *law* /lɔː/, *lawn* /lɔːn/, *raw* /rɔː/, *sauce* /sɔːs/, *saw* /sɔː/.
4. Irregular cases: *abroad* /əˈbrɔːd/, *broad* /brɔːd/, *water* /ˈwɔːtə(r)/.

[4] Recall from Chapter 1 that all these words are pronounced with /æ/ in GA.

[5] Some of the examples, e.g., *calf, half, halve* have /æ/ in GA. Note irregular *salmon* /ˈsæmən /, too.

[6] In GA, *lather* and *rather* contain /æ/.

/ɜː/
1. Only in one word: *colonel* /ˈkɜːnl/.[7]

These examples of Broadness without *r* illustrate that, on the one hand, Broadening is not always predictable (sometimes it takes place without a potential trigger being present in the word), and on the other hand, numerous pairs of homophones exist, although in non-rhotic English only, with an *r* in one member but with no *r* in the other. For example, words like *roar* and *raw*, *pore* and *paw*, *spar* and *spa*, *baa* 'make the bleat of a sheep' and *bar* are totally indistinguishable for a non-rhotic speaker – a fact which contributes to the emergence of the so-called Intrusive-R, mentioned in Chapter 2 but treated in detail in Chapter 7.

[7] Although this word is generally considered to be an exception, that is, one with a Broad vowel without an /r/, the corresponding rhotic pronunciation, /ˈkɜrnl/, shows that in fact the <l> after the stressed vowel represents an /r/, and the second <o> is silent. Consequently, the /r/ is in syllable-final position, and dropped in non-rhotic accents like RP. This means that this word actually falls under the same rubric as, say, *kernel*.

5. The English syllable

Before you study this chapter, check whether you are familiar with the following terms: coronal, distribution, fricative, glide, homophone, liquid, monosyllabic, morpheme, nasal, obstruent, plosive, rhotic accent, suffix, velar

In this chapter, we take a closer look at the structure of English syllables. In Chapter 2 it was demonstrated that the syllable plays a significant role in defining what positions host the targets of phonological processes like aspiration or R-dropping. However, this is not the only way it affects the patterning of speech sounds; as it is shown below, the syllable is one of the major factors determining the restrictions on sound sequences.

You may have already noticed that in languages in general only a very small portion of theoretically possible sound sequences is used as actual words. On the one hand, there are always thousands of combinations whose absence cannot be accounted for: they are potential words but have no meaning. Such "nonsense words" are sometimes referred to as **accidental gaps** since they are gaps (that is, missing items) in the vocabulary by accident only and may gain some meaning later on. As an example, let us cite the first stanza of Lewis Carroll's *Jabberwocky*, a nonsense poem in his book entitled *Through the Looking Glass*, together with the Hungarian translation (by István Tótfalusi).

JABBERWOCKY	A *GRUFFACSÓR*
'Twas *brillig,* and the *slithy toves*	*Nézsonra* járt*, nyalkás brigyók*
Did *gyre* and *gimble* in the *wabe*:	*turboltak, purrtak* a *zepén,*
All *mimsy* were the *borogoves,*	*nyamlongott* mind a *pirityók,*
And the *mome raths outgrabe.*	*bröftyent* a *mamsi plény.*

If you do not understand the italicized words (that is, virtually the whole text), do not panic – however well-formed English words *brillig* and *mimsy* and *gimble* look, they are nonexistent, just like the quasi-Hungarian words *nézson* and *brigyó* and *plény*. What is crucial is the fact that there is no principled reason for their nonexistence; they really sound like English and Hungarian words, therefore it would not be impossible to imagine them as, say, dialectal forms of existing words. In fact, certain accidental gaps do become part of the language with time, e.g., a nonsense trademark can start a life of its own, as it happened in the case of *spam* (once a trademark for a canned meat product, it appeared in a skit on the British television series *Monty Python's Flying Circus*; now it is generally accepted as a term to refer to unsolicited, usually commercial e-mail sent to a large number of addresses, and it is even used as a verb).

Not all gaps are accidental, though. In a great many cases, a sound sequence is not a potential word as it contains some combination which is systematically rejected by the language. For example, while *brillig* and *plény* are acceptable as words of English and Hungarian, respectively, neither *rbillig* nor *lpény* would be, although they contain exactly the same segments. No English or Hungarian words start with /rb/ or /lp/, and it is completely unlikely that some ever will, not even as trademarks or internet terminology. Notice, however, that word-finally you observe just the opposite: /rb/ or /lp/ is possible (cf. *kerb* /kɜrb/ in the rhotic accents of English, or Hungarian *talp*

'sole') but /br/ or /pl/ is not. In sum, both languages seem to impose strict restrictions on what sounds can appear in what order in what position. These restrictions are called **phonotactics** in phonology.

In what follows, we discover the major phonotactic restrictions in English. The chart below illustrates some of the most frequent two-member combinations of sounds on either edge of English monosyllabic morphemes (O = obstruent, N = nasal, L = liquid, G = glide, V = vowel, F = fricative, P = plosive). As we will see below, all single consonants except for /ŋ/ can start such a morpheme (e.g., *pit*, *heart*, *lie*), so there are almost as many consonant+vowel sequences as the number of consonants multiplied by the number of vowels – therefore they are not included in the chart. Bear in mind that we are talking about sounds here, not letters, and English spelling can sometimes be misleading. For example, <kn->, <ps->, <gn->, or <wh-> in spelling never stand for clusters because one or the other letter remains silent, cf. *knife* (cf. Hungarian *knédli* 'steamed dumpling'), *psychology* (cf. Hungarian *pszichológia*), *gnome* (cf. Hungarian *gnóm*), *who* or *which*. Such sequences of letters are not taken into consideration either.

O+O	O+N	O+L	O+G	V+G[1]	G+L	/r/+/l/	L+N	N+F	F+P
stop	*snake*	*slay*	*%suit*	*eye*	*%fire*	*%earl*	*%earn*	*ounce*	*east*
Spain	*snore*	*shrimp*	*%tune*	*tow*	*%hour*	*%girl*	*%harm*	*nymph*	*raft*
ski	*shmuck*	*plead*	*queen*		*file*		*elm*		*clasp*
sphere	*schnook*	*trap*	*swing*		*owl*		*kiln*		*ask*

[1] Diphthongs can be analysed as vowel-glide sequences. Notice that the second members of closing diphthongs, viz. /ɪ/ and /ʊ/, are phonetically so close to the glides /j/ and /w/, respectively, that some transcription systems denote them with the symbols of the glides, e.g., /aj/ for /aɪ/, or /ow/ for /oʊ/. No wonder glides are also called semivowels! The intuition that there is no clear dividing line between vowels and glides is also reflected in the choice of the ancient Roman alphabet to represent both with the same symbol. Thus you can find inscriptions like *GAIVS IVLIVS CAESAR* for *Gaius Julius Caesar.*

The percentage mark (%) customarily indicates that the given example only applies to certain speakers – in most cases it shows dialectal variation. In the chart above it mainly refers to /r/, which is only pronounced in rhotic accents, e.g., *earl* GA /ɜrl/ (vs. RP /ɜːl/). In words like *tune* the yod (/j/) is not pronounced in GA (/tuːn/) so the example is only relevant to RP (/tjuːn/), while in words like *suit* the yod is only pronounced by conservative (that is, older) speakers of RP (/sjuːt/) but not by younger speakers or speakers of GA in general (/suːt/). This phenomenon, the absence of a yod in certain positions, is called **yod-dropping**, and it is elaborated on below and in Chapter 11.

On the basis of the examples, we arrive at the following order in which sound segments are usually organized in the syllable:

obstruents - nasals/liquids/glides - vowels - glides - /r/ - /l/ - nasals - fricatives - plosives

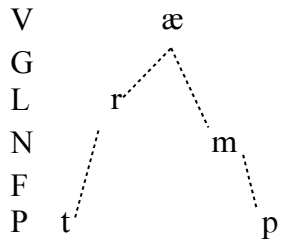
The careful reader may have noticed that this list is more or less symmetrically organized, having similar groups of consonants on either end (namely, obstruents), vowels in the centre, and sonorants inbetween. Moreover, it bears a spooky resemblance to the sonority scale discussed in Chapter 2 and repeated here for convenience.

degree of sonority

oral stops (plosives) and affricates – fricatives – nasal stops – liquids – glides (semivowels) (– vowels)

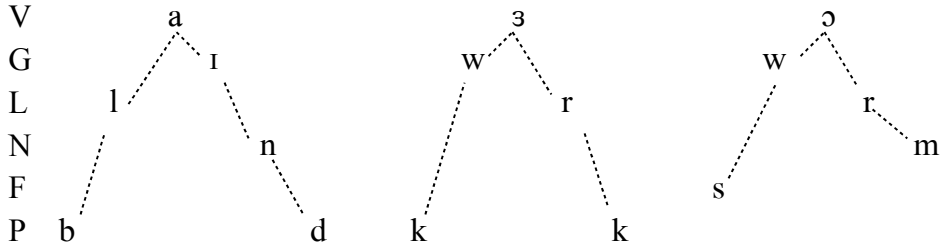
Therefore we can make the following generalization: within syllables, sonority increases towards the vowel, which forms a **sonority peak**, and then sonority decreases; or, on both sides of syllables, sonority increases towards

the vowel. Henceforth we will call this **the Sonority Principle**. Let us illustrate with a few examples how the Sonority Principle describes the structure of well-formed syllables. The word *tramp* /træmp/, for example, starts with a plosive, then comes a liquid, then the vowel, a nasal, and another plosive at the end. This can be schematically represented as follows.



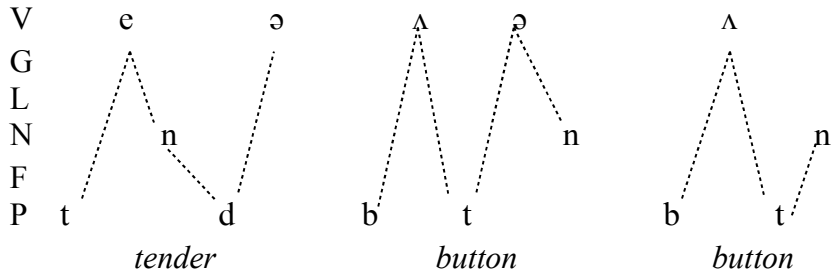
tramp

Further examples:



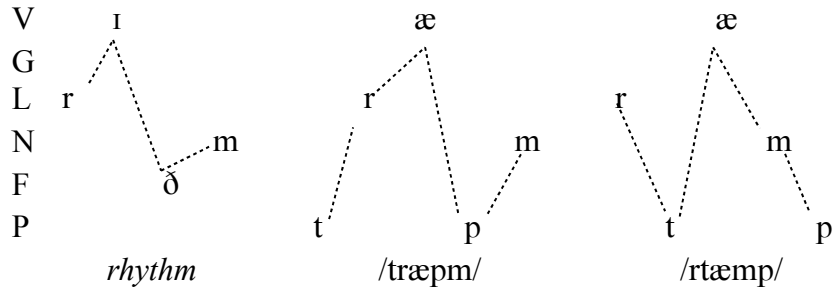
blind GA *quirk* GA *swarm*

Notice what happens in words like *tender* or *button*: since there are two vowels, there are two sonority peaks, that is, two syllables! Even if the /n/ is syllabic in *button*, the number of sonority peaks, that is, the number of syllables is unchanged. The difference between the schwa-ful and the schwa-less pronunciations is that in the latter case the second sonority peak is not a vowel but a consonant (the /n/).



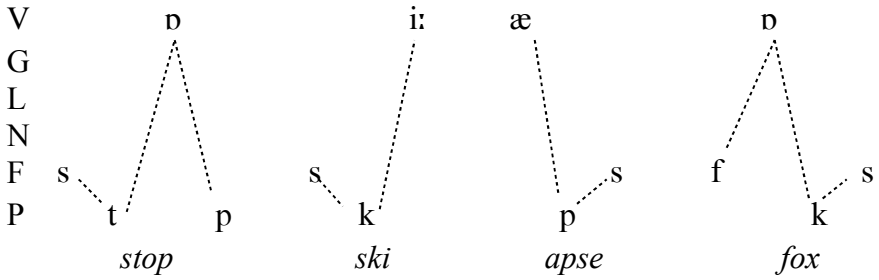
A simple definition of **syllabic consonants** ensues: they are consonants functioning as the sonority peak in a syllable. It also follows that not only vowels can occupy the sonority peak, thus the Sonority Principle needs reformulating: on both sides of syllables, sonority increases towards the peak, which is a vowel or a syllabic consonant. The conditions on syllabic consonant formation in English are discussed towards the end of this chapter.

It is very interesting that the above definition of the Sonority Principle can be turned inside out and translated as the definition of the syllable: it is a phonological unit which contains a sonority peak. What we have seen above, then, directly follows: in a word, there are as many syllables as sonority peaks. The English word *rhythm*, for instance, can only be pronounced with two syllables as it contains two such peaks (a vowel and a (syllabic) /m/). If we shuffle the segments in a well-formed syllable, e.g., *tramp* /træmp/ (mentioned above), resulting in /træpm/ or /rtæmp/, we arrive at the same conclusion: these must be disyllabic words.

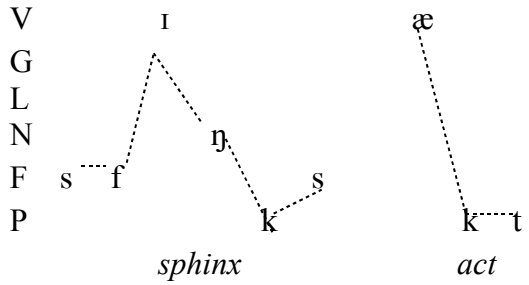


The difference between *rhythm* and (hypothetical) /ˈtræpm/ is that the latter is simply non-existent, i.e., an accidental gap. The difference between (hypothetical) /ˈtræpm/ and (hypothetical) /rtæmp/, however, is much graver: while /ˈtræpm/ is a possible (disyllabic) word of English, the same is not true for the other: /rtæmp/ starts with a syllabic /r/, and for independent reasons English words never start with a syllabic consonant. The Sonority Principle is, therefore, one of the major factors determining and explaining what qualifies as a well-formed English syllable.

However, there exist a number of examples where the Sonority Principle fails. Consider the following words: they all contain two sonority peaks, still, all speakers of English insist that they are monosyllabic.



In addition, in a few cases segments of equal sonority follow each other within the syllable, and consequently sonority neither rises nor falls.



Notice that the word *sphinx*, for example, is doubly problematic: on the one hand, it starts with flat sonority rather than the expected rise; on the other, it ends in a sonority rise rather than the expected fall. The following chart summarizes the possible exceptions to the Sonority Principle and gives a couple of examples.

initial fall	final rise		flat sonority initially	flat sonority finally	
	simple	complex		simple	complex
stop	*fox*	*hits*	*sphinx*	*act*	*fifth*
ski	*apse*	*lads*	*sphere*	*adopt*	*ached*
Spain	*axe*	*eighth*	*svelte*	*corrupt*	*robbed*

As you can see, the word-final examples fall into two categories: they are either monomorphemic (i.e., morphologically simple), e.g., *fox* or *act*, or the problematic segments straddle a morpheme boundary (i.e., the word is morphologically complex), e.g., *hit-s* or *fif-th*. Although words like these contradict the Sonority Principle, we can still conceive of it as a generalization describing the majority of the data, and treat *stop* and the like as exceptions. It is intriguing, however, that even these exceptions are constrained: the problems are caused by obstruents, in most cases fricatives, more specifically /s/. We will see below that /s/ takes part in the construction of syllables in a special way in several further respects.

In sum, the Sonority Principle serves us with a considerably reliable definition of the syllable, although sometimes it is overridden by native intuition. Compare *rhythm* and *fox*, discussed above: both contain two sonority peaks but only one of them (*rhythm*) is judged by speakers of English to be disyllabic.

From a cross-linguistic perspective, the role of the Sonority Principle is far from uniform. In most languages, there are strict conditions on sound sequences. In certain languages each syllable must start with a consonant, that is, with a sonority rise; in others there cannot be more than a single consonant at the beginning. Yet others (like English or Hungarian) allow for clusters syllable-initially but only certain types, usually with a strict adherence to the Sonority Principle. And finally, there are a few languages (e.g., the Slavic languages like Russian) where (almost) any combination of their consonants is possible, and numerous violations of the Sonority Principle are attested. As to the syllable-final position, some languages permit no consonants and therefore all syllables end in a vowel (such syllables are called **open**); others (like Italian or Japanese) differentiate between word-internal and final syllables, and only have syllable-final consonants in one of the two types. In languages like English, it is possible to find consonants at the end of any syllable (making it a so-called **closed syllable**), but there is always a limit on the maximal number of consonants. In English, this is four, which means that some syllables contain such "monster clusters" as /ksts/ or /ksθs/ in *texts* or *sixths*, for example. (You may have noticed that the clusters at the end of *texts* or *sixths* are not only too long, but they also contain violations of the Sonority Principle.) Nevertheless, there is one syllable type which is universal, i.e., which is possible in all the languages of the world: one starting with a single consonant and ending with a vowel. Besides being universal, this very simple configuration is also the first to emerge during the

process of language acquisition, that is, when babies learn their mother tongue. Just list the words Hungarian kids learn first, and you will see.

Let us now turn back to the discussion of the English syllable. In what follows, we provide a brief description of what language-specific **phonotactic restrictions** accompany the Sonority Principle. As we have seen, the centre of the syllable is the sonority peak, which is usually a vowel, and in fact in English (and Hungarian) this peak is the only obligatory constituent – that is, there are syllables with a single vowel and no consonants (e.g., English *I/eye* /aɪ/ or Hungarian *ő* '(s)he'), but there are no syllables without a peak (in Hungarian, without a vowel). The English peak can be preceded by zero to three consonants and followed by zero to four.

If there is a single consonant before the peak, it can be any consonant except /ŋ/. Certain consonants like /ʒ/ and /ð/ are relatively infrequent in this position. Two-member clusters usually consist of an obstruent and an approximant, since these obey the Sonority Principle (e.g., *twin, trip, tube, play, pray, puke, quick, cry, clean, cube, fry, fling, dry, Gwen,* etc.). One consonant, /s/, can be combined with any of the others except for voiced obstruents and /r/ (e.g., *snip, slip, swim, sport, skirt, stink, sphere*, etc.), and this very often leads to the sonority sequencing violations mentioned above. Recall that it is usually /s/ that is to blame!

A few rising-sonority clusters, however, are ruled out, e.g., **pn, *ps, **gn* and **kn*. The warning is still in effect that you should not let words like *pneumonia*, *psycho*, *gnu* and *knight* mislead you – they only start with a consonant cluster in spelling. Similarly, the letter <x> at the beginning of words like *Xerox*, *xylophone* and *Xanadu* does not denote a /ks/ sequence but a single /z/. The spelling of the words *pterodactyl* and *mnemonics* suggest initial clusters of flat sonority, but in pronunciation they are simplified, and only a single consonant is pronounced. (Such spelling-to-pronunciation

regularities are discussed in detail in Chapter 11.) The nonexistence of these clusters of rising or flat sonority is curious because apparently they are completely acceptable in Hungarian (cf. the Hungarian equivalents of the above words, or the examples given earlier), although their foreign origin is evident.

There is another set of rising-sonority clusters which is unattested in English, but this time the same holds for Hungarian, and in fact, we will be able to find a principled explanation for why they are so unpopular. These include, e.g., **tl*, **tn*, **pw*, **fw* – no English (or Hungarian) examples are available for them. What these clusters have in common is that they are **homorganic**, i.e., their members share the place of articulation. Both /t/ and /l/ are coronal, and so is /n/; both /p/ and /w/ are labial, and so is /f/. Although a whole lot of other homorganic clusters exist, e.g., /tr, dr, θr, ʃr, ʃn/ plus the /s/+coronal clusters (recall that /s/ can combine with almost all other consonants), there is a clear dispreference for clustering consonants to share the place, one manifestation of which is a phenomenon referred to above, **Yod-dropping**. There is an absolute ban on /j/, the coronal glide, to appear after coronal /ʃ, ʒ, tʃ, dʒ, r/. There are no English syllables beginning with /ʃj, ʒj, tʃj, dʒj, rj/. After coronal /l/, it is again impossible to find a yod if the /l/ is preceded by another consonant, that is, when it is part of a cluster: e.g., */blj-/. Following a single /l/, the yod can "survive" dropping but only in conservative RP, cf. *lucid* /ˈljuːsɪd/, *lucrative* /ˈljuːkrətɪv/, *ludicrous* /ˈljuːdɪkrəs/. Even in RP, however, the pronunciations without the yod, i.e., /ˈluːsɪd/, /ˈluːkrətɪv/, /ˈluːdɪkrəs/, are more frequent, and the same applies to /sj, zj/ in words like *suit* /sjuːt~suːt/, *super* /ˈsjuːpə~ˈsuːpə/, *Zeus* /zjuːs~zuːs/, *presume* /prɪˈzjuːm~prɪˈzuːm/. In GA, this tendency to drop the yod has

become generalized to take place after all coronals – not only /l, s, z/ but /θ, t, d, n/ too. That is why *new* is /nju:/ in RP but /nu:/ in GA, *tuna* is /ˈtju:nə/ in RP but /ˈtu:nə/ in GA, *dude* is /ˈdju:d/ in RP but /ˈdu:d/ in GA. It is only in GA that the title *Looney Tunes* can refer to lunatic toons (cartoon characters) since both are pronounced /tu:nz/, as opposed to RP, where *tune* is /tju:n/. In contrast, the yod is rather stable in both dialects in unstressed syllables, e.g., after a lone /l/ in *value* /ˈvælju:/, after an /s/ in *capsule* /ˈkæpsju:l/, although after an /n/ as in *avenue* both options are available in GA /ˈævənu:~ˈævənju:/. All in all, /j/ is gradually disappearing after the other coronals, which can be considered as another illustration of the dispreference of homorganic syllable-initial clusters.[2]

As it has been mentioned above, the maximal number of syllable-initial consonants in English is three. The three-member sequences are, however, heavily constrained: they always begin with /s/ (again, it is /s/!), which is followed by a legitimate two-member cluster (*strength, spring, square, splash, %stew* RP /stju:/, etc.). Since all such syllables contain the /s/+(voiceless) plosive+approximant sequence, they always violate the Sonority Principle.

Turning to the syllable-final position, we can state that any single consonant except for /h/ can occupy it. In addition, in non-rhotic accents like RP, /r/ is also banned at the end of syllables, as it was discovered in Chapter 2 – therefore the rule of R-dropping can be treated as a phonotactic restriction characterizing non-rhotic accents only. In two-member clusters after the peak, we usually find nasal/liquid+consonant sequences, which exhibit falling sonority, e.g., *lamp, month, land, mince, help, bulb, elf, %carp, %herb,*

[2] You find further examples of Yod-dropping in Chapter 11, where it is discussed again from a slightly different point of view: as a letter-to-sound rule. In addition, it is argued there that the yod is in fact part of a complex vowel /ju:/.

%search, film, %harm, %curl, etc. Notice that within the class of liquids /r/ systematically "pretends" to be more sonorous than /l/: *-rl* is possible (at least in rhotic accents) but *-lr* is not.

When two obstruents compose a syllable-final cluster, one of them is usually /s/ (again!): /s/+obstruent in *grasp, last, risk*, etc., obstruent+/s/ in *lapse, axe*, etc. Flat sonority contours are also attested (*apt, act*, etc.) but the second consonant is always a coronal. In three-member strings (*prompt, against, next*, etc.) the third member is always a coronal obstruent, and in morphologically complex words additional combinations yielding the "monster clusters" with four consonants in a row can also be formed (ending in *-ed*, *-s*, *-th* – all coronals).

The examples of final clusters we have seen up to this point also appear word-medially, e.g., /mp/ is found in both *la<u>mp</u>* and *ca<u>mp</u>aign*, /lm/ in *fi<u>lm</u>* and *he<u>lm</u>et*, /st/ in *la<u>st</u>* and *a<u>st</u>erisk*, and /pt/ in *a<u>pt</u>* and *cha<u>pt</u>er*. There are, however, certain word-internal consonant clusters which are impossible word-finally. In such cases, the consonant cluster suggested by the spelling undergoes simplification, and remains simple even if a suffix is attached to the word. For instance, /gn/ is well-formed within words like *cognate, dignity, magnet, signature, resignation*, but the /g/ is deleted in *sign* and *resign* as well as in *signing* and *resigning*. The same goes for /mn/: it is acceptable in *alumnus, amnesty, chimney, insomnia, damnation, hymnal, autumnal*, but simplified (with the /n/ lost) in *damn* and *damning*, *hymn*, *autumn*. Homorganic nasal+voiced plosive sequences are also highly restricted unless the consonants are coronal: /nd/ is unmodified irrespective of its position (cf. *lend, bind, wound*, and *candle, tender, boundary*) whereas /mb/ and /ŋg/ only survive word-internally (*amber, ambulance, bombard; finger, anger*) but not finally (*bomb, bomber, bombing; long, strong, sing,*

bang, singer, singing, banger). The distribution of the velar nasal is particularly intriguing: it does not normally appear between vowels in morphologically simplex forms like *finger* or *anger* (**fi*[ŋ]*er, *a*[ŋ]*er*) – with just a few exceptions such as *hangar*. Next to a morphological boundary, however, it is rather frequent in such position, as we have seen above (*singer, singing, banger,* etc.). In this respect, what happens in the comparative and superlative forms of adjectives is surprising: the simplified cluster of the positive forms *long, strong, young* is "regained" in *longer, stronger, younger; longest, strongest, youngest* (all with /ŋg/).[3]

Besides the restrictions on syllable-initial and -final consonant sequences, there is an additional type of phonotactic constraint, namely, one which applies to the vowel and the following consonant(s) together. Since in poetry this part of the syllable determines whether two words rhyme, phonologists conventionally refer to it as the syllable **rhyme**. There are several restrictions on the English rhyme, e.g., /aʊ/ can only be followed by coronal consonants (*shout, crowd, south, town*, etc.); /ɔɪ/ can only be followed by alveolars (*exploit, void, voice, noise, coin, coil, moist, point*); a long vowel is only possible before a consonant cluster if the cluster is made up of coronals (*mind, boost, faint*, etc.); and in word-final open syllables (i.e., without a closing consonant) the vowel has to be either long (monophthong or diphthong, e.g., *taboo, array,* RP *near*) or unstressed (*happy, comma,* etc.).

Before discussing the restrictions concerning the peak, let us take another look at syllable and word edges, and the asymmetry between them. On the one hand, in word-final clusters more consonants are possible than in word-medial ones; what is more, they frequently violate the Sonority Principle (cf. *sixth, text*), which also holds for word-initial clusters (cf. *stop, Spain, screw, strip*). On the other hand, it is a well-known fact that not all

[3] Examples like these are repeated in Chapter 11, in the discussion of silent letters.

combinations of well-formed syllables yield a well-formed word, so the attempt at joining the apparently well-formed right edge /kst/ of a syllable like *text* with the apparently well-formed left edge /str/ of a syllable like *strip* will result in the string /kststr/ unattested word-internally. It seems impossible to talk about phonotactic restrictions without making reference to the position of the syllable within the word.

Finally, let us see some of the phonotactic constraints on the syllable peak. In most cases it is occupied by a vowel, either monophthong or diphthong. As far as diphthongs go, we find that they are heavily restricted: not all the possible combinations of the vocalic segments of English exist. Moreover, their second members can only be one of three vowels, /ɪ ʊ ə/ – this number is radically smaller than the number of English monophthongs.

Besides vowels, certain consonants can also constitute the peak of the syllable, in which case they are syllabic consonants. Recall from Chapter 2 that syllabic consonants are indicated with a subscript [̩], e.g., *table* [-bl̩], *button* [-tn̩], *faculty* [-kl̩tɪ], *finally* [-nl̩ɪ], *national* [-ʃn̩l̩]. In RP, **syllabic consonant formation** (SCF) is only possible in unstressed syllables, where an alternative pronunciation (mainly used in slow, careful speech) contains a schwa followed by a non-syllabic version of the consonant. For instance, the word *table* has two possible pronunciations, one with a schwa [ˈtʰeɪbəl̩] and one without, in which case the final consonant is syllabic [ˈtʰeɪbl̩̩]. Basically, what happens is that the schwa drops out but the number of syllables is preserved since the following consonant steps up to act as a peak instead. The process, however, has a number of conditions. First, the consonant following the schwa must be a sonorant; in most cases, it is /n/ or /l/. Second, the consonant following the schwa must be more sonorous than the one

preceding it. In *camel*, e.g., SCF is possible, yielding [ˈkʰæm̩ɬ], because /l/ is more sonorous than /m/; compare this with *column* /ˈkɒləm/, where it is not. The same applies to *kennel* ([ˈkʰenəɬ] or [ˈkʰen̩ɬ]) versus *melon* [ˈmelən] and not *[ˈmeln̩]. This sonority condition does not hold if the first consonant is /r/: *barrel* [ˈbær̩l] is well-formed although both consonants are liquids; *barren* [ˈbærn̩] is possible alongside examples like *banner* GA [ˈbænɚ]. In non-rhotic English (including RP) /r/ can only become syllabic word-internally, e.g., *natural* [ˈnætʃr̩ɬ]; but in rhotic English (especially GA) /r/ can also become syllabic word-finally (e.g., *better* [ˈbetɚ] or [ˈbeɾɚ]) or even in stressed syllables (e.g., *bird* [bɚd]).

SCF is not the only form of schwa deletion, though. Schwa can also drop out in such a way that the number of syllables is NOT preserved – a vowel is lost, consequently a peak is lost, consequently a syllable is lost. Such straightforward examples of vowel loss are traditionally referred to as **syncope**. Intriguingly, the conditions on syncope are more strict after a stressed vowel than before it. For **post-stress syncope** to take place, the consonant following the schwa must be a sonorant, and it must be more sonorous than the one preceding it. In addition, the following vowel must be unstressed, that is, weak (cf. Chapter 3). That is how the underlined vowels in *cam<u>e</u>ra, fam<u>i</u>ly, diff<u>e</u>rent, sep<u>a</u>rate* (adj) can be deleted, yielding disyllabic /ˈkæmrə/, /ˈfæmlɪ/, /ˈdɪfrənt/, /ˈseprət/, but not in *van<u>i</u>ty* (the /t/ is not a sonorant), *fel<u>o</u>ny* (nasals are less sonorous than liquids) or *sep<u>a</u>rate* (v) (the third syllable contains a full vowel).

Pre-stress syncope, however, is not as restricted: although it always occurs in initial syllables, the consonants surrounding the target schwa do not necessarily obey the sonority constraint. The underlined vowel can not only

be omitted from words like *terrain* or *parade* but also in *suppose, suffice, potato,* etc. Interesting new homophones emerge: *terrain* may sound the same as *train*, *parade* as *prayed*, *Sapir* as *spear*, *support* as *sport*, and *police* may only differ in the final consonant from *please*.

The difference between syncope and SCF, then, is that the number of syllables in the word is affected in the former but not in the latter. Both are, however, in most cases (except for pre-stress syncope) governed by some kind of sonority condition, similarly to the overall structure of the syllable.

6. Laryngeal features

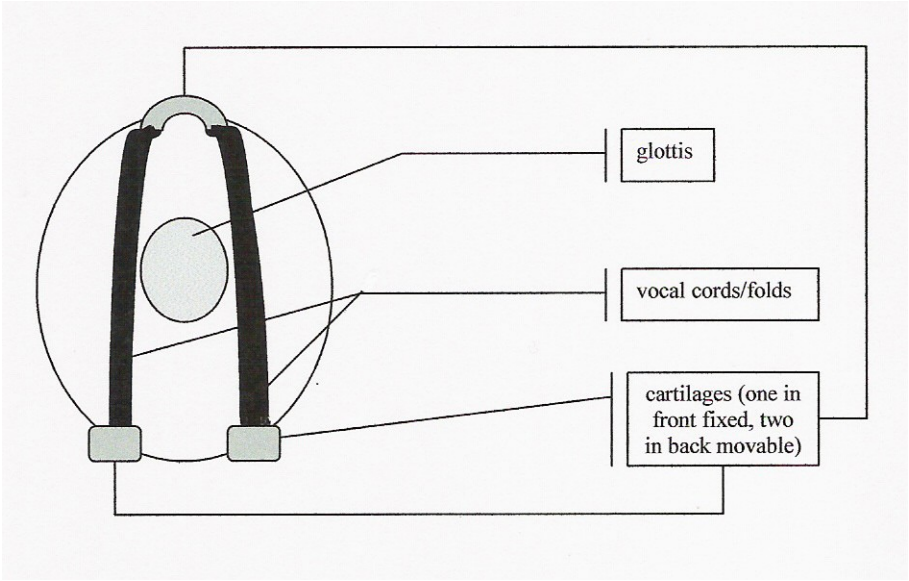
Before you study this chapter, check whether you are familiar with the following terms: allomorph, allophone, aspiration, devoicing, frequency, glottalization, glottal stop, glottis, hiatus, larynx, organs of speech, phoneme, pulmonic egressive airstream, root, sibilant, suffix, syllabic consonant, utterance, vocal cords/folds, voice assimilation, voiced, voiceless, voicing

In this chapter we take a look at the articulatory role of the glottis, the vocal cords/folds and all the different phenomena that are related to the operation of the larynx. This includes voicing and voicelessness, (a comparison of English and Hungarian) voice assimilation, devoicing, aspiration and glottalization, and the effect of voicelessness on preceding vowels, Pre-fortis Clipping.

Recall from Chapter 1 that the basic mechanism that is used to produce speech sounds in English and Hungarian is a pulmonic egressive airstream mechanism. Having left the lungs, the air continues upward in the windpipe up to the **larynx** – the front, shield-like part of which is called **Adam's apple** – then into the pharynx and the supraglottal cavities, the oral and nasal cavities. In the larynx it has to pass between the **vocal cords/folds**, two bundles of muscle, which may produce numerous different effects. Before discussing these, let us take a look at the structure and parts of the larynx and their different configurations.

As it can be seen in the diagram, the larynx consists of some **cartilages** – one fixed in the front and two movable ones in the back, plus one more on the top not shown in the diagram, the epiglottis, which can close the windpipe, and a circular one serving as the frame for the larynx –, the

vocal cords connecting the cartilages, and the opening between them, the **glottis**. Depending on how tense the muscles of the vocal cords are, the two cartilages in the back will move closer together or further apart. This way the vocal cords will close or open the glottis to different degrees.



When the vocal cords are wide apart then silent breathing is produced. When the vocal cords are slightly pulled together but still do not close the glottis and no vibration is produced, voiceless consonants are articulated. If the vocal cords are pulled a bit closer together than in the case of voiceless consonants, a voiceless glottal [h] sound is produced. In another configuration the elastic vocal cords are pulled together and the outflowing air pushes them apart and then, because of their elastic nature, they return into their original position. This is repeated periodically at a rate of about 120 times in average in males and about 220 times in average in females (that is, the basic frequency in males is about 120 Hz and about 220 Hz in females), this way producing **vibration**, that is, voiced sounds. This mechanism is very similar to when children put a blade of grass or a piece of a leaf between their two thumbs and then blow it producing a high pitch trumpet-like noise. In

both cases it is a flexible, elastic string – the vocal cords or the blade of grass – that is forced to move in a fast, periodic way.

Finally, it is possible to produce a total closure, a complete obstruction to stop the air in the larynx. This way a glottal stop is produced, the sound often heard in the pronunciation of words like *bottle* [ˈbɒʔɬ] or [ˈbɒˀtɬ] in British dialects (mentioned in Chapter 2 and discussed in more detail below), and in Hungarian as an extralinguistic device to express surprise in [oʔˈoː] or to optionally break up a hiatus – the sequence of two vowels – in words like *kiiktat* [ˈkiʔiktɒt].

Let us now take a look at how English makes use of the qualities ***voiced*** and ***voiceless*** in the different classes of speech sounds. To start with the easy part, consider vowels first: as all vowels are always produced as voiced, we can say that voicing is not a distinctive quality in vowels, i.e., it does not distinguish vowels from each other. Voiceless vowels are only used when whispering, partially devoiced vowels – vowels which have lost part of their voicing, the very beginning, the first few milliseconds of the vowel being voiceless – occur after aspirated stops, a topic already discussed in Chapter 2 and to be discussed later in this chapter. Sonorant consonants behave in a very similar way to vowels: they are always voiced by default and they only become partially devoiced after aspirated stops.

This leaves us with obstruents: stops, fricatives and affricates. If one takes a look at the table of manners and places of articulation in Chapter 2, then it is easy to see that obstruents occur in voiced-voiceless pairs or to put it very simply: in the obstruent part of the table there are always voiced-voiceless pairs of stops, fricatives and affricates at each place of articulation. The only exceptions seem to be the glottal stop and /h/. The glottal fricative does not have a voiced counterpart in English – as opposed to Hungarian,

where the phoneme /h/ does have a voiced allophone [ɦ] occurring between sonorants, e.g., *konyha* ['koɲɦɒ], but not a separate voiced glottal /ɦ/ phoneme.

The most interesting aspect of the voicing of obstruents is the stability of voicelessness and the relative instability of voicedness in English. The so-called voiced obstruents of English are very often realized by a partially or fully devoiced allophone – this **devoicing** is represented in transcription by a small circle below the symbol of the sound, e.g., [z̥]. As English voiced obstruents seem to be voiced only phonologically (i.e., they only *behave* as if they were voiced) in many cases, two other terms have been introduced instead of voiced and voiceless: **lenis** (Latin for 'weak') and **fortis** (Latin for 'strong'). Lenis obstruents are weak and often lose their underlying voiced quality; they are phonologically voiced and may be realized by voiced or voiceless speech sounds in actual pronunciation depending on the environment. Fortis obstruents, on the other hand, are strong, and are thus always realized by voiceless speech sounds.

The devoicing process affecting lenis consonants typically applies in utterance-initial, utterance-final positions and next to fortis obstruents.

Utterance-initial	Utterance-final	Next to a fortis sound	
(a)	(b)	(c)	(d)
Bravo! [ˈb̥rɑːvəʊ]	*Mad!* [ˈmæd̥]	*obtain* [əb̥ˈtʰeɪn]	*matchbox* [ˈmætʃb̥ɒks]
Good! [ˈg̊ʊd̥]	*Go ahead!* [əˈhed̥]	*cheesecake* [ˈtʃiːz̥kʰeɪk]	*baseball* [ˈb̥eɪsb̥ɔːɬ]
Zany! [ˈz̥eɪnɪ]	*Think big!* [ˈb̥ɪg̊]	*bigfoot* [ˈb̥ɪg̊fʊt]	*cookbook* [ˈkʰʊkb̥ʊk]
Damn! [ˈd̥æm]	*Bob!* [ˈb̥ɒb̥]	*eggghead* [ˈeg̊hed̥]	*life gear* [ˈlaɪfg̊ɪə(r)]
Very much! [ˈv̥erɪ]	*Leave!* [ˈliːv̥]	*roadster* [ˈrəʊd̥stə(r)]	*Shoot back!* [ˈʃuːt ˈb̥æk]

In (a) and (b), in utterance-initial and -final position, i.e., before or after a pause, lenis obstruents often devoice at least partially: in initial position it is typically the beginning of the obstruent that is voiceless while in final position it is the end. This is probably the consequence of the fact that there is a timing difference between the beginning or end of vocal cord vibration (voicing) and the beginning or end of the closure. In initial position closure is produced first and voicing starts only a few milliseconds later, while in final position voicing stops first and only after that is the stop released. Note that Hungarian is different in this respect as there is no such devoicing in initial or final position. The voicing of obstruents normally starts before the closure is produced and voicing only ends after the closure ceases – Hungarian is said to have **pre- and postvoicing** in obstruents.

In column (c) all the sample words contain a lenis obstruent followed by a fortis one. As a result of the influence of the fortis (voiceless) sounds, the preceding obstruents become devoiced, partially or fully voiceless. It is similar to what happens in identical Hungarian clusters.

English		Hungarian	
(c)	(d)	(e)	(f)
ob̲tain [əbˌˈtʰeɪn]	*matchb̲ox* [ˈmætʃbˌɒks]	*rab̲tól* [ˈrɒptoːl]	*match̲box* [ˈmɛdʒboks]
chees̲ecake [ˈtʃiːz̬kʰeɪk]	*base̲ball* [ˈbˌeɪsbˌɔːɬ]	*réz̲karc* [ˈreːskɒrts]	*bas̲eball* [ˈbeːzboːl]
bigfoot [ˈbˌɪgfʊt]	*cookb̲ook* [ˈkʰʊkbˌʊk]	*hangfal* [ˈhɒŋkfɒl]	*tök̲ből* [ˈtøgbøːl]
eggghead [ˈeg̬hedˌ]	*life gear* [ˈlaɪfg̬ɪə(r)]	*éghez* [ˈeːkhɛz]	*afgán* [ˈɒvgaːn]
road̲ster [ˈrəʊdˌstə(r)]	*Shoot b̲ack!* [ˈʃuːt ˈbˌæk]	*road̲ster* [ˈroːtstɛr]	*kert̲ből* [ˈkɛrdbøːl]

As it can be seen, whenever a fortis and a lenis obstruent of English occur adjacently, one of them changes its voice quality. Similarly, whenever a Hungarian voiced and voiceless obstruent occur adjacently, one of them has to change its voice value. We may call this a case of **voice assimilation** by which the voicing of one sound becomes identical to that of a neigbouring one. It is called **regressive** if the sound that changes precedes the sound that influences it, and it is called **progressive** in the opposite case.

The difference between the lenis+fortis case in the English and Hungarian examples – columns (c) and (e) – is manyfold: devoicing is not necessarily complete in English, but it is in Hungarian as indicated by the difference in the symbols; devoicing is not obligatory in English but it is in Hungarian – but assimilation is regressive in both languages. As for the difference between the fortis+lenis cases – columns (d) and (f) – the difference is even bigger. It is not just a matter of degree – partial or complete – and nature – optional or obligatory – but also a matter of value: in English the lenis obstruent assimilates to the fortis one – devoicing applies –, in Hungarian it is the fortis obstruent that assimilates to the lenis one – voicing applies. Consequently, in English we see progressive devoicing while in Hungarian we see regressive voicing. That is, it seems that in English it is the result of assimilation that is fixed – it is always voicelessness –, while in

Hungarian it is the direction – it is always regressive. The following table sums up the differences between voice assimilation and devoicing in English and Hungarian.

English	**Hungarian**
► optional	► obligatory
► partial or complete	► complete
► its result is always devoicing	► its result may be devoicing or voicing
► may be regressive or progressive	► always regressive
► initial or final devoicing may apply	► no initial or final devoicing

There is one more special area of English voice assimilation that we have to mention here: the assimilation of the suffixes *-s* 'plural', '3rdSg' or 'possessive' and *-ed* 'past tense' or 'past participle'. Normally it is assumed that the basic forms of these suffixes are /z/ and /d/, respectively, as these are the ones that appear after vowel-final roots. These forms then assimilate to the root-final consonants.

/z/	**/s/**	**/ɪz/**
legs /ˈlegz/	*kicks* /ˈkɪks/	*churches* /ˈtʃɜːtʃɪz/
tabs /ˈtæbz/	*blokes* /ˈbləʊks/	*judges* /ˈdʒʌdʒɪz/
heads /ˈhedz/	*taps* /ˈtæps/	*bushes* /ˈbʊʃɪz/
means /ˈmiːnz/	*turnips* /ˈtɜːnɪps/	*garages* /gəˈrɑːʒɪz/
girls /ˈgɜːlz/	*hats* /ˈhæts/	*kisses* /ˈkɪsɪz/
ways /ˈweɪz/	*laughs* /ˈlɑːfs/	*buzzes* /ˈbʌzɪz/
shows /ˈʃəʊz/	*baths* /ˈbɑːθs/	*stretches* /ˈstretʃɪz/

As can be seen in the last column of the table, /ɪz/ is used after the sounds /tʃ/, /dʒ/, /ʃ/, /ʒ/, /s/, and /z/, that is, after sibilant consonants, as it would be difficult to pronounce the sibilant /z/ of the suffix after the root-final sibilants. The first column of the table shows that the basic form /z/ is used after all non-sibilant voiced sounds – both consonants and vowels – while the second column demonstrates that /s/ occurs after voiceless non-sibilants. All in all, we can say that the suffix consonant progressively assimilates to the root-final consonant. We have to remember, though, that this voice assimilation is different from the devoicing cases in that it is always complete, progressive and obligatory.

The suffix *-ed* behaves in a very similar way to *-s* presented above.

/d/	/t/	/ɪd/
begged /ˈbegd/	*clicked* /ˈklɪkt/	*wanted* /ˈwɒntɪd/
robbed /ˈrɒbd/	*ripped* /ˈrɪpt/	*mended* /ˈmendɪd/
advised /ədˈvaɪzd/	*laughed* /ˈlɑːft/	*protected* /prəˈtektɪd/
depraved /dɪˈpreɪvd/	*passed* /ˈpɑːst/	*beheaded* /bɪˈhedɪd/
damaged /ˈdæmɪdʒd/	*kissed* /ˈkɪst/	*located* /ləˈkeɪtɪd/
contained /kənˈteɪnd/	*hushed* /ˈhʌʃt/	*paraded* /pəˈreɪdɪd/
filled /ˈfɪld/	*stretched* /ˈstretʃt/	*navigated* /ˈnævɪgeɪtɪd/
followed /ˈfɒləʊd/	*attached* /əˈtætʃt/	*vaccinated* /ˈvæksɪneɪtɪd/

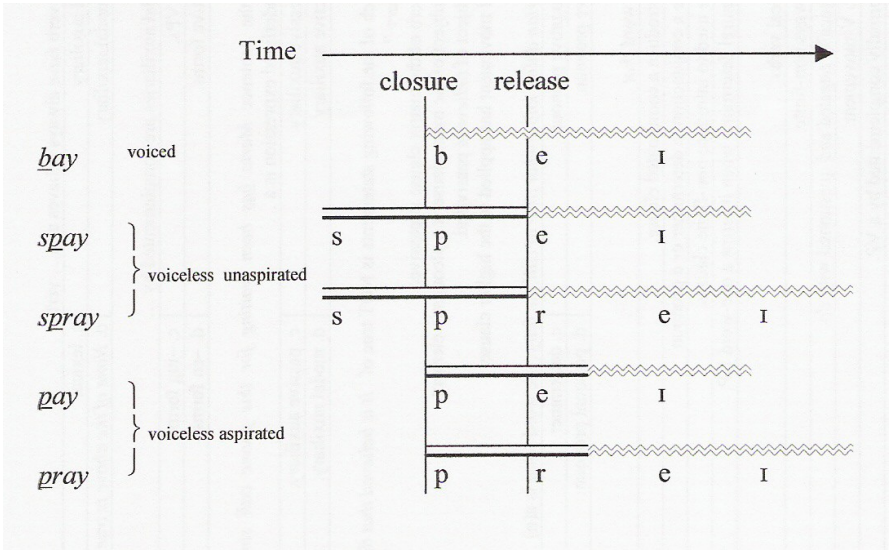
In the last column, after root-final alveolar stops /t/ and /d/, the /ɪd/ allomorph is used, as an /ɪ/ is inserted between the two alveolar stops. After all other voiced root-final phonemes the basic variant /d/ is used while after all other

voiceless root-final phonemes a /t/ allomorph occurs. This assimilation process is also always complete, obligatory and progressive.

Now we turn to laryngeal processes other than voicing. In Chapter 2, **aspiration** is mentioned as one of the processes affecting the voiceless plosives /p t k/, but it is left unexplained what exactly aspiration is phonetically. We know that it has two forms. One is the short [^{h}]-like sound following the plosive, which is in fact not a separate sound segment but merely the acoustic impression that we get due to the first half of the following vowel being devoiced. As you know, all vowels are normally voiced, i.e., their articulation involves vocal cord vibration. In words like *pay* [p^{h}eɪ], the /p/ is voiceless, and its voicelessness spreads onto the vowel, as a result of which the vocal cord vibration characteristic of all vowels starts much later than the release of the plosive and the onset of the vowel. Therefore, what is heard right after the burst of the plosive is a short period with a voiceless vowel (= open vocal cords plus no considerable obstruction to the airflow in the oral cavity), which is, phonetically, identical with /h/ (= open vocal cords plus no considerable obstruction to the airflow in the oral cavity).

The other manifestation of aspiration is the devoicing of a following sonorant consonant in words like *play* [p̥leɪ], *true* [t̥ruː], *quick* [kw̥ɪk]. Of course, the two forms of aspiration are not unrelated, on the contrary, they are the same: the voicelessness of the plosive spreads onto the following segment. Whether it is a vowel or a consonant, its vocal cord vibration lags well behind the release of the plosive. This is schematically represented in the diagram below. The two parallel lines symbolize the vocal cords; when they are straight, there is no vibration, when they zigzag, there is. In *b̲ay*, we have a voiced plosive; in *sp̲ay* and *sp̲ray*, a voiceless unaspirated one owing to the

preceding /s/; in *pay* and *pray*, a voiceless aspirated /p/, which devoices the following vowel and sonorant, respectively.[1]



Another process caused by laryngeal activity is **glottalization**. As it is explained in Chapter 2, the voiceless plosives /p t k/ (and also /tʃ/) are in certain positions accompanied by a short closure of the vocal cords, i.e., by the so-called glottal stop ([ʔ]), e.g., *bat* [b̥æʔt], *actor* [ˈæʔktə(r)], *teacher* [ˈtʰiʔtʃə(r)]. This is called **glottal reinforcement**. Sometimes, especially before a syllabic /n/, a /t/ can be completely replaced by it, that is, **glottal replacement** can take place, e.g., *button* [ˈb̥ʌʔn̩]; in several non-standard varieties of English, especially London English, this can even happen in words like *let* [leʔ], *butter* [ˈb̥ʌʔə] (or [ˈb̥ʊʔə]) or *city* [ˈsɪʔɪ]. What connects these examples to the previous discussion is the fact that the production of the glottal stop involves the movement of the vocal cords only, and no gesture above the larynx.

[1] We ignore the slight devoicing of /b/ at the beginning of *bay*.

A final rule that belongs to laryngeal processes – although not a strictly laryngeal one – is the way fortis consonants influence the phonetic length of the preceding vowel. If a long vowel – monophthong, diphthong or triphthong – is immediately followed by a fortis consonant or a nasal and a fortis consonant within the word, then the vowel will be shortened or clipped, hence the name of the process, **Pre-fortis Clipping**. Long vowels become approximately as short as real, phonologically short vowels but it is important to remember that there is no change in the quality of the vowels at all. Remember (from Chapter 3) that the phonologically short but phonetically long vowel /æ/ behaves identically in this respect, i.e., it patterns exactly like phonologically long vowels do. The change in vowel length is indicated in narrow, phonetic transcription with the symbol [ˑ] instead of [ː] after the vowel.

long monophthong	shortened long monophthong	long diphthong	shortened diphthong
balloon [b̥əˈluːn]	*boot* [ˈb̥uˑt]	*obey* [əˈbeɪ]	*mistake* [mɪˈsteɪk]
believe [b̥ɪˈliːv̥]	*speak* [ˈspiˑk]	*decide* [d̥ɪˈsaɪd̥]	*tonight* [tʰəˈnaɪt]
store [ˈstɔː(r)]	*sports* [ˈspɔˑts]	*allowing* [əˈlaʊɪŋ]	*bounce* [ˈb̥aʊns]
star [ˈstɑː(r)]	*start* [ˈstɑˑt]	*towed* [ˈtʰəʊd̥]	*boat* [ˈb̥əʊt]
stir [ˈstɜː(r)]	*shirt* [ˈʃɜˑt]	*cleared* [ˈkl̥ɪəd̥]	*fierce* [ˈfɪəs]
span [ˈspæn]	*attacked* [əˈtʰækt]	*destroy* [d̥ɪˈstrɔɪ]	*catering* [ˈkʰeɪtərɪŋ]
carnival [ˈkʰɑːnɪvɨ]	*dance* [ˈd̥ɑˑns]	*staring* [ˈsteərɪŋ]	*spouse* [ˈspaʊs]
spawn [ˈspɔːn]	*daunting* [ˈd̥ɔˑntɪŋ]	*curious* [ˈkj̊ʊərɪəs]	*biting* [ˈb̥aɪtɪŋ]

Note that in the case of the vowel /æ/ we cannot indicate shortening as the vowel is classified as a phonologically short vowel and, as a result, the phonetic length of the vowel is not indicated with the colon originally. The case of diphthongs is similar: their length is encoded in the combination of

two symbols rather than a length mark – since neither of the two elements is lost through clipping, we are again unable to show this phonetic shortening in our transcriptions.

What is intriguing about Pre-fortis Clipping is that it is clearly conditioned by the fortis character of the following consonant, rather than its voicelessness. Recall that lenis obstruents systematically become devoiced/voiceless in, for instance, utterance-final position, e.g., *said* [sɛd̥]. Still, a preceding long vowel remains long, e.g., *seed* [siːd̥], as opposed to words like *seat* [siˑ̥t], where the consonant following the vowel is not only voiceless but also fortis. Similarly, the /aɪ/ is much shorter in *write* [raɪt] than in *ride* [raɪd̥], and the /æ/ is much shorter in *atom* [ˈætəm] than in *Adam* [ˈædəm]. In the so-called tapping dialects of English, mentioned in Chapter 2, the distinction between /t/ and /d/ may be lost in certain positions, both being replaced by a tap, but the length of the vowel is still there to show the fortis/lenis character of the original consonant: short in *atom* [ˈærəm] but long in *Adam* [ˈærəm]; short in *writing* [ˈraɪɾɪŋ] but long in *riding* [ˈraɪɾɪŋ]; short in *seater* [ˈsiɾə(r)] but long in *seeder* [ˈsiːɾə(r)]. The duration of the vowel ultimately becomes the indirect indicator of the nature of the following consonant.

To sum up the discussion of laryngeal processes, we can state that the vocal cords play a crucial role in the articulatory process not only in determining the voicedness of speech sounds, but also in producing individual segments like /h/ or the glottal stop. In addition, they are responsible for certain phenomena, e.g., devoicing, aspiration and glottalization, which constitute some of the most significant allophonic rules that English consonants undergo. We have also seen that although both Hungarian and English obstruents take part in voicing assimilation, there is a

huge difference between the two languages: in Hungarian, the direction of the assimilation is fixed (namely, it always proceeds from right to left), whereas in English the output of the process is fixed (namely, it always results in voicelessness). Finally, it has been demonstrated how complex an interaction exists between the vocal cord activity characterising a consonant and the phonetic length of the preceding vowels.

7. Connected speech

Before you study this chapter, check whether you are familiar with the following terms: accent, alveolar, ambisyllabic, aspirated, assimilation, allophone, clear-L, compound, dark-L, dental, devoicing, diacritic, full vowel, function word, glottal stop, glottalized, hiatus, high vowel, idiomatic, intrusive-R, linking-R, morpheme, nasal, non-rhotic, palatal, plosive, R-dropping, reduced vowel, rhotic, segment, stressed/unstressed, suffix, suprasegmental features, syncope, tapping/flapping, utterance, velar, yod

This chapter deals with the phenomena that characterize connected speech, that is, combinations of words rather than individual words uttered in isolation. These cross-word processes are of crucial importance since rarely do we pronounce a single word only – normally we use phrases and sentences, very often several sentences one after the other. We have already mentioned a number of such processes, especially in Chapter 2, which are recapitulated below. Recall, also from Chapter 2, that word-final consonants are always ambisyllabic when followed by a vowel in the next word, and choose their pronunciation variant accordingly.

First, in the discussion of **L-darkening** in RP, we found that syllable-final /l/ is dark, but it is clear elsewhere. Elsewhere includes the ambisyllabic position, too. Therefore, the /l/ at the end of *mill*, for example, is dark when the word is final in the utterance (e.g., *Where's the mill?*) or when the next segment is a consonant (e.g., *There are two mills here* or *The mill was closed*). However, when the following morpheme – suffix or word – starts with a vowel, it is clear (e.g., *It's Mr. Miller* or *The mill is closed*). Bear in

mind that syllabic /l/ is dark, whatever it may be followed by; just as dark in *cancel̲ a meeting* as in *cancel̲ the meeting*. This is a logical consequence of the fact that peaks are never ambisyllabic – after all, they define syllables (cf. Chapter 5), therefore their affiliation cannot be ambiguous.

Second, recall that /t/ has several allophones in the dialects of English, e.g., aspirated, glottalized, tapped/flapped. It is **tapping** in GA or informal-colloquial British English that we are concerned with here most, since this is the process which clearly affects ambisyllabic consonants only. While within words a consonant must be followed by an unstressed vowel to be ambisyllabic (the /t/ is tapped in *á̲to̲m* but not in *a̲tómic*), across words this stress-sensitivity ceases to exist, and all word-final consonants followed by (any!) vowel undergo the process; not only do we find tapping in *ge̲t̲ alóng*, where the next vowel is unstressed, but in *ge̲t̲ úp*, too. In sum, /t/ has the following major allophones: plain [t] (e.g., after an /s/), aspirated [t^h] (syllable-initially), glottalized [$t^ʔ$] or replaced by a glottal stop [ʔ] (cf. Chapter 6) (syllable-finally), and replaced by the tap/flap [ɾ] (in ambisyllabic position). Word-initial /t/ is always aspirated and never tapped, as in *a t̲ease*; word-final /t/ is never aspirated but may be tapped, as in *a̲t̲ ease*. The same contrast is found in the pair *migh̲t̲ I* (tap) vs. *my t̲ie* (aspiration). The expression *at all* is pronounced differently in the two standard varieties of English: the expected unaspirated pronunciation of the /t/ is only found in GA (of course, with tapping: [əˈɾɔːɬ]), whereas in RP the string is, rather exceptionally, treated as if it was a single word, just like *retúrn*, and consequently aspiration appears: [əˈt^hɔːɬ]. Let us emphasize that this is an isolated, irregular example, and word-final plosives in general do not normally become aspirated, cf. *plum p̲ie* (aspirated) vs. *plump̲ eye* (unaspirated). Similarly, the aspiration-killing effect of a preceding /s/ can

only be exerted if the /s/ is in the same syllable as the following plosive: the /t/ is plain in both *st̲ake* and *mist̲ake* but aspirated in *miss T̲om*.

Besides L-darkening and tapping, there is a third rule which applies across words in the same fashion as word-internally, **R-dropping**. You may be able to recall from Chapter 2 the phenomenon called **Linking-R**, a word-final <r> which does not undergo R-dropping because the next morpheme starts with a vowel, which "saves" it. We have also seen that sometimes a "historically unmotivated" /r/ shows up between two morphemes, an /r/ which is absent from spelling and from the rhotic accents of English. This is called **Intrusive-R**. We observe a few interesting facts when we compare Linking-R and Intrusive-R:

(i) They are phonetically identical.

(ii) Both of them characterize the non-rhotic accents of English only – linking and intrusion go hand in hand with R-dropping.

(iii) Since a word-final <r> can only be preceded by a broken tense vowel, a broad lax vowel, or, in unstressed final syllables, a schwa (as the discussion on the R-influence affecting preceding vowels in Chapter 4 shows), it follows that Linking-R always follows one of /ɑː ɔː ɜː ə/, that is, a non-high vowel.

(iv) It is a general feature of Intrusive-R in all the non-rhotic accents exhibiting it that it does not appear in a random fashion, but after certain vowels only, namely /ɑː ɔː ɜː ə/, that is, after a non-high vowel.

(v) Both Linking-R and Intrusive-R are always sandwiched between two vowels: they are preceded by a (non-high) vowel and followed by another vowel in the next morpheme. That is, both always pop up between vowels in a hiatus (cf. Chapter 3); in fact, they break up, i.e., destroy, the hiatus.

How can all these five observations be accounted for in the simplest way? On the one hand, it should be clear that Linking-R and Intrusive-R are virtually the same: they appear in the same position (intervocalically, after a non-high vowel), and have the same function (to fill a hiatus). On the other hand, it should also be clear that the existence of both crucially depends on the presence of the R-dropping rule. Let us illustrate how Intrusive-R must have come into being.

Suppose you are a speaker of non-rhotic English. For you, words like *paw* and *pore*, *spa* and *spar*, *manna* and *manner*, are homophones: /pɔː, spɑː, ˈmænə/, respectively. (You may only face the fact that they are spelt differently when you start learning to read and write at school. Doesn't this remind you of the sufferings you underwent in primary school while trying to memorize that *gólya* 'stork' is written with <ly> but *bója* 'buoy' with a <j>, although both are pronounced with the same sound, /j/?) You also notice that when words like *pore*, *spar*, *manner* are followed by a vowel-initial element, an /r/ suddenly appears between them: …*pore is*… /ˈpɔːr̲ɪz/, …*spar is*… /ˈspɑːr̲ɪz/, …*manner is*… /ˈmænər̲ɪz/. You conclude that whenever a word ends in /ɑː ɔː ɜː ə/, and the next morpheme begins with a vowel, an /r/ is inserted inbetween. You start treating *paw*, *spa*, *manna* analogously to *pore*, *spar*, *manner*.[1]

	pore	*paw*	*spar*	*spa*	*manner*	*manna*
before a pause	/pɔː/	/pɔː/	/spɑː/	/spɑː/	/ˈmænə/	/ˈmænə/
before a cons.	/pɔː/	/pɔː/	/spɑː/	/spɑː/	/ˈmænə/	/ˈmænə/
before a vowel	/pɔːr/	/pɔːr/	/spɑːr/	/spɑːr/	/ˈmænər/	/ˈmænər/

[1] Recall the discussion of Broadness without *r* in Chapter 4.

Therefore, Linking-R and Intrusive-R are both the manifestations of the same process of hiatus-filling after word-final non-high vowels, facilitating the smooth transition between the vowels. Such phenomena are frequently referred to as **liaison**, a French noun meaning 'connection, link'.

The question arises what happens in hiatuses when the first member is not a non-high vowel. Can they be similarly broken up by a **hiatus-filler** consonant? The answer is yes, although in such cases it is not a /r/ which is inserted but a semivowel. If the first vowel is high and front, e.g., /iː/, it is the yod, e.g. *me and you* /ˈmiːʲənˈjuː/. If the first vowel is high and back, e.g., /uː/, it is /w/, e.g., *you and me* /ˈjuːʷənˈmiː/. Footnote 1 in Chapter 5 mentioned the close connection between the high vowels and the glides, and now we are faced with a further example illustrating it. Notice that the choice of the glide is not random, either: /j/ is coronal, that is, produced by the front surface of the tongue (just like /iː/), while /w/ is formed in the back of the oral cavity, being velar (just like /uː/). The major difference between the hiatus-filling glides and /r/ is that the latter only has this function in non-rhotic accents, whereas the former characterize all the dialects of English.

After the discussion of what processes affect vowels meeting across morpheme boundaries in connected speech, let us turn our attention to what happens to consonants in such situations. There are two basic phenomena which need mentioning: assimilation and deletion.

Assimilation processes are of several different types. First, as it is described in Chapter 6, a form of **voice assimilation** is observable in English, although it is not obligatory, it is not always complete, and it is more limited than what we find in Hungarian. The output of voice assimilation in English is always devoicing, that is, a voiceless consonant affects a voiced one, irrespective of the relative order of the two. As a result, the direction of the

assimilation is not fixed – it can be either regressive or progressive. Regressive voice assimilation, whose directionality coincides with Hungarian, is most likely for fricatives and affricates (therefore it is also referred to by certain authors as "**Fricative Devoicing**"), as in *his tie* [z̥ t], *live show* [v̥ ʃ], *have to* [v̥ t] (or even [f t]). Progressive devoicing is what poses particular difficulties for Hungarian speakers of English since it subsumes cases where the opposite happens in Hungarian. Thus in the oft-cited example *matchbox*, the /b/ assimilates to the voiceless affricate, yielding [ˈmætʃb̥ɒks], rather than the other way round, yielding *[ˈmædʒbɒks] or *[ˈmɛdʒboks] (this latter is in fact the standard Hungarian pronunciation of the word). This does not only apply in words within a compound but also across words within the utterance, e.g., *catch Bill* is [ˈkʰætʃ ˈb̥ɪɬ] rather than *[ˈkʰædʒ ˈbɪɬ]; *what's this* is [ˈwɒts ˈð̥ɪs] rather than *[ˈwɒdz ˈðɪs]; *missed Jane* is [ˈmɪst ˈd̥ʒeɪn] rather than *[ˈmɪzd ˈdʒeɪn].

Besides voice assimilations, English exhibits a variety of regressive **place assimilations**, including the dentalization of alveolar /t d n l/ when they are followed by dental /θ/ or /ð/ (this is indicated by the diacritic [̪], e.g., *Matt thanked* [t̪ θ]), the labial assimilation of /t d/ (e.g., *eight pence* [p p], *blood pudding* [b p]), the velar assimilation of /t d/ (e.g., *it could* [k k], *bad company* [g k]), and nasal place assimilation (*Green Peace* [m p], *in question* [ŋ k]). These cases are not problematic to Hungarian speakers as such processes automatically take place in Hungarian, too. However, there is a phenomenon which is unattested in Hungarian: **(occasional) cross-word palatalization**. This is brought about by a /j/ that follows either an alveolar fricative (/s/ or /z/) turning it into its postalveolar equivalent (/ʃ/ or /ʒ/, respectively), or an alveolar plosive (/t/ or /d/) turning it into a postalveolar

affricate (/tʃ/ or /dʒ/, respectively). The expression "occasional" refers to the fact that this assimilation is optional (characterizing faster, colloquial speech rather than slow and careful pronunciation) and only applies on certain restricted occasions. Namely, it produces palato-alveolar /ʃ ʒ tʃ dʒ/ only if a word ending in one of the alveolar obstruents /s z t d/ and a function word beginning with /j/ (e.g., *you*, *your*, *yet*, plus a few other common words including *year* and *usual*) are combined. A few examples: *this year* [ˈðɪʃ jɪə] or [ˈðɪʃɪə], *ease your pain* [ˈiːʒ jə ˈpʰeɪn] or [ˈiːʒə ˈpʰeɪn], *why don't you love me* [ˈwaɪ ˈdəʊntʃʊ ˈlʌv miː], *mind your head* [ˈmaɪndʒə ˈhed], *could you see* [ˈkʰʊdʒə ˈsiː]. (For word-internal palatalization, see Chapter 11.)

Assimilations, however, are not the only processes affecting consonants across word boundaries. **Optional consonant deletion** is just as frequent, especially when more than two consonants "pile up". You may have noticed that such "congestions" get simplified word-internally, as in *Wednesday*, *handkerchief* (cf. the diminutive form *hankie*), *Christmas*, *exactly* and *grandmother* (cf. *gran*, *granny*) for instance, where the underlined consonant letters are normally unpronounced. The same happens across words to a /t/, e.g., *Saint Paul, first knight, next day, I don't know*, etc., or a /d/ between an /n/ and another consonant, e.g., *send Jim, rock and roll, Guns and Roses, find me,* etc. In addition, a /h/ is very often silent in the function words *he-him-his, her, have-has-had* and so is the voiced dental in *them* (for the so-called weak forms of function words, see below), which is sometimes reflected by spellings like *'im*, *'er*, *'em*, too. Thus the underlined consonants in *I met him, We told her, Who is he?, That'll teach them* may remain unpronounced. This is called **Aitch-Dropping**, for obvious reasons.[2]

[2] In fact, aitches are not only dropped at the beginning of unstressed function words but also word-internally before an unstressed vowel, cf. *vehícular* with a pronounced /h/ vs. *véhicle* without one, or *herd* with an /h/ vs. *shépherd* without one. In addition, it is a wide-spread

Finally, it is worthy of mention that the final /v/ of words like *give* or *leave* can also be deleted if they are followed by an unstressed function word (e.g., *lea<u>v</u>e me alone*; cf. contracted *gimme* from *give me*).

Curiously enough, some of the processes mentioned above only apply when the second of the two words juxtaposed is a function word: palatalization is possible in *mi<u>ss</u> you* but not in, say, *mi<u>ss</u> Yolanda*; /v/-deletion is possible in *lea<u>v</u>e me alone* but not in *lea<u>v</u>e Maureen alone*.

After the discussion of the cross-word phenomena affecting individual speech sounds (segments) – that is, segmental phenomena – let us scrutinize the **suprasegmental features** of connected speech, i.e., those that characterize larger strings like syllables or utterances.

One of the most important of such features, intonation, will be devoted a whole chapter to later (Chapter 10), so here we can concentrate on the other one: **stress**. The way stress is placed in English words is dealt with in Chapters 8-9 – for the time being, suffice it to say that all non-function words (that is, nouns, verbs, adjectives and adverbs) contain at least one syllable that constitutes a **rhythmic beat** (called **major stress**), which makes it stronger, more prominent, than the neighbouring syllables. When words are combined into phrases, usually the (final) major stress of the final element is even stronger than the others, and when phrases are combined into sentences, the strongest major stress of the final phrase in the string receives the greatest emphasis. For example, in the sentence *Colourless green ideas sleep furiously*, *green* is stronger than the first syllable of *colourless*, the second syllable of *ideas* is stronger than *green*, and the major stress of *furiously* is stronger than that of either *sleep* or *ideas*. In sum, the strongest **phrasal stress** normally falls on the final element. Of course, this generalization can

feature of non-standard pronunciation in all dialects (but, perhaps, more extensively in England than the US) to "drop one's aitches" at the beginning of content words as well, yielding *'ouse* instead of standard *<u>h</u>ouse*, for example.

be overridden if the speaker wishes to put extra emphasis on another word in the phrase or sentence for some reason, so *colourless* may as well become the most prominent in, e.g., *Colourless green ideas sleep furiously and not coloured ones!*

As opposed to phrasal stress, **compound stress**, i.e., maximal prominence within a compound word, is normally assigned to the first term, thus producing a stress pattern which is the mirror image of the usual phrasal stress pattern. For example, a *big wig* is simply a wig which is big (it is a phrase consisting of an adjective and a noun), while a *bigwig* is an important person (a compound with its idiomatic meaning). Similarly, a *red skin* is a skin which is red, but a *redskin* is a North American Indian. (Notice how much this resembles Hungarian examples like *eladó lány* 'marriageable girl', which is a phrase, versus *eladólány* 'salesgirl', which is a compound.) The rule applies in longer compounds as well, so *pet* is the strongest term in both *pet shop* and *pet shop boys*. Further details on compound stress are adduced in the next chapter, when the various degrees of stress are discussed.

The alternation of rhythmic beats and weak (unstressed) syllables produces the rhythm of speech. A major difference between English and Hungarian lies in the type of rhythm they exhibit. While in Hungarian each syllable is pronounced in about the same time, and therefore the basic unit of speech rhythm is the syllable (this is called **syllable-timed rhythm**), in English it is the sound string stretching from one major stressed syllable up to the next one (the so-called **foot**), and consequently the time elapsing between two major stresses is approximately the same. This is traditionally referred to as **stress-timed rhythm**. What follows from this is the fact that in English (and similar languages, but not in Hungarian) rhythmic beats occur at more or less equal intervals: the greater the number of following unstressed syllables is, the shorter the stressed vowel and the more compressed the

unstressed syllables become. For illustration, consider the following sentence:

He | *gave a* | *digital* | *camera to* | *George* | *Clooney for his* | *birthday*

The rhythmic beats are indicated by underscores, and the vertical lines denote foot boundaries. Due to the stress-timed rhythm of English, the strings between any two such boundaries are much the same in duration, from which a number of consequences ensue, e.g., *George* is pronounced considerably long, whereas *camera* tends to get compressed to disyllabic *cam'ra* (cf. syncope in Chapter 5) so that *camera to* fits into more or less the same time span as, e.g., *digital*.

Perhaps the most effective strategy whereby syllables can be "squeezed" is **vowel reduction**, that is, the replacement of full vowels with the weak (reduced) vowels /ə ɪ ʊ/ (see Chapter 3). In connected speech, this reduction process characteristically manifests itself in the reduction of unstressed function words. In the example sentence above none of the function words (*he, a, to, for, his* - /hɪ, ə, tə, fə(r), (h)ɪz/) contains anything other than those three vowels. Of course, as we have already seen above, any word can in principle be stressed in an utterance for special emphasis, and under such circumstances these function words may contain unreduced vowels (/ˈhiː, ˈeɪ, ˈtuː, ˈfɔː, ˈhɪz/). Let us see the details.

There are roughly forty words in English that have two basic forms: one which is the usual, unstressed pronunciation (called the **weak form** – very often, the same word exhibits several different weak forms), and another, stressed pronunciation (called the **strong form** or full form), which is only used in certain specific situations (see below). The list of the most common such words is given in tabular form in the Appendix at the end of

the chapter. Most of them belong to the closed class of function words (determiners and pronouns [1-11 in the table in the Appendix], prepositions [12-17], conjunctions [17-22] and auxiliaries [23-30]), although certain highly frequent major category words (e.g., the noun *saint* when part of compound proper names – [+1]) also show this kind of dual behaviour. It *is* possible to use only strong forms in speaking, and some foreigners (including the typical Hungarian speaker of English) do this, but native speakers find such "all-strong-form" pronunciations unnatural and foreign-sounding; moreover, the unnecessary lack of reduction creates the impression of emphasis, which may even lead to misunderstanding. In addition, it is crucial for learners of English to be familiar with the use of weak forms or else they are likely to have difficulty comprehending (native) speakers who do use them (statistically, as many as 95% of the occurrences of a function word in native speech are weak).[3]

The unstressed, weak forms are normally used sentence-medially (e.g., *It's time to* /tə/ *go on*), and, with the exception of auxiliaries [23-30], sentence-initially as well (e.g., *To* /tʊ/ *err is human*), whereas the strong forms occur at the end of the sentence (e.g., *I can do it if you want me to* /tuː/). It has already been repeated several times that even otherwise unstressed words can become prominent for purposes of emphasis or contrast, for example – accordingly, the strong form is chosen when the word is contrasted or co-ordinated with another one (e.g., *Both of them can* /ˈkæn/*, but only Jack will* /ˈwɪl/*, answer this question* or *It's at* /ˈæt/ *the corner, not on* /ˈɒn/ *the corner*), when it is cited or quoted (e.g., *Don't say "but"!* /ˈbʌt/), or it is simply emphasized (*You must* /ˈmʌst/ *hold on!* or *He does* /ˈdʌz/ *do the homework regularly!*). In addition, when a preposition is followed by a

[3] One exception is singing, in which strong forms are often used in normally unstressed positions, although articles are generally weak even there.

pronoun at the end of a sentence, usually the strong form of the preposition (and, of course, also of the pronoun) is used (e.g., *I'm looking at you* /æt juː/; cf. *It's at* /ət/ *the corner*).

These general rules, however, have a number of exceptions. First, object pronouns [7-10] are not normally full even sentence-finally (e.g., *Have you seen them?* /ðm/). Second, auxiliary verbs never have the weak pronunciation in their negative form (i.e., combined with *not*) – the very nature of negation involves emphasis (e.g., *I can't* /ˈkɑːnt/ (or *cannot* /ˈkænɒt/) *dance*) and, as it has been mentioned above, usually, though not always, they have the strong pronunciation at the beginning of the sentence (*Can* /kæn/ *you dance?* as opposed to *John can* /kn/ *dance the tango*). Finally, there are a few function words that have a strong form only, e.g., auxiliaries (*did, may, might, need*), prepositions (*in, off, on, up*), conjunctions (*though, when*), pronouns (*that, these, those, who*[4]), and the negative particle *not* (but it shortens to *n't* when contracted with certain auxiliaries, e.g., *can't, won't, didn't*) (for contraction, see below).

The major characteristics of **the pronunciation of the weak forms** are the following:

(1) The vowel reduces to one of the weak vowels, in most cases to /ə/. This is sometimes reflected in non-standard spelling, e.g., the <a> at the end of *wanna* (=*want to*), *gotta* (=*got to*), *gonna* (=*going to*), *kinda* (=*kind of*), *cuppa* (=*cup of*).

(2) Very often, the schwa is able to further reduce to zero, which sometimes results in Syllabic Consonant Formation (SCF – discussed in Chapter 5). Some of these vowelless pronunciations (*n't, 's, 'd, 've,* etc.) are able to undergo **contraction** – that is, auxiliaries and the like attach to an

[4] When it is interrogative (e.g., *Who is it?*). For the relative pronoun (e.g., *the man who sold the world*), there exists an occasional weak form /hʊ/.

adjacent word. Contraction can also affect certain other words, cf. *wanna*, *gotta*, etc. in (1) above. Rather exceptionally, it is possible to contract the object pronoun *us* in imperative *let's*. Recall from Chapter 6 the rules of the voice assimilation of the *-s* suffix, and note that contracted *'s*, irrespective of what function word it is a contraction of, conforms to them as well.

(3) The consonants surrounding the vowel also become weak, and delete easily, so we find a number of examples of optional consonant deletion, discussed above, among weak-form words. Especially word-initial /h/ is targeted by such deletions, as it was already mentioned, sometimes traceable in non-standard spellings like *should of been* for *should have been*. However, when /h/-initial weak-form words occur at the beginning of a sentence, the pronunciation is always with /h/.

(4) Certain weak-form words are pronounced differently before consonant- and vowel-initial words, including *a(n), the, do, to, you*. This is because in English schwa cannot normally occur before another vowel, so some other pronunciation (an extra /n/ in *an*, or final /ɪ/ or /ʊ/ in the other cases) is chosen to avoid that situation. Also, remember that in the non-rhotic accents like RP a word-final /r/ is only pronounced when followed by a vowel-initial morpheme – such potential Linking-R's are given in brackets in the table. Keep in mind, though, that all those /r/'s are obligatory in all positions in the rhotic accents like GA.

(5) Weak forms, particularly those of prepositions and pronouns, typically lose their independent word status in connected speech, which is evident from phonological processes such as word-initial tapping and aitch-dropping. The initial /t/ of the unstressed preposition *to* is weak and frequently tapped in the relevant dialects in a phrase like *lie to me* /ˈlaɪɾəˈmiː/ (analogously to a single word like *lighter* /ˈlaɪɾə(r)/), and the initial /h/ of the

unstressed personal pronoun *him* can be deleted in *beat him* (i.e., *beat 'im*), similarly to *vehicle* or *shepherd* discussed in footnote 1 above. We are led to the conclusion that all of *lie to, lighter, beat 'im, vehicle* and *shepherd* undergo phonological rules in the same way because, as far as pronunciation is concerned, they all constitute single words.

The table in the Appendix summarizes the most common weak forms, contrasting them with the corresponding strong forms. Most examples equally apply to RP and GA, although sometimes GA supplies additional possibilities. All such differences are indicated in the table. A closer examination of the weak forms leads to the observation that some of them are ambiguous, so their meaning only becomes clear from the context (e.g., /əv/ can correspond to either *of* or *have*). All further comments, which do not fit into a chart, including weak forms only used in certain meanings, are given as footnotes.

To sum up the discussion of this chapter, let us emphasize that a well-definable group of phonological processes (L-darkening, tapping and other /t/-phenomena, R-dropping) apply within and across words in a uniform fashion. Moreover, Linking-R and Intrusive-R can be proven to be two forms of virtually the same object, a hiatus-filler inserted after non-high vowels, and as such, they properly fit into the general picture of hiatus resolution. We have also seen how other processes like assimilation and consonant deletion are present in connected speech, and how the reduction of unstressed function words contributes to the isochronous stress pattern and rhythm of English utterances. The following two chapters take the stress pattern of individual words under scrutiny.

Appendix

	Word	Strong form	Examples	Weak form(s)	Examples
1.	*the*	ðiː	*It's not "a" cat, it's "the" cat!*	ðə, ðɪ	*the* /ðə/ *dog, the* /ðɪ/ *end*
2.	*a, an*	eɪ, æn		ə, (ə)n	*a dog, an end*
3.	*some*[5]	sʌm	*I'll get you some.*	s(ə)m	*I'll get you some apples.*
4.	*his*[6]	hɪz	*It's his car, not mine.*	(h)ɪz	*what's-his-name*
5.	*your = you're*	jɔː(r), jʊə(r)	*Is this YOUR CV?*	jə(r)	*Mind your head!*
6.	*(s)he, we, you*	hiː, ʃiː, wiː, juː	*All I want is YOU.*	(h)ɪ, ʃɪ, wɪ jʊ (GA also jə)	*I'll get you some apples. I gotcha!*
7.	*him*	hɪm	*Whom do you love: him or her?*	(h)ɪm	*I love him.*
8.	*her*	hɜː(r)		(h)ə(r), ɜː(r)	*I love her.*
9.	*their them*	ðeə(r) ðem	*It wasn't US, it was THEM.*	--[7] ð(ə)m	*Do you hate them?*
10.	*us*	ʌs		əs	*one of us is crying*
11.	*there*[8]	ðeə(r)	*There you are!*	ðə(r) (GA also ðr)	*There's a book on the table.*
12.	*at*	æt	*What's he getting at?*	ət	*Look at me.*
13.	*for*	fɔː(r)	*It's just what I long for.*	fə(r), fr, f[9]	*Stay for a week.*
14.	*from*	frɒm (GA frʌm)	*Where are you from?*	frəm	*He's from Barcelona.*
15.	*of*	ɒv (GA ʌv)	*It's love I've a lot of.*	əv[10]	*one of us*

[5] This word can reduce when it is a neutral quantifier (e.g., *There's some milk in the fridge*), but not in other senses, e.g., when it is contrasted (e.g., *Some students know this but others don't*).

[6] This only applies to the possessive determiner (e.g., *This is his car*). When *his* is a pronoun (e.g., *This car is his*), it always has the strong form.

[7] In GA, there is a weak form /ðər/, which is used in RP only occasionally.

[8] When this word is a demonstrative element (opposite of *here*), it is a (stressed) adverb and therefore it occurs in its strong form only. Also, cf. *their* above.

[9] In both RP and GA, the occasional weak form /fr/ is only used before weak vowels, e.g., *stay for a week* /ˈsteɪ frə ˈwiːk/. The weak form /f/ is rare and only appears in very casual or rapid speech.

[10] There is also an informal rapid-speech or non-standard pronunciation, used before consonants only, /ə/, sometimes spelt *o'* (as in standardized *o'clock*). Also, compare *of* and

16.	*to*[11]	tuː	*Who did you give it <u>to</u>?*	tə, tʊ	*<u>to</u> /tə/ me, <u>to</u> /tʊ/ Ann*
17.	*than*[12]	ðæn	*"<u>Than</u>" is spelt with an "a" not an "e".*	ð(ə)n	*even better <u>than</u> the real thing*
18.	*and*	ænd	*"<u>And</u>" is a conjunction.*	(ə)n(d)[13]	*Twist <u>and</u> shout!*
19.	*but*	bʌt	*Don't say "<u>but</u>"!*	bət	*sad <u>but</u> true*
20.	*that*[14]	ðæt	*What's <u>that</u>?*	ðət	*the book <u>that</u> we bought*
21.	*or*	ɔː(r)	*To be <u>or</u> not to be?*	ə(r)[15]	*sooner <u>or</u> later*
22.	*as*	æz	*<u>as</u> and when*	əz	*<u>as</u> good <u>as</u> it gets*
23.	*have* *has* *had*	hæv hæz hæd	*<u>Have</u> you seen her?* *<u>Had</u> I known him earlier...!*	(h)əv, v (h)əz, z, s (h)əd, d	*You<u>'ve</u> got to know.* *She<u>'s</u> got it. It<u>'s</u> been a year. You<u>'d</u> better stop!*
24.	*can* *could*	kæn kʊd	*<u>Can</u> you dance?* *Yes, you <u>could</u>.*	k(ə)n kəd	*I <u>can</u> see.* *You <u>could</u> be mine.*
25.	*will* *would*	wɪl wʊd	*<u>Will</u> Susan be there?* *<u>Would</u> you like it?*	(w)(ə)l (w)(ə)d	*Susan <u>will</u> be at home.* *I'<u>d</u> rather sail away.*
26.	*shall* *should*	ʃæl ʃʊd	*<u>Shall</u> I open the window?*	ʃ(ə)l ʃəd	*I think you <u>should</u> work harder.*
27.	*must*[16]	mʌst	*You <u>MUST</u> hold on!*	məs(t)	*I <u>must</u> go now.*
28.	*do* *does*	duː dʌz	*How do you <u>do</u>?* *Yes, she <u>does</u>!*	dʊ, d(ə) d(ə)z	*How <u>do</u> you do?* *What <u>does</u> he do?*
29.	*am,* *are* *was,* *were*[17]	æm, ɑː(r) wɒz (GA wʌz), wɜː(r)	*I <u>AM</u> hungry!* *He said he wasn't sleepy but he <u>was</u>!*	(ə)m, ə(r) wəz, wə(r) (GA also wr)	*I'<u>m</u> hungry.* *They <u>were</u> all drinking in the pub.*

off: the latter has no weak form, and is pronounced /ɒf/.

[11] The preposition and the infinitival particle exhibit the same behaviour.

[12] This word is either used as a preposition (e.g., *He's older than me*) or a conjunction (e.g., *He's older than I thought*), but it is not to be confused with the adverb *then*, which only has a strong form /ðen/.

[13] The weak form /ənd/ is slightly more formal than /ən/.

[14] This word only has a weak form when used as a conjunction (e.g., *I know that you know it*; *the book that we bought*); when it is a demonstrative determiner (e.g., *Who's that girl?*) or pronoun (e.g., *What's that?*), or a degree word (e.g., *Not that bad*) it is always pronounced in its strong form.

[15] This is an occasional weak form in RP, only used between numbers and in fixed phrases. In GA, however, this reduction is quite common.

[16] When expressing probability (e.g., [doorbell rings] *This must be the milkman*), this word is less likely to appear in its weak form than when it is used in the sense of obligation (e.g., *You must try harder*).

[17] The verb *be* always behaves like an auxiliary verb, even when it is the only verb in the sentence. However, its forms are always strong in three-word *wh*-questions containing a personal pronoun, e.g., *Who <u>is</u> it?*, *How <u>are</u> you?*, *Where <u>were</u> they?*

30.	*been*	biːn (GA bɪn)	*Where have you <u>been</u>?*	bɪn	*I've <u>been</u> busy all day.*
+1.	*Saint*	sɛɪnt	*He's a <u>saint</u>.*	s(ə)n(t)	*<u>Saint</u> Paul's Cathedral*

8. Word stress – Part 1: The degrees of stress

Before you study this chapter, check whether you are familiar with the following terms: ambisyllabic, aspirated, CiV, closed syllable, derivation, diacritic, foot, free variation, full vowel, function word, IPA, major stress, monomorphemic, morpheme, morphology, productive suffix, pulmonic, reduced vowel, syllabic consonant, syllable peak, tapping/flapping, Trisyllabic Laxness, utterance, vocal cords

As it was already mentioned in Chapter 7, stress is one of the **suprasegmental** (or **prosodic**) **features** of speech, which extend over more than one sound segment. They include variations in pitch, loudness, tempo and rhythm, out of which pitch and loudness play the most significant role in the stress system of English.

Pitch roughly corresponds to the acoustic feature of frequency, the rate of vibration of the vocal cords, which is produced by their stretching and tensing: the tenser they are, the higher the rate of vibration, and the higher the pitch. The distinctive use of patterns of pitch is called **intonation**, whose most important function is to signal grammatical structure (e.g., clause boundaries within sentences, and the different sentence types, especially questions vs. statements), similarly to punctuation in writing. In Hungarian, for example, intonation plays a pivotal role in the distinction between segmentally identical statements and yes-no questions like *Jani elment* 'Johnny has left' vs. *Jani elment?* 'Has Johnny left?'. Chapter 10 is devoted to intonation in English.

Certain languages, but neither English nor Hungarian, use pitch to contrast not sentences but words, thus pitch becomes an essential feature of

the meaning of morphemes. This phenomenon is called **tone**, and such languages are called tone languages. Many of the languages of South-East Asia and sub-Saharan Africa, e.g., Beijing Mandarin Chinese and Thai in Asia or Hausa in Africa, belong here.

Besides pitch, **loudness** is the other major ingredient of stress prominence in English. The loudness of (strings of) speech sounds depends on the size of the vibrations of the vocal cords caused by the varying degrees of pulmonic air pressure. Together with pitch level and vowel quality, loudness produces the relative prominence of syllables called **stress**. It is of crucial importance to understand that stress is not an absolute feature of syllables but rather it is relative, only relevant in comparison of several syllables. It is possible to say that a syllable is stressed, but this always means that it is more stressed (=stronger, more prominent) than the adjacent syllable(s). Due to the fact that stress is an extremely complex phenomenon (governed by a number of different factors) and the fact that it is relative, there exist several **degrees of stress**, out of which four are linguistically relevant in English. In fact, these various degrees come into being owing to the unequal role played by pitch, rhythmic prominence (already mentioned in Chapter 7), and the full or reduced quality of the syllable peak.

Recall from the previous chapter that all non-function words in English contain at least one syllable that constitutes a rhythmic beat (called **major stress**) – at the same time, function words are normally unstressed. The primary source of this rhythmic prominence of major stress is the loudness of the syllable, but the difference in pitch level causes a difference between two types of major stresses. In *suprasegmental* or *syllabification*, for example, there are two rhythmic beats (underlined), but one of them, namely the second one, is more prominent owing to its highest pitch in the word. In addition, only this syllable can carry the main stress of an utterance, e.g., *Are*

these features suprasegmental? or *This is the correct syllabification* (cf. the discussion of phrasal stress in Chapter 7). It is traditionally called **primary stress** or **main stress**, for obvious reasons, while the other type of major stress is usually referred to as **secondary stress**. Secondary stress is optional, basically it only appears in longer English words under very specific circumstances (see below in more detail). For example, the first syllable of the word *suprasegmental* and the second syllable of *syllabification* are secondary stressed. Another basic difference between primary and secondary stress is that while the former can only appear once in a word (this is logical, since it is, by definition, the *most* prominent syllable), there may be several occurrences of secondary stress, depending on the length of the word. For instance, the word *contamination* contains one such syllable (underlined), whereas *decontamination* already contains two.[1]

Syllables without rhythmic prominence also fall into two subtypes. In most such cases, the whole syllable becomes weak and reduced, which means that, on the one hand, the vowel is not full but one of /ə ɪ ʊ/ – most frequently, schwa. It is in these cases that Syllabic Consonant Formation (discussed in Chapter 5) is possible. On the other hand, the consonants surrounding this weak peak also become unstable, especially the consonant preceding it. So much so that /h/, for example, systematically disappears altogether (recall the examples *vehicle* /ˈviːəkl/ and *shepherd* /ˈʃepəd/ of Chapter 7, but *vehement* /ˈviːəmənt/, *annihilate* /əˈnaɪəleɪt/, *Buddha* /ˈbʊdə/, *Birmingham* /ˈbɜːmɪŋəm/, etc. are analogous), and even if a consonant remains pronounced in such a position, its syllabic status is vague, that is, the consonant is ambisyllabic (cf. Chapter 2), with all the consequences of this.

[1] Based on the observation that out of two (or more) successive secondary-stressed syllables the first one is always slightly stronger than the other(s), some authors apply the term "secondary stress" to that one only and refer to the others as "tertiary-stressed".

Such syllables are **zero-stressed** or **completely unstressed**. However, some otherwise weak syllables contain an unreduced vowel, that is, under certain (not exactly straightforward) circumstances the expected vowel reduction fails to take place, as in the first syllable of *activity* /ækˈtɪvətɪ/. This full-vowelled, rhythmically or pitch-wise non-prominent stress is called **tertiary stress** in this book. An alternative name is **minor stress** (as opposed to *major* stress). Although such syllables are not prominent as far as suprasegmental features go, still they are stronger than completely unstressed syllables in the sense that they are characterized by neither vowel reduction nor consonant weakening, the two elementary features of zero stress mentioned above. Compare the final syllable of *Abraham* /ˈeɪbrəhæm/ and *Graham* /ˈgreɪəm/ – in the former the vowel is full and the /h/ is pronounced (this is what we call tertiary stress), whereas in the latter the vowel is a schwa and the /h/ is dropped (this is what we call zero stress). Compare the underlined /t/ in *hesitate*, which is strong and therefore aspirated, with that of *activity* or *better*, which is not – rather, it is tapped in the tapping dialects of English (as an indication of its ambisyllabicity), yielding [æˀkˈtʰɪvərɪ] and [ˈbɛɾə(r)].

The four degrees of word stress are summarized in the following chart. As the shaded areas show, the basic difference between unstressed and stressed syllables lies in the presence vs. absence of vowel reduction, respectively, while the major stress – minor stress distinction is based on loudness (rhythmic prominence).

Stress category	**MAJOR**		**MINOR**	**UNSTRESSED**
Stress degree	**primary**	**secondary**	**tertiary**	**zero**
Prominence	**full vowel** **loudness** **highest pitch**	**full vowel** **loudness**	**full vowel**	**--**
Examples	*suprasegmental* *syllabification* *annihilate* *hesitate* *Japan*	*suprasegmental* *syllabification* *hesitation* *grammaticality* *Japanese*	*suprasegmental* *syllabify* *annihilate* *hesitate* *activity*	*suprasegmental* *syllabification* *annihilate* *grammaticality* *Japan*

There are three equivalent **stress-marking conventions** in phonology: the use of numbers, diacritics, and IPA stress marks. In this book, we only use their most widely accepted forms, which are shown in the table below. In the IPA, the upper mark / ˈ / is used for primary stress, and the lower mark / ˌ / for secondary stress. Sometimes the segments are not transcribed but rather the spelt form of the word is supplemented by diacritics on top of the stressed vowel letters: the acute accent (e.g., *ó*) signals primary stress, and the grave accent (e.g., ò) secondary stress. Finally, the stress degrees of the syllables in a word can be referred to with numbers, 1 standing for primary, 2 for secondary, 3 for tertiary, and 0 for zero.

Stress category	**MAJOR**		**MINOR**	**UNSTRESSED**
Stress degree	**primary**	**secondary**	**tertiary**	**zero**
Numbers	1	2	3	0
Diacritics	acute accent	grave accent	-	-
IPA stress marks	upper mark	lower mark	-	-

Accordingly, the stress pattern of *suprasegmental* can be indicated with numbers as 20310, with accents as *sùprasegméntal*, or, accompanying an IPA transcription, as /ˌsuːprəsegˈmentl/.

On the basis of the examples above, the careful reader must have already noticed some of the general properties of English word stress. First, no major stress occurs after the primary stressed syllable (i.e., secondary stress always precedes primary stress). It follows that primary stress is always the rightmost major stress, i.e., the last rhythmic beat is the strongest. This **prominence of the right edge** is usually explained by the directionality of primary stress placement: it is supposed to proceed from right to left, docking onto the first potential site available (see the next chapter).

Second, there are no English words starting with two successive zero- or tertiary stressed syllables – one of the first two syllables of a word must be rhythmically prominent (i.e., primary or secondary stressed). This is the **prominence of the left edge**, or, as sometimes it is referred to, the **Early Stress Requirement**. Notice that the prominence of the right edge and the prominence of the left edge are in potential conflict in longer words: in a five-syllable word, for instance, where primary stress falls on the second-last syllable, there remain three more syllables to the left, which cannot all be unstressed. Consequently, either the first one (as in *sùprasegméntal*) or the second one (as in *contàminátion*) will necessarily receive secondary stress. In fact, this is the reason why secondary stresses are created: to produce a more or less regular alternation of stressed and unstressed syllables, e.g., 20310 in *suprasegmental* or 02010 in *contamination*. This tendency in English for a regular **iambic rhythm** (that is, speech rhythm with metrical feet consisting of one unstressed syllable followed by one stressed syllable) also manifests itself in the dispreference of adjacent major stresses. Such situations, called **stress clashes**, tend to be avoided: in most cases (as in the examples above),

there is at least one zero or tertiary stressed syllable between any two primary or secondary stresses.

The basic principles of the English stress system, discussed above, determine the regularities of stress placement. Primary stress is dealt with in the next chapter – here we turn to **secondary stress assignment**. It has been mentioned that the "war" of the two word edges is the primary motivation for the creation of secondary stresses: recall the Early Stress Requirement, as a result of which in longer words, if primary stress falls on the third (or a later) syllable, the first or the second syllable must be assigned secondary stress. Monomorphemic English words tend to be rather short, so there are just a few examples (including a number of place names) for **underived secondary stress**; in most such words (e.g., *Àbergavénny, àbracadábra, àgoraphóbia, àlumínium, Àpalàchicóla, Kàlamazóo, màcaróni, pàraphernália, sànatórium, Wìnnepesáukee*) the first syllable receives secondary stress irrespective of the number of syllables before the primary stress – if there are more than three, as in *Apalachicola*, additional secondary stresses are created.

The problem, however, mainly arises in derived words. What usually happens in such cases is that since suffixation has made the word longer, primary stress shifts to the right, and the original primary stress reduces to secondary. Bear in mind that the rightmost rhythmic beat is the strongest! As such derived words preserve the rhythmic prominence of the original stress pattern, this secondary stress is frequently referred to as **Derivational Secondary Stress**. In *fíction*, for example, primary stress falls on the first syllable, which reduces to secondary stress when *fictionéer* is derived. The following examples illustrate the same mechanism: *adáptable – adàptabílity*, *éducate – èducátion*, *impréssion – imprèssionístic*, *irrégular – irrègulárity*, *jústify – jùstificátion*, *órchid – òrchidáceous*, *perípheral – perìpherálity*. Here again the number of syllables before the primary stress does not matter. If a

suffix is attached to a long word which already contains a secondary stress, further secondary stresses are brought about, cf. *ìndivídual* and *ìndivìduálity*, *còmprehénsible* and *còmprehènsibílity*. Whole chains of derivation illuminate how former primary stresses turn into secondary: *dífferent – dìfferéntiate – dìfferèntiátion*, *ínstitute – ìnstitútion – ìnstitùtionalizátion*.

There is one situation, however, in which Derivational Secondary Stress is blocked: when it would result in stress clash. The pressure to avoid adjacent major stresses and therefore maintain a (near-)iambic rhythm leads to one of two possible solutions: the original primary stress reduces to tertiary or zero, either with a secondary stress appearing to the left (this is called **Iambic Secondary Stress**), or with no (new) secondary stress at all, the original major stress being deleted and lost (**Major Stress Deletion**). All in all, the output of both strategies is a stress pattern with the stresses evenly distributed. Here are a couple of examples – the previously primary stressed syllables are underlined, and their vowels are indicated with IPA symbols:

Iambic Secondary Stress	Major Stress Deletion
adápt – àdaptátion /æ/	*áctive – actívity* /æ/
doméstic – dòmestícity /ɛ/	*ànthropólogy – ànthropológical* /ə/
enígma – ènigmátic /ɪ/	*átom – atómic* /ə/
fragmént (verb) *– fràgmentátion* /ə/	*clímate – climátic* /aɪ/
horízon – hòrizóntal /ɪ/	*Gérman – Germánic* /ɜː/
Japán – Jàpanése /ə/	*frágile – fragílity* /ə/
refórm – rèformátion /ə/	*víctory – victórious* /ɪ/
transpórt – trànsportátion /ɔː/	*vírgin – Virgínia* /ə/

Since the primary stress is placed in different ways in the case of different suffixes (see below and in the next chapter), the same word can undergo Derivational Secondary Stress formation in one case and Iambic Secondary Stress formation or Major Stress Deletion in another, e.g., for *córrelate*, the original major stress is preserved in *còrrelátion* but deleted in *corrélative*.

Another manifestation of the tendency to maintain iambic rhythm and avoid stress clash characterizes connected speech. When a word with a secondary and a primary stress (e.g., *thìrtéen*) forms a phrase with another one (e.g., *mén*), based on the discussion of phrasal stress (Chapter 7) we expect the final stress to be the strongest, while all the others are expected to reduce their stress degree by one, that is, something like *thirtèen mén*, with a 321 stress pattern. Instead, what normally happens in English is that the stress levels "switch round" in the first element of the phrase, the result being *thìrteen mén*, i.e., 231, where the intervening tertiary stress (formerly the primary stress – underlined) separates the major stresses. This phenomenon has been widely studied and therefore has a whole range of names, e.g., **stress shift**, **iambic reversal**, or **the rhythm rule**, all of which highlight one or another feature of the process: stress degrees are shifted to move rhythmic beats away from each other and thus facilitate the iambic rhythm of the phrase. Some linguists dub it **the *thirteen men* rule**, after this very frequent example. It is important to keep in mind, though, that it does not only take place in *thirteen men*, but occurs automatically in all phrases where the first element has at least one secondary stress, e.g., *àchromatic léns, àcademic wríting, àfternoon téa, Chìnese chéckers, fùndamental fréquency, ìnternational láw, Jàpanese lánguage, nèolithic víllage, Tènnessee Válley*, or, for some speakers, *the Bèrlin Wáll* or *ìdeal pártners*.

From the discussion of secondary stress, it should be clear that after certain suffixes have been attached to a word, the original stress pattern may

change, as in *átom – atómic*; moreover, this is the primary source for the creation of secondary stress, as in *décorate – dècorátion*. Obviously, morphology plays a crucial part in the English stress system. Nevertheless, it is necessary to distinguish between two types of morphological operation.

Consider the following examples:

éducate – éducating – èducátion
adápt – adápted – àdaptátion
díagnose – díagnoses – dìagnóstic
jóurnal – jóurnalist – jòurnalése
áutumn – áutumn-like – autúmnal

As you can see, when a new word is formed out of a base word, the original stress pattern may or may not be preserved. In *educate*, the first syllable is primary stressed, and so is it in the *-ing* form, whereas in the *-ion* form it reduces to secondary and a different syllable receives the primary stress. Therefore, we are forced to break down the family of suffixes into two classes. Certain suffixes, e.g., *-ing*, *-ed, -s, -ist,* and *-like* above, are unable to affect the stress pattern of the word they are part of – they are **stress-neutral**. Most of them are of Germanic origin. Curiously enough, the list of these suffixes coincides with the type referred to in Chapter 3 as **productive**. Others, like *-ion, -ic, -ese*, and *-al*, systematically change the place and/or the degree of the stresses because they require primary stress to fall on a specific syllable – they are **non-neutral** or **stress-fixing**. Most of them are of Latin origin (they are **Latinate**). Curiously enough, the list of these suffixes coincides with the type referred to in Chapter 3 as **non-productive**. Notice that at this point we are able to make a generalization: regular, productive suffixes, which do not count in, e.g., Trisyllabic Laxness (recall examples

like *l<u>a</u>zy-l<u>a</u>ziness*), are stress-neutral, i.e., do not count in stress placement, either. Non-productive suffixes, on the other hand, *do* count in both Trisyllabic Laxness (recall *v<u>ai</u>n-v<u>a</u>nity*) and stress assignment – they are stress-fixing. This is a curious interplay between word structure and sound pattern: suffixes seem to exhibit consistent behaviour in phonology.

The most common productive (stress-neutral) and non-productive (stress-fixing) suffixes are illustrated below.

(1) Stress-neutral suffixes

Suffix	Examples
-able	*consíder – consíderable, avóid – unavóidable*
-dom	*mártyr – mártyrdom, tòpsy-túrvy – tòpsy-túrvydom*
-ed	*adápt – adápted, édit – édited*
-er[2]	*cómmon – cómmoner, advénture – advénturer*
-ful	*bárrow – bárrowful, béauty – béautiful*
-hood	*bróther – bróther**hood**, ádult – ádult**hood***
-ing	*éducate – éducating, ínterest – ínteresting*
-ish (adj)	*ánimal – ánimalish, fórty – fórtyish*
-ism	*álcohol – álcoholism, fanátic – fanáticism*
-ist	*jóurnal – jóurnalist, phýsics – phýsicist*
-less	*bóttom – bóttomless, defénce – defénceless*
-like	*áutumn – áutumn-like, búsiness – búsinesslike*
-ly	*cáreless – cárelessly, appárent – appárently*
-ment	*devélop – devélopment, accómpany – accómpaniment*
-ness	*cáreless – cárelessness, lùkewárm – lùkewármness*
-s	*díagnose – díagnoses, ímage – ímages*
-ship	*cénsor – cénsorship, dictátor - dictátorship*
-some	*advénture – advénturesome, quárrel – quárrelsome*
-wise	*óther – ótherwise, córner – córnerwise*

(2) Stress-fixing suffixes and endings

Some of these are not clearly isolatable suffixes (perhaps not even morphemes) but rather simple word endings which are present in recurrent stress patterns. They fall into various subclasses, two of which are introduced

[2] This suffix either forms a comparative adjective (like *commoner*) or an agentive noun (like *adventurer*) – in both cases it behaves in the same fashion.

presently (and a third one in the next chapter). First, **auto-stressed** (or **self-stressed**) suffixes and endings are primary stressed themselves.

Suffix/ending	Examples
-ade	*lémon – lèmonáde, bàrricáde, cánnon – cànnonáde*
-aire	*míllion – mìllionáire, quéstion – quèstionnáire*
-ee	*réfuge – rèfugée, tráin – trainée*
-een	*vélvet – vèlvetéen, séven – sèventéen*
-eer/ier	*éngine – ènginéer, bombárd – bòmbardíer*
-elle	*mozélle, nacélle*
-enne	*comédian – comèdiénne, Cayénne*
-esce	*àcquiésce, èffervésce*
-ese	*jóurnal – jòurnalése, Japán – Jàpanése*
-esque	*Róman – Ròmanésque, pícture – pìcturésque*
-esse	*largésse, noblésse*
-ette	*cigár – cìgarétte, cassétte*
-eur/euse	*èntreprenéur, masséuse*
-ine	*cuisíne, ravíne*
-ique	*antíque, critíque, techníque, uníque*
-itis	*lárynx – làryngítis, appéndix - appèndicítis*
-oo/oon	*kàngaróo, cartóon*

Second, the so-called **pre-stressed** suffixes and endings require primary stress to fall on the syllable which immediately precedes them in the word. For example, *-ic* is a typical (and very frequent) pre-stressed suffix: while in *díagnose* the first syllable is primary stressed, in *dìagnóstic* it is the third one – right before *-ic* itself. The same happens in *ácademy – àcadémic* and *átom – atómic*. Some of these suffixes and endings are monosyllabic (e.g., *-ic, -ics, -id, -ish* (v/n)[3]), some are disyllabic (e.g., *-ify/efy, -itude, -ity/ety, -itive, -ible, -ular, -ulous*), some contain the CiV configuration introduced in Chapter 3, or the similar CuV sequence (e.g., *-ion, -ial/ual, -ious/uous, -ian, -uant*).

[3] Note that adjectival *-ish* is a stress-neutral suffix, and as such, is listed in the first chart above.

Suffix/ending	Examples
-ial/ual	*tútor – tutórial, cóntext – contéxtual*
-ian/ean	*Húngary – Hungárian, líbrary – librárian, Cáesar – Caesárean, crustácean*
-ible	*deléte – indélible, incrédible*
-ic	*dynámic, ecónomy – èconómic*
-icide	*ínsect – insécticide*
-ics	*ecónomy – èconómics, ácrobat – àcrobátics*
-id	*intrépid, insípid, pellúcid*
-ify/efy	*ácid – acídify, exémplify*
-ion	*opínion, sólve – solútion, éducate – èducátion, adápt – àdaptátion*
-ious/ -eous/uous	*céremony – cèremónious, órchid – òrchidáceous, innócuous*
-ish (v/n)	*abólish, demólish, dimínish, estáblish*
-itive	*compétitive, infínitive, ìntuítion – intúitive*
-itude	*exáctitude, símilar – simílitude*
-ity/ety	*compléxity, socíety, perípheral – perìpherálity, ánxious – anxíety*
-meter	*spéed – speedómeter, thermómeter*
-uant	*contínuant*
-ular	*mólecule – molécular, mándible – mandíbular*
-ulous	*míracle – miráculous, metículous, rídicule – ridículous*

After the story of secondary stress and the effect morphological structure has on stress placement, let us mention **tertiary stress** briefly. Recall that tertiary stress is in fact the prominence caused by the absence of vowel reduction. Why certain otherwise unstressed vowels fail to reduce to /ə/, /ɪ/ or /ʊ/ is difficult – if not impossible – to explain: it appears to be quite irregular and mostly unpredictable, although a number of tendencies are observable. For example, the syllable whose vowel refuses to reduce is very often a closed syllable (cf. Chapter 5) (e.g., *<u>act</u>ívity*) or the vowel is long, either a long monophthong (e.g., *<u>Ger</u>mánic*) or a diphthong (e.g., *<u>cli</u>mátic*). Unfortunately,

this does not mean that all such vowels are protected from reduction (cf. *infórm – ìnformátion* /ə/; *fragmént – fràgmentátion* /ə/ versus *condémn – còndemnátion* /e/). Word frequency may also influence this: the more frequently a speaker uses a word, the more likely vowel reduction is. For instance, the musical instrument *trombone* is usually pronounced /trɒmˈbəʊn/, the musicians who play the trombone, however, tend to have a schwa in the first syllable (/trəmˈbəʊn/).

There are only a few cases where tertiary stress appears systematically. One is the so-called Alternating Stress Rule, which is dealt with in Chapter 9, and which accounts for the 103 stress pattern of verbs like *dédicate* and certain adjectives and nouns like *ábsolute* or *húrricane*. Another situation when tertiary stress is expected is **compound stress**. Chapter 7 explains that primary stress in a compound word normally falls on the first term. Logically, this is accompanied by reduction in the other term(s), namely, they lose their original rhythmic prominence but retain their full vowel. For example, when *blǽck* and *bóard*, two separate words with their obligatory primary stress (neither of them is a function word!), are combined, *board* ceases to be major stressed but its long vowel /ɔː/ survives in *blǽckboard* /ˈblækbɔːd/. Therefore, its stress pattern is 13. The same applies to *ráinbow* /ˈreɪnbəʊ/, *lífestyle* /ˈlaɪfstaɪl/, and *súperman* /ˈsuːpəmæn/. This is in sharp contrast with what we usually observe in underived words like *blǽdder* /ˈblædə/ or *blánket* /ˈblæŋkɪt/, or in words containing suffixes (other than auto-stressed ones, of course) like *blǽcking* /ˈblækɪŋ/ or *blǽbber* /ˈblæbə/ – all exhibiting 10. Interestingly, a number of historical compounds have by now given up their complex morphological structure and are pronounced according to the regularities of simple words. The word *cupboard*, for instance, only means the piece of furniture if pronounced with considerable

vowel (and consonant) reduction /ˈkʌbəd/ (its stress pattern is 10, similarly to *cumber*, *cupper*, *cupping* or *cupful*) - a /ˈkʌpbɔːd/ (with a 13 stress pattern) is simply a board with cups. Original *sheep* /ʃiːp/ plus *herd* /hɜːd/ has become *shepherd* /ˈʃepəd/, *post* /pəʊst/ plus *man* /mæn/ is *postman* /ˈpəʊsmən/, *black* /blæk/ plus *berry* /ˈberɪ/ is *blackberry* /ˈblækb(ə)rɪ/. *Forehead* has two alternative pronunciations: one which follows the rules for compounds /ˈfɔːhed/, and another with a reduced second term /ˈfɒrɪd/. In sum, the morphological structure of a word is clearly reflected in its pronunciation: only constructs with a primary stress and a tertiary stress are real compounds.

Let us conclude this chapter with a remark concerning the fact that, unfortunately, most of the stress rules introduced above have exceptions. Stress clash does occur, although only in a handful of words like *sàrdíne*, *thìrtéen* or *Chìnése*. Derivational Secondary Stress can override the desired iambic rhythm, too, as in *eléctric – elèctrícity*. Exceptions also exist to the stress-fixing mechanism of suffixes, e.g., *Árabic, ársenic, cátholic, chóleric, lúnatic, pólitics, impóverish*. In addition, the picture is further complicated by the free variation of zero and tertiary stress in words like *direct* /dɪˈrekt/~ /daɪˈrekt/ as well as occasional dialectal differences between RP and GA, e.g., *address* (n) RP /əˈdres/ vs. GA /ˈædres/, *advertisement* RP /ədˈvɜːtɪsmənt/ vs. GA /ˌædvərˈtaɪzmənt/ (or /ˈædvərtaɪzmənt/), or words ending in *-ary* and *-ory* like *January* RP /ˈdʒænjʊərɪ/ vs. GA /ˈdʒænjʊerɪ/ or *laboratory* RP /ləˈbɒrətrɪ/ vs. GA /ˈlæbrətɔːrɪ/. The next chapter, on primary stress, will face even more exceptions and subregularities.

9. Word stress – Part 2: Primary stress

Before you study this chapter, check whether you are familiar with the following terms: allophonic rules, auto-stressed ending, clear-L, compound, dark-L, Early Stress Requirement, function word, Iambic Secondary Stress, neutral suffix, non-neutral suffix, peak, prefix, pre-stressed, primary stress, prominence of the right edge, rhyme, secondary stress, self-stressed, stem, suffix, tapping, tertiary stress.

This chapter deals with primary stress assignment in underived verbs, nouns, and adjectives. Adverbs usually follow the rules for adjectives, and most of them are formed with a derivational suffix (e.g., *extréme – extrémely*), so they are not treated separately. The remaining word classes belong to the category of function words, which was discussed in Chapter 7.

Let us start with the differences between the English and the Hungarian stress system, some of which are also mentioned in Chapters 7 and 8 above. As opposed to Hungarian, where the first, i.e., leftmost, syllable is stressed in all words, primary stress can fall on virtually any of the syllables in English. What is more, according to the prominence of the right edge, English primary stress prefers the right edge of the word in the sense that in unsuffixed forms the strongest stress is not normally placed more than three syllables away from the end, irrespective of the length of the word.

Another basic difference between the two languages lies in the **information types determining stress placement**. On the one hand, Chapter 8 elaborated on the role of *morphology* in English – something unheard of in Hungarian with respect to stress placement. On the other hand, the *syntactic* class of the word also plays a role in English: function words behave

differently from non-function words, what is more, nouns and verbs are shown below to have established two distinct patterns. In addition, as has been suggested before, each regularity has a considerable number of exceptions – the stress pattern of these words has to be simply memorized since it is unpredictable: it is an idiosyncratic feature of the *lexical* item.

Even *phonology* makes a much more complex contribution to stress rules. While in Hungarian the only piece of phonological information required for stress placement is the position of the syllable (the first syllable in the word gets stressed automatically), in English not only is its position relevant but so is its structure. More specifically, the English stress system is **quantity-sensitive**: it is strongly influenced by the amount of material found in syllables. In this respect, there are two basic syllable types: **light** and **heavy syllables**. A syllable is light if it contains a short vowel and is not closed by a consonant; all the other possibilities (with a long vowel – a long monophthong or a diphthong – and/or with (a) final consonant(s)) make the syllable heavy. Crucially, the consonant(s) preceding the peak do(es) not count: a syllable like /tɪ/ is light in the same way as /trɪ/ or /strɪ/ or /ɪ/, while /ɪt/ is heavy even though altogether it consists of fewer elements than /strɪ/. Similarly, a syllable like /eɪ/ or /eɪt/ or /teɪ/ is characterized by one type of behaviour (it is heavy) as opposed to, say, /bre/. Therefore, we can state that although this phenomenon is traditionally referred to as **syllable weight**, in fact, it is only governed by the number of elements in and following the peak – the portion of the syllable that we call the rhyme (cf. Chapter 5) – that is, the name **rhyme weight** is more appropriate. A piece of warning is in order here: do not let spelling mislead you! The second syllable in *va<u>r</u>iety* or *ho<u>r</u>izon* is /raɪ/ and thus heavy, whereas the second syllable in *va<u>r</u>ious* or *ho<u>r</u>izontal* is /rɪ/ and consequently light.

Rhyme weight is relevant to stress placement in that in English, heavy syllables attract stress. E.g., the readers are invited to check for themselves that the words *a.ro.ma, e.nig.ma, al.ge.bra, in.du.stry* all consist of three syllables (divided by dots), out of which only one is heavy (underlined), and that one is primary-stressed. However, word-final consonants normally do not count: words like *a.ban.don,* GA *ten.der, pa.ren.tal, can.cel, de.ter.mine* contain two heavy syllables, but stress always falls on the non-final one – the word-final consonant is unable to make its syllable heavy. Such "invisible" segments are usually referred to as **extrametrical**, being outside the scope of meter, i.e., rhythm; in the rest of the chapter, we indicate extrametrical material by putting it in parentheses, e.g., *abando(n), tende(r), determi(ne)*. Notice that the *-e* at the end of *determine* is not a sound but a silent letter only: it does not really matter whether it is or is not included in the parentheses.

The status of final consonants is of great significance since, as it was mentioned in Chapter 8, the directionality of primary stress placement is right to left. That is, stress rules start scanning the syllables with the last one and proceed towards the beginning of the word, in such a way that primary stress is assigned to the first heavy syllable available, but not later than the second syllable from the end. If word-final consonants were visible to these stress rules, all words ending in at least one consonant sound would end in a heavy syllable and be primary stressed there – but this is not what we find: *abandon* and the like are stressed on the second-last syllable.

Now the time has come to formulate the **Main Stress Rule** (MSR) for verbs, nouns, and adjectives.[1] Let us start with **verbs**: in this case, the final consonant (if there is one) is extrametrical. If the remaining syllable is heavy,

[1] Bear in mind that primary stress assignment takes place within monomorphemic words – more complex word forms, including compounds, are stressed according to the effect of the two affix classes and the compound stress rule familiar from previous chapters.

it is stressed; if it is light, the preceding syllable is stressed. In a verb like *torment*, for example, there are two syllables: *tor.ment*. The final /t/ is extrametrical: *tor.men*(*t*). Thus we are left with *men* as the final syllable, which is heavy (it contains a short vowel plus a consonant), so it receives the primary stress: *torménT*. That is why final stress is usual in verbs ending with at least two consonants: *eléct, seléct, arrést, adópt, laménT,* etc. When a verb ends in a single consonant, the length of the preceding vowel decides: if it is long, as in *unite* /-naɪ(t)/*, erase* /-reɪ(z)/*, achieve* /-tʃiː(v)/, the final syllable is still heavy, and therefore stressed; otherwise the second-last syllable is stressed, e.g., *trável, fínish, ínjure, astónish, vómit, consíder.* Logically, if the verb ends in a vowel, there is nothing to be extrametrical, and the length of that vowel automatically determines the place of stress: in *cárry*, the final vowel is short and the second-last syllable carries the stress, but the last one does so in *applý*, the vowel in question being long /aɪ/. Notice that the second-last syllable is never checked for rhyme weight: it does not need to be because primary stress cannot move further to the left anyway (except for the Alternating Stress Rule, to be discussed below) – recall the prominence of the right edge. Therefore the same syllable is stressed in *a.stó.ni*(*sh*) and *con.sí.de*(*r*) although there is a heavy syllable (underlined) in the latter.[2]

There is one case when, predictably, the regularity described above does not apply, due to a morphological effect not yet mentioned: we need to take a detour here and discuss the role of **verbal prefixes** in stress assignment. Similarly to suffixes, these prefixes can be divided into two basic subtypes: neutral and non-neutral prefixes. **Neutral prefixes** never influence the place of stress in the stem – instead, they are (secondary or tertiary) stressed themselves. In fact, they attach to the stem so loosely that even the

[2] It goes without saying that, as the example words above are not longer than three syllables, primary stress placement satisfies the prominence of the left edge, too.

frequently occurring stress clash that they cause does not disturb their status, cf. *dèbúg, ùnplúg, upsét, òut-Hérod,* rèwínd, etc. In contrast, certain monosyllabic verbal prefixes are **non-neutral**: they resist primary stress and consequently, they systematically overwrite the results of the above mechanism. For instance, consider two verbs, *vomit* and *omit*. Segmentally, they minimally differ: the former contains an extra consonant at the beginning. In fact, since that consonant is a syllable-initial one it is not even expected to affect stress placement – recall that only syllable-final consonants are able to contribute to weight. Nevertheless, *vómit* has initial primary stress, which conforms to the MSR as introduced above, as opposed to *omít*, which has, rather surprisingly, final stress. The source of the difference in stressing cannot be phonological in nature since there is no relevant pronunciation difference between the two words on the segmental level. It follows, then, that morphology is to blame: while *vomit* consists of a single morpheme, *omit* can be analysed into a prefix, *o-* (also appearing in *oppose, oppress, occur*) and a stem, *-mit* (also appearing in *submit, remit, admit, permit, commit*), and in all such examples consistently it is the stem which carries primary stress rather than the prefix. Therefore we conclude that stems enjoy a priviledge over peripheral elements like prefixes: even if a monosyllabic stem is light (e.g., *mi*(*t*)), it is assigned primary stress since the monosyllabic prefix "throws back" the stress to it. Interestingly, very often this stress-resistance of a prefix does not have the chance to manifest itself because the stem is heavy, e.g., *províde, retúrn,* but the effect is visible in a host of other examples such as *omít, expél, commít, attách*, etc.

Sometimes a disyllabic prefix or two monosyllabic prefixes are attached to a monosyllabic stem. It should be self-evident that in such words primary stress falls on the stem, and the first syllable must be secondary stressed in accordance with the Early Stress Requirement, cf. ì*nter-véne,*

còntra-díct, rè-pre-sént, cò-rre-spónd, etc. It is crucial that in these examples the stem is monosyllabic: when the final syllable does not constitute the stem alone, as in *éx-ecute, ré-cognize, intér-rogate*, the prefix fuses with the stem totally and the so-called Alternating Stress Rule, to be introduced below, comes into effect.

Verbs, then, tend to be end-stressed when the last syllable is heavy (even without the final consonant), otherwise primary stress normally falls on the second-last syllable, except when it is a verbal prefix. As usual, the algorithm provided above ("the word-final consonant is extrametrical, the remaining last syllable is stressed if heavy, else the preceding syllable is stressed") suffers from its exceptions: sometimes a light final syllable is stressed, as in *caréss*, *posséss*, GA *haráss* (mind you, the final double <ss> stands for a short /s/, which is extrametrical!); at other times a long-vowelled final syllable fails to be assigned primary stress, e.g., *fóllow, hárrow, swállow, hállow.*

Now let us pay some attention to **nouns**. The nominal subclause of the MSR differs from the verbal one in the portion of the word which is usually extrametrical, that is, non-stressable. Namely, in nouns it is the whole final syllable that does not take part in the stress placement procedure, at least when it contains a short vowel. That is why disyllabic nouns are normally stressed on the second-last (=first) syllable (e.g., *táble, páttern, chílli, Lóndon, trúmpet, férry*, GA *míssile* /ˈmɪsl/, etc.), except for just a handful of words like *evént, hotél, Japán, succéss, Berlín*, etc. This is easily accounted for with reference to the extrametricality of the last syllable. In all other respects the MSR for nouns is the same as the MSR for verbs: do not consider the final syllable – <u>if the remaining rightmost syllable is heavy, it is stressed; if it is light, the preceding syllable is stressed</u>. That is why in longer

nouns the weight of the second-last syllable decides the fate of primary stress: in *a.ré*.(*na*) /əˈriːnə/, *a.ró*.(*ma*) /əˈrəʊmə/, *con.sén*.(*sus*), *hi.á*.(*tus*) /haɪˈeɪtəs/, *ho.rí*.(*zon*) /həˈraɪzn/, *sy.nóp*.(*sis*), *u.tén*.(*sil*), *ve.rán*.(*da*) it (underlined) is heavy and therefore stressed; in *A.mé.ri*.(*ca*), *a.ná.ly*.(*sis*) /əˈnælɪsɪs/, *á.ste*.(*risk*), *cí.ne*.(*ma*), *cu.rrí.cu*.(*lum*), *hy.pó.the*.(*sis*) /haɪˈpɒθəsɪs/, *já.ve*.(*lin*), *me.tró.po*.(*lis*) it is light and consequently the syllable to the left carries primary stress.

If the last syllable of a noun contains a long vowel, it is very often an auto-stressed ending and receives primary stress accordingly (see Chapter 8), e.g., *brocáde, millionáire, questionnáire, nominée, enginéer, voluntéer, kangaróo, machíne, Tennessée*. Otherwise such nouns fall into one of two categories: they follow either the verbal subclause of the MSR (e.g., GA *ballét*, *baróque, cigár,* GA *detáil, helló, Julý, políce, regíme, trombóne* – cf. *uníte, applý*), or the compound stress rule (RP *bállet*, RP *détail*, *féllow, ménu,* RP *míssile* /ˈmɪsaɪl/, *vénue* – cf. *bláckboard, ráinbow*).

However, nouns with long-vowelled final syllables do not present the only complication – perhaps all the possible exceptional configurations exist. First, a light second-last syllable is primary stressed in *va.ní.lla, spa.ghé.tti, um.bré.lla, Vi.é.nna, pro.fé.ssor; Di.á.na, pi.á.no*, and a handful of other words. (Keep in mind that consonant doubling in spelling does not indicate length in pronunciation!) Second, a heavy second-last syllable is skipped by the MSR in *chá.rac.ter, cá.len.dar, á.djec.tive, pá.ssen.ger*, etc. Finally, in some nouns primary stress exceptionally moves further away from the right edge: the fourth-last syllable is stressed in, e.g., *cémetery, cátegory,* RP *labóratory, céremony, ágriculture, télevision, hélicopter*, and the fifth-last in *véterinary.*

The difference between nouns and verbs becomes clearly noticeable in segmentally (nearly) identical **noun-verb pairs**. The usual state of affairs in such cases is the following: since in verbs only the final consonant is extrametrical, while in nouns it is the whole final syllable, it logically follows that primary stress will fall one syllable closer to the left edge in nouns. Thus *digest* the verb has primary stress on the (heavy) final syllable: *di.gés*(*t*), while *digest* the noun must have initial stress: *dí.*(*gest*). The same applies to *récord* (n) – *recórd* (v)*, ímport* (n) – *impórt* (v), *úpdate* (n) – *updáte* (v), *áccent* (n) – *accént* (v), *ségment* (n) – *segmént* (v), *súrvey* (n) – *survéy* (v), *tránsport* (n) – *transpórt* (v), *cóntrast* (n) – *contrást* (v), *désert* (n) – *desért* (v), *óbject* (n) – *objéct* (v), etc. Naturally, the stress resistance of verbal prefixes is only applicable to verbs but not to nouns, that is how word pairs like *rébel* (n) – *rebél* (v) or *pérmit* (n) – *permít* (v) emerge.

Nevertheless, in a few cases the noun and the verb in such pairs have the same stress pattern, either the noun copying the verbal stress pattern (as in *attáck, debáte, reséarch, surpríse,* GA *detáil,* etc.) or the verb copying that of the corresponding noun (as in *áccess, cómfort, cómment, cóntact,* RP *détail, ínterest, ínterview* (a compound noun exemplifying 103) etc.).

The third major word category, **adjectives** have not developed a third form of extrametricality but are divided between the nominal and the verbal patterns. On the one hand, derived adjectives (ending in, e.g., *-al, -ar, -ous, -ant, -ent*) behave like nouns and have an extrametrical final syllable: *fa.mí.li.(ar), fá.(mous), gé.ne.(rous), íg.no.(rant), pa.rén.(tal), pí.vo.(tal), vá.ri.(ous)*). These suffixes make the adjectives behave as nouns as far as stress rules go, inasmuch as it is nouns whose last syllable is not normally stressable. On the other hand, underived adjectives and adjectives ending in *-ic, -id, -it* usually behave like verbs: *a.frái(d), a.rách.ni(d), cér.tai(n), có.mmo(n), ex.plí.ci(t),*

ex.tré(me), Pla.tó.ni(c), púr.p(le), sin.cé(re) /sɪnˈsɪə(r)/*, su.pré(me)*. You may have noticed that the three endings belonging here have the same effect as if they were pre-stressed – in fact, some are listed as such in Chapter 8. After all, they are monosyllabic with a short vowel and an (extrametrical) single consonant: they inevitably make a light final syllable, so it naturally follows that the preceding syllable is stressed. Therefore, we are unable to distinguish between the two possible analyses: they are either taken as pre-stressed suffixes, or the adjectives which they produce are considered to behave as verbs as far as stress rules go, inasmuch as it is verbs whose final consonant is not normally visible in stress assignment. It is also noteworthy that a number of underived adjectives are so undeniably verbal in nature that they exhibit exactly the same stress pattern as the corresponding segmentally identical verbs, e.g., *corréct, compléte*, GA *abstráct.*

In sum, adjective-forming suffixes and endings fall into two categories: some of them, such as *-al, -ar, -ous*, etc., trigger the nominal subclause of the MSR, whereas others, like *-ic, -id, -it*, trigger the verbal subclause. What the two groups have in common is that they are non-neutral suffixes in the sense the term is introduced in the previous chapter: they *do* influence the way primary stress is placed in the word. Consequently, we can state that, in addition to auto-stressed and pre-stressed, we have identified a third class of non-neutral suffixes and endings, whose members fix the position of the main stress by simply launching the application of the MSR on the adjective. Some authors call them **integrated suffixes**.

At this point we are able to introduce the **Alternating Stress Rule**, which goes as follows: if the last syllable of a verb is stressable (i.e., heavy even without the final consonant), and the verb has more than two syllables, primary stress moves to the third-last syllable, and the stress of the final

syllable is reduced to tertiary. Examples include the verbs *mánifest, éxercise, hármonize, décorate, súpplement, cómplement, cómpliment, súbstitute, éxecute, récognize, invéstigate, elíminate, annihilate, exággerate*, etc., all with a (0)103 stress pattern. The Alternating Stress Rule is an almost inviolable constraint on verbs (it only has a handful of exceptions like *contínue, contríbute, distríbute*), and it overwrites the result of the MSR, without respect for the prominence of the right edge. However, as mentioned above, in words containing a verbal prefix the Alternating Stress Rule can only apply if the final syllable of the verb is not a monosyllabic stem; otherwise the MSR produces the expected output with the primary stress at the end and a secondary stress at the beginning (according to the Early Stress Requirement). For example, there is no stress alternation in *èxtrapóse* since it is composed of a verbal prefix (underlined) plus a monosyllabic stem, as opposed to, say, *díagnose*, where there is because of the absence of the verbal prefix. In *intérrogate*, for instance, we experience the effect of the Alternating Stress Rule as, although it contains a verbal prefix (underlined), the stem is disyllabic; whereas in *ìntervéne* the same prefix attaches to a monosyllabic stem and consequently the cooperation of the MSR and the Iambic Secondary Stress Rule takes place. The same features characterize *extrápolate* vs. *èxtrapóse*.

Sometimes the Alternating Stress Rule is extended to word classes other than verbs, so certain three-syllable adjectives, such as *ábsolute, grándiose*, RP *óbsolete*, also undergo it. In addition, a number of adjectives and nouns simply copy the pronunciation of the corresponding verbs, thus they also appear to be subject to stress alternation, e.g., *súbstitute* (v/n), *éxercise* (v/n), *mánifest* (v/adj/n). Nouns with a long-vowelled final syllable belong here, too: they are claimed above to often behave like verbs – this is also true in the case of the Alternating Stress Rule. Nouns like *ávenue,*

Fáhrenheit, ánecdote, sácrifice, mínuscule, pédigree, Válentine, RP *stálactite/stálagmite* illustrate this.

To conclude the discussion of the three major word classes with respect to stressing, let us highlight a few additional pairs of remarkable segmentally nearly identical nouns, adjectives, and verbs. When the adjective in such a word pair is stressed as a verb, for example because it is underived, its stress pattern is the mirror image of the noun, as in *Áugust* (n) – *augúst* (adj), *cóntent* (n) – *contént* (adj), *mínute* (n) – minúte /maɪˈnjuːt/ (adj). In a few, exceptional examples the adjective receives nominal stress – then it is the mirror image of the verb, e.g., *presént* (v) – *présent* (adj/n), *perféct* (v) – *pérfect* (adj/n), *suspéct* (v) – *súspect* (adj/n). Certain endings characterize both nouns/adjectives and verbs, but somewhat differ in the two cases (e.g., *-ment*, *-ate*). *Complement*, for instance, is always primary stressed on the first syllable, however, the third vowel is a schwa in the noun (yielding 100) but unreduced /e/ in the verb (103). This is because the last syllable in nouns is not normally stressable (recall that it is extrametrical!); in contrast, in the verb that syllable is heavy (even without the final /t/) and such three-syllable verbs are expected to undergo the Alternating Stress Rule. Further examples: *cómpliment, dócument, súpplement*. Exactly the same happens in words ending in *-ate*: this suffix-like morpheme contains a full diphthong (/-eɪt/) when final in a verb but just a schwa (/-ət/) when final in an adjective, e.g., *delíberate* (v-adj), in a noun, e.g., *délegate* (v-n), *éstimate* (v-n), or both, e.g., *assóciate* (v-n/adj), *gráduate* (v-n/adj), *séparate* (v-n/adj).

With respect to the above discussion of the English MSR, it cannot be left unnoticed how intimately primary stress placement is connected to **syllabification**. When a consonant is situated between two vowels in a

morpheme, it is not at all indifferent whether it belongs to the syllable headed by the first one, making it a heavy syllable, or to the one headed by the second vowel, and being a syllable-initial consonant, it is incapable of influencing stress assignment. All the regular cases treated above suggest that it is the latter solution which is chosen, that is, in the intervocalic position syllable-initial consonants are created. Take the word *skeletal* for example. It is a derived adjective following the nominal pattern (see above), therefore the final syllable is expected to be extrametrical, the last "visible" syllable is checked for weight but only receives primary stress if it is heavy. If the syllable divisions were located as the dots indicate in *skel.et.al*, the underlined syllable would be classified as heavy and assigned primary stress: **skelétal*. Nevertheless, this adjective is stressed at the very beginning: *skéletal*, which can only be accounted for if we suppose that the syllabification is the following: *ske.le.tal*. The underlined syllable is light and consequently the preceding, first syllable is primary stressed. We conclude that single consonants are initial in the syllable whenever possible.

Moreover, two- or three-member consonant clusters get syllabified into the following syllable, too, on condition that they constitute a well-formed initial cluster. Compare two nouns, *algebra* and *agenda*, and concentrate on the consonants between the second and third vowels. The /br/ in the former is a possible initial cluster (cf. the Sonority Principle in Chapter 5) while the /nd/ in the latter is not – the two cases are predicted to be syllabified and therefore stressed differently: the final non-extrametrical syllable is light in *ál.ge*.(*bra*) but heavy in *a.gén*.(*da*). Examples like *sý.mme*.(*try*), RP *quá.dru*.(*ple*), *á.de*.(*quate*), illustrate that indeed as many consonants are syllabified as initial as possible. The fact that the underlined syllables are not stressed can only be due to their lightness; the fact that they are light can only be due to the absence of a closing consonant.

There is, however, a problematic case: word-medial *sC* sequences do not always appear to constitute syllable-initial clusters. While they do in *mí.ni.*(*ster*), *Mán.che.*(*ster*), *ín.du.*(*stry*), *ór.che.*(*stra*) quoted above, their members belong to separate syllables in *se.més.*(*ter*), *A.lás.*(*ka*), *a.spi.dís.*(*tra*). Recall from Chapter 5 that /s/ takes part in the construction of syllables in a special way in various respects, exhibiting far more combinatorial possibilities than any other consonant, one consequence of which is the curious fact that certain /s/+consonant clusters are found both at the beginning and the end of words (i.e., syllables). For instance, while /br/ is only possible initially and not finally (examples like *brim* exist, but **mibr* would be ill-formed), and /nd/ is only possible finally and not initially (*lend* vs. **ndel*), we see /st/ in both *stab* and *bast*, /sp/ in both *spill* and *lisp*, /sk/ in both *scut* and *tusk*. We can conclude therefore that /br/ is unambiguously syllable-initial, but the same does not hold true for, at least, /s/ plus voiceless plosive sequences, which is likely to have contributed to the ambivalent behaviour they exhibit word-medially with respect to stress placement.

It is crucial to see that when stress rules apply, syllabification seems to be always exhaustive and straightforward – significantly, there is no ambisyllabicity for stress rules. The /t/ in *skéletal* clearly belongs to the final (extrametrical) syllable, and so is the one in *vánity* or *héretic*, and the second /t/ (but perhaps the first one as well) in *compétitor*. The fact that allophonic rules like the ones introduced in Chapter 2 treat these consonants as ambisyllabic can only be decided *after* stress assignment has taken place simply because it hinges on the stressedness of the vowels: consonants followed by a stressed vowel are never ambisyllabic; consonants followed by an unstressed vowel normally are. The derivation of the pronunciation of words, then, happens in steps:

syllabification:	ske.le.tal	va.ni.ty	com.pe.ti.tor
stress assignment:	ské.le.(tal)	vá.ni.(ty)	com.pé.ti.(tor)
ambisyllabicity:	ské.l.e.t.al	vá.n.i.t.y	com.pé.t.i.t.or
allophony[3]:	ˈskeləɾəɬ	ˈvænəɾɪ	kʰəmˈpʰɛɾəɾə(r)

It is not only allophony rules that follow stress assignment in English but certain morphological operations, too. For example, there are a couple of **stress-sensitive affixes**, whose attachment to a base is determined by its stress pattern. Nominal *-al*, forming abstract nouns out of verbs, strongly prefers to be suffixed to an end-stressed word, e.g., *trý – tríal*, *dený – denial*, *refúse – refúsal*, *rehéarse – rehéarsal*, *arríve – arríval*, the only exception being *búry – búrial*.

As far as the stress rules introduced above are concerned, a note is in order here. English spelling is not always capable of reflecting the pronunciation of vowels, although it can be crucial whether a vowel is long, automatically producing a heavy syllable, or short, in which case rhyme weight depends on what element follows it. This fact can cause problems to students of English, who are frequently first faced with an unknown word in its spelt form. For example, nothing indicates that the second vowel in *can<u>a</u>ry* and *mus<u>e</u>um* is long – therefore its syllable is heavy and as a result, primary stressed: *ca.<u>ná</u>.(ry)* /kəˈneərɪ/, *mu.<u>sé</u>.(um)* /mjʊˈziːəm/. Compare *appar<u>a</u>tus* and *aspar<u>a</u>gus*, two words showing spooky resemblance. Still, since the third vowel is long in the former but short in the latter, they are stressed differently: *à.ppa.<u>rá</u>.(tus)* /ˌæpəˈreɪtəs/ vs. *a.spá.<u>ra</u>.(gus)* /əˈspærəgəs/. Unfortunately, vowel length is not consistently encoded in the spelling of English.

[3] The examples illustrate the pronunciations in a tapping dialect of English which distinguishes clear and dark /l/.

This chapter has looked into primary stress assignment in underived verbs and nouns as well as the different subtypes of adjectives. We hope that the discussion faithfully reflects the complexity of this issue, being influenced by syntactic, morphological and lexical factors beside the phonological ones: verbs and nouns follow two distinct patterns; neutral and non-neutral affixation exert various effects; and finally, all the regularities have exceptions. In spite of this, we are able to identify the stress rules of English as the generalizations which hold for the majority of the vocabulary and which characterize newly borrowed or coined items. Clearly, only the minority of the examples constitutes the cases we refer to as "irregular" even if some of them happen to be highly frequent words in English and therefore our impression of the proportions may be somewhat distorted. Perhaps this is a situation where the exception proves the rule.

10. Sentence stress and intonation

Before you study this chapter, check whether you are familiar with the following terms: adjective, adverb, conjunction, content word, demonstrative pronoun, function word, interrogative pronoun, noun, pitch, stress (primary/secondary), strong syllable, suprasegmental, verb, weak syllable, Wh-question, Yes/No question

This chapter is concerned with some suprasegmental processes of English which are often grouped under the umbrella term of intonation. In the first part of the chapter we will be discussing the position of sentence stress while the second part of the chapter will discuss intonation, the melody of sentences. We have already seen the principles of assigning different degrees of word stress in Chapters 8 and 9. Let us now continue with a description of how the same thing works at sentence level.

If we want to show stress (and later intonation) at sentence level, we will have to do things a little bit differently from what we have been doing when transcribing the stressed syllables of isolated words. There are several principles to be kept in mind:

- In isolation, every word has a primary stressed syllable (although the stress of monosyllabic words is not indicated). In a sentence, many words will have no stressed syllable at all, i.e., they occur in their weak forms, e.g., *can* is realized as /kn/ instead of /kæn/. (Cf. Chapter 7.)
- In isolation, the stress of monosyllabic words is not shown. However, if they receive sentence stress it is always indicated, e.g., *This is the car that I bought* /ˈðɪs ɪz ðə ˈkɑː ðət aɪ ˈbɔːt/. The words *this, car,*

bought are stressed in the sentence as indicated by the stress marks although they are all monosyllabic words.

To be able to cope with the assignment of sentence stress and, on the basis of that, intonation, we have to clarify a few important basic notions. One of the distinctions we have to make is between **lexical/content words** and **grammatical/function words**. The former include the four basic categories, nouns, verbs, adjectives and adverbs – including adverbial particles like *up* – while the latter contain the rest of the categories, prepositions, pronouns, auxiliaries, conjunctions. Also, some minor categories can be compared to one of these two groups: demonstrative and interrogative pronouns, e.g., *this*, *that* and *what*, *where* respectively, are stressed like content words.

In the case of word stress we identified different degrees of stress in Chapters 8-9, we may do so in sentences, too, and just like in words, in sentences it is also the last stress that is the strongest. That is, the strongest stress of a sentence falls on the last stressed syllable, which is called the **tonic** – sometimes also called **accent**, **nucleus** or **sentence stress**, indicated by underlining in this chapter. The tonic will have a special role in describing intonation as intonation is nothing else but a falling or rising melody starting on the tonic.

With the help of the tonic we may define some further concepts relevant for our discussion: speech is divided into so-called **tone-units** – or **tone groups** or **intonation phrases** –, which are parts of connected speech ending in a tonic. That is, a tone-unit starts after a tonic and ends in a tonic. Tone-units are normally realized by clauses as in the first three examples or by longer phrases as in the second three examples below. The boundaries of tone-units are usually indicated by vertical lines.

|She 'wanted to 'face the 'problems on 'Tuesday.|

|He 'felt un'easy| but the 'others were en'joying them'selves.|

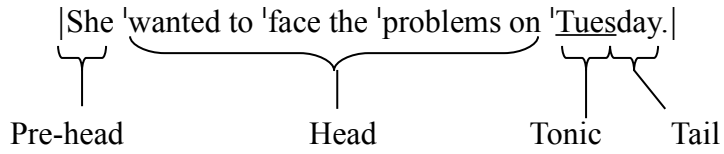
|I 'didn't really 'want to 'come| but 'here I 'am.|

|'No 'way!|

|At 'five o''clock.|

|'No|, 'only at the 'meeting.|

Besides the tonic, the tone-unit has the following parts: **tail** – the unstressed syllables following the tonic, e.g., *-day* in the first example above –, the **pre-head** – the unstressed syllables before the first stress, e.g., *she* in the first example –, and the **head** – starting with the first stressed syllable and ending with the last unstressed syllable before the tonic, e.g., *wanted to face the problems on* in the first example above:



The tone unit may also be divided into other kinds of constituents which play a very important role in determining the rhythm of the sentence. These units of rhythm are called **feet** (cf. Chapter 7), the same name that is used for rhythmic units in literature to determine the rhythm of poems. As it was mentioned in Chapter 7, a foot is the sequence of a stressed syllable and all the unstressed syllables following it up to the next stress. The sentence above may be divided into feet the following way:

She	ˈwanted to	ˈface the	ˈproblems on	ˈTuesday.
foot$_0$	*foot*$_1$	*foot*$_2$	*foot*$_3$	*foot*$_4$

It is clear that the first foot, foot$_0$ is an incomplete one as it only contains unstressed syllables – if there is a pre-head, it is always an incomplete foot.

Recall from Chapter 7 that the special characteristic property of English rhythm is that it is stress-timed. It means that the stressed syllables follow each other at intervals of about the same length, which sounds like a pulsating rhythm. This means that in the sentence above the time elapsing between the stressed syllables ˈ*wan-* ... ˈ*face* ...ˈ*prob* ... ˈ*Tues* is approximately equal although there might be different numbers of unstressed syllables between them. Since this rhythmic sequence of pulses is very different from Hungarian, it is something to be practised a lot to get used to pronouncing (sometimes many) weak syllables between the stressed ones.

When connecting words into a sentence it often happens that there will be a sequence of three stressed syllables with zero or just one unstressed syllable between them. In such cases the rhythm becomes jerky, staccato-like. To avoid such stress clusters the middle one of the three stresses is deleted and the syllable is pronounced as unstressed, a process called **Rhythmic Stress Deletion** – this deletion of stress is indicated with a superscript zero in the examples:

ˈgood ˈold ˈdays → ˈgood ^{0}old ˈdays

ˈvery ˈbrave ˈsoldier → ˈvery ^{0}brave ˈsoldier

ˈcover the ˈbig ˈnews → ˈcover the ^{0}big ˈnews

In cases when a word with two stresses is followed by a word stressed on the initial syllable it would result in three stressed syllables in a row. As a result, rhythmic stress deletion will delete the stress in the middle. This way the stress pattern of the first word has been changed as the primary stress has shifted to the left from the last syllable, a process called **Rhythmic Stress-Shift**:

the ˌbest ˈman ˈasked /ˌbestˈmæn/	→	the ˈbest ⁰man ˈasked /ˈbestmən/
a ˌstone ˈdeaf ˈguy /ˌstəʊnˈdef/	→	a ˈstone ⁰deaf ˈguy /ˈstəʊndɪf/
a ˌdark ˈbrown ˈhat /ˌdɑːkˈbraʊn/	→	a ˈdark ⁰brown ˈhat /ˈdɑːkbraʊn/

As is clear from the above, this may affect finally-stressed compounds and longer words ending in two stressed syllables in a way that they will have two slightly different stress patterns depending on whether the next word starts with a stressed or unstressed syllable. Before words starting with an unstressed syllable nothing happens, but before words starting with a stressed one the final primary stress of the first word shifts one to the left.

In the following we take a look at the two major types of **tonic placement**. The first type of tonic placement is the neutral, unmarked or default type: it does not express emphasis or contrast. This is called **neutral tonic placement** or **neutral tonicity**. The neutral tonic is normally placed on the last content word but in some exceptional cases it may fall on an earlier content word or on a function word.

Tonic on last content word

|ˈEveryone was ˈthere|

|We ˈdidn't ˈwant to ˈtalk about the ˈdetails.|

|He 'finally ad'mitted to uni'versity.|

Tonic on an earlier content word (the skipped last content word italicized)

|He 'bought a 'new 'mountain *bike*.|	No tonic on 2nd part of initially stressed compound.
|It was 'nice, I *think*.|	No tonic on afterthoughts, appended remarks.
|We'll just 'stay *here*.|	No tonic on common adverbs.
|'That's what the 'book *says*.|	No tonic on "obvious predicates".

Tonic on a function-word

|'No, you 'can't.|	Tonic on an auxiliary if no other stressable word.
|'Where are you 'from?|	Tonic on Prep in short sentences without main verb.
|'This is 'mine|	Tonic on possessive pronoun.

In the second major type of tonic placement the speaker wishes to emphasize some part of the utterance, contrast a part of it with something or focus on some new information, which may be achieved by placing the tonic at a different place from where it would normally appear. The following two sentences demonstrate that while the first sentence with neutral tonic placement on the last content word does not emphasize or contrast any part of the sentence, the second sentence with so-called **dislocated tonic** does.

|'Jim was 'there.|	|'Jim was 'there.|

As the underlining indicates, *there* has the tonic in the first sentence while *Jim* has the tonic in the second. Accordingly, the first sentence has a neutral interpretation, while the second sentence emphasizes that it was Jim who was there, not somebody else. Let us now take a look at what might be the reasons for having a dislocated tonic in a sentence.

Contrast

In many cases the tonic is placed on an earlier content word to express contrast between what has been said and the word/expression bearing the tonic. The two most common cases are when either it is a particular lexical item, a certain word that we want to contrast with another one, e.g., a name with another name, or negative polarity with positive polarity, i.e., negation with assertion. If a word is contrasted, it is indicated in capital letters.

|I 'gave 'JACK that 'book on 'history 'yesterday.|	... and not somebody else.
|We 'visited a lot of MU'SEUMS in 'London.|	... and not night-clubs.
|I 'HAVE 'seen the 'film 'earlier.|	... contrary to what you think/claim.
|I 'DID 'pass the 'test.|	... although that's not what you think.

New information

If the end of the sentence contains information the speaker thinks is known by the listener as old information, then the words describing this old information will be de-stressed and stress (and the tonic) will be shifted leftwards to some earlier word considered to carry new information. It most typically happens in answering questions repeating some words from the question – the old information skipped by tonic assignment is italicized.

Is the book interesting?	|It is ˈVERY *interesting*.|
Do you want to have lunch?	|But I ˈalready ˈHAD *lunch*.|
I'm from Hungary.	|Oh, my FIˈANCÉE is *Hun*ˈ*garian*, ˈtoo.|

So far we have seen which part of a sentence carries the strongest stress – the tonic –, how it relates to the rest of the clause – the tail, the head and the pre-head –, how the head plays a role in determining the rhythm of the clause by being divided into feet, and, finally, how tonic assignment may be performed in neutral cases and in dislocated cases when the speaker wishes to emphasize or contrast some part of the sentence. Now we turn to how these units relate to intonation, the melody and the melody change of a sentence.

The intonation or melody of a sentence is the voice-height, or **pitch**. On the one hand, pitch depends on what kind of intonation is used in the pronunciation of a particular sentence. On the other hand, there are also non-linguistic factors that influence pitch: age – children have a higher pitch than adults –, sex – men normally have a lower pitch than women –, and the emotional state of the speaker – excited speakers tend to have a higher pitch than someone in a neutral mood. Every speaker has a limit to how high or how low a pitch they may produce; these two are the upper and lower limits of one's **pitch range**. This pitch range is different for each speaker but it does not influence the understandability of their speech: it is not the absolute but the relative pitch height that matters.

Pitch differences do not only occur between speakers but also between languages. Hungarian, for instance, is said to have a much narrower pitch range in general than that of English; that is, the highest pitch of an average native English speaker is higher than that of an average native Hungarian speaker, while the lowest pitch of an English speaker is generally

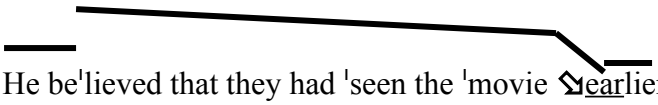
lower than that of a Hungarian speaker. This is even noticed by the untrained ear. For instance, Hungarian speakers often report that they find English speech too emotional, excited and affected; English speakers, on the other hand, find the speech of the average Hungarian – whether this average Hungarian speaks English or Hungarian – too flat, monotonous or boring.

Intonation is the way the pitch changes in the tone-unit. Recall that the last stressed syllable of the tone-unit, the tonic always has pitch change, that is, the speakers' voice will either rise or fall on the tonic syllable. This change associated with the tonic syllable is referred to as the **tone**[1]. The melody of the tone is always continued in the tail of the tone-unit; the tail will never contain another change in pitch. If we do not only consider the pitch change realized on the tonic syllable, but rather the pitch changes occurring throughout the whole tone-unit, we may talk about the **tune** or **intonation pattern** of the sentence. In the following we briefly describe the characteristic properties of the parts of the tone-unit followed by a discussion of the tones and the typical meanings or functions associated with them. The reader, however, has to be aware that this relationship is not a one-to-one relationship, so the same communicative function is not always expressed by the same tone and the same tone does not always express the same meaning.

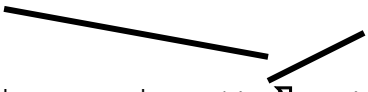
The melody of the pre-head of the tone-unit – if there is one – normally starts at a relatively low pitch which normally jumps high up on the first stressed syllable, i.e., on the beginning of the head. The pitch usually gradually falls throughout the head, which is called **downdrift**. Since it is not the pitch change realized on the tonic, it does not count as falling intonation, it is just a natural consequence of the fact that speakers are normally running out of air and this way the velocity of the outflowing air is dropping, which results in a lower pitch. The part of the tone-unit after the tonic, the tail – if

[1] Note that this usage of *tone* is slightly different from *tone* in tone languages (cf. the beginning of Chapter 8).

there is one – is normally a simple continuation of the pitch change of the tonic: if the pitch rises on the tonic, it will slowly, gradually rise on the tail, too. If it falls on the tonic, then it will fall on the tail, too. This is demonstrated by the graphic representations below. The arrow before the tonic syllable indicates the pitch change on the tonic.

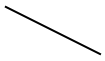


He be'lieved that they had 'seen the 'movie ↘ear<u></u>lier.



'Have you 'seen this ↗<u>mo</u>vie?

Let us now take a look at the four types of tone and the different functions associated with them:

Type of tone	Name of tone	Tone contour	Function, meaning
Falling	Fall		neutral, definiteness, finality
Rising	Low rise		indifference, encouragement
	High rise		Yes/No questions, inquiry
	Fall-rise		old information, implication

The falling tone

The falling tone is the most common, neutral tone used in English. It suggests that speakers are simply conveying information. As a result, it is most often used in plain statements, real, serious commands – as it expresses finality and definiteness –, in exclamations – expressing that the speakers are sure of

what they are saying –, and in Wh-questions, i.e., questions starting with a question word (*who*, *what*, *where*, *why*, *how*, etc.).

I ˈthink we ˈhaven't ↘met.

ˈThis is the ˈhouse where I ↘grew up.

ˈLeave all the ˈbooks on the ↘desk!

ˈPut the ˈgun on the ↘ground!

ˈWhat a ˈtruly ˈbeautiful ↘day!

ˈHow ˈabsolutely ˈfabulous an i↘dea!

ˈHow did you ˈknow he was my ↘brother?

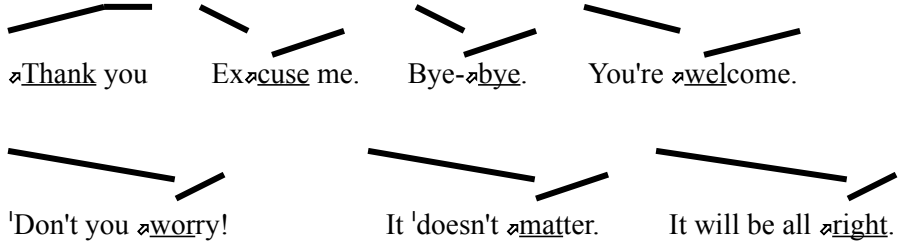
ˈWhat are you ↘working on?

The low rising tone

The low rising tone is the most difficult for Hungarian learners of English as in Hungarian it is only used in certain types of questions while in English it is never used in this sentence type. Instead, it is always used to respond to something that somebody said. Often it expresses indifference – an "I-don't-care attitude" –, it is used in apologies, greetings and when saying thanks, and also in cases of expressing encouragement.

(How was the film?) It was all ↗right. (Not too bad, not too good.)

(Where shall we go tonight?) ˈWe may ˈgo to the ↗cinema. (I don't care.)



The high rising tone

The high rising tone is either a high rise on the tonic, if there is no tail, or it is accomplished on the tonic and the tail, if there is one. If there is no tail, i.e., the whole high rise is realized on the tonic syllable, then Hungarian speakers tend to have serious problems with the height: the high rise produced by a Hungarian speaker is simply not high enough for an English speaker; instead, it will sound as a low rise, and will consequently express indifference or boredom.

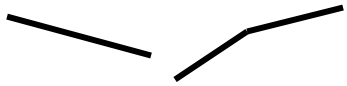
In English, if there is a tail, then the high rise continues from the tonic throughout the tail and is evenly distributed over the syllables of the tonic and the tail. This is also a serious difficulty, if not greater, for Hungarians as such tonic+tail combinations may not be pronounced with a steady high rise in Hungarian as the language does not permit a rise on consecutive syllables within the same tone unit.

In Hungarian there is only a real rise if there is no tail. If there is a tail, then depending on the number of its syllables, one of the following things will happen: if the tail consists of just one syllable, it will be a rise-fall; if the tail has two syllables, the first will rise, the second will fall; finally, if the tail has more than two syllables, the second last will rise, the last one will fall. All in all, whenever there is a tail in such Hungarian sentences, it will have a rise-fall and not a steady rise as it does in English.

The high rise is most often used in Yes/No questions, which do not start with a question word. If something is said with a high rising intonation, it is always a real question.

Have you ˈever been to ⇗England?

Did you ˈdo your ⇗homework?

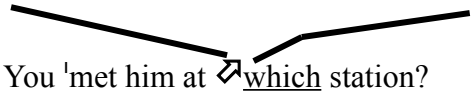


ˈWas it your ⇗grandmother?

ˈIs ˈJohnny ˈcoming to the ⇗party?

The high rise is also found in echo-questions, which repeat what a speaker has previously said.

Where?

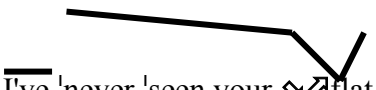


You ˈmet him at ⇗which station?

The fall-rise tone

The fall-rise is a combination of a fall from high or mid tone to low followed by a low rise, i.e., a rise from low to mid. It is one of the tones that makes English speech sound too theatrical or affected for the Hungarian ear but it is not as difficult to learn to do correctly as the high rise or the low rise.

A fall-rise may be used for several purposes: on the one hand, it may indicate that the speaker is not telling everything, but a part of the message is only implied, the listener has to find it out from the context.



I've ˈnever ˈseen your ⇘⇗flat. (Invite me to see it.)

It may also occur in a sentence made up of two tone-units, the first expressing old information serving as background for the new information in the second part of the sentence. The new information is pronounced with a falling tone.

In our ˈold ↘↗car | there was ˈenough ˈroom for ˈsix ↘people.

In this chapter we have taken a look at two very important suprasegmental aspects of English pronunciation: the stress patterns of sentences, especially tone placement on the one hand, and the basic types of intonation and their differences from Hungarian intonation on the other.

11. Letter-to-sound rules – Part 1: Consonants

Before you study this chapter, check whether you are familiar with the following terms: allophone, allomorph, aspiration, clear/dark-L, coronal, devoicing, digraph, glottalization, homorganic, loanword, morpheme (free and bound), orthography, palatalization, palato-alveolar, place assimilation, productive/non-productive, R-dropping, rhotic/non-rhotic, root/stem, suffix, tapping/flapping, weak/strong forms of function words, Yod-dropping

This chapter mainly focuses on the regular correspondences between consonant letters and sounds, and the rules regulating this relationship. This is made necessary by the fact that the principles of English spelling (or, orthography) are quite different from those of Hungarian. On the one hand, the correspondences between Hungarian letters and sounds are much more straightforward as spelling observes the **phonemic principle** more than in English, i.e., it aims at setting up a one-to-one relationship between letters and phonemes as much as possible, but at least much more successfully than English spelling does. On the other hand, Hungarian mostly represents the different pronunciation variants, allomorphs of a morpheme differently in spelling, e.g., *ház-hoz*, *kert-hez*, *föld-höz* where the vowels of the three different variants of this suffix are different in pronunciation and it is clearly indicated in spelling, too. This way, the spelling will always tell us how to pronounce the particular morpheme in question. English observes another principle instead, that of **morpheme identity**: it prefers to keep the spelling of a morpheme unchanged regardless of whether the particular morpheme is pronounced with one allomorph or another, e.g., *want-ed* /ˈwɒntɪd/, *kiss-ed* /kɪst/, *play-ed* /pleɪd/ (cf. Chapter 6). This sometimes also happens in

Hungarian but not as often as in English. Thus, the two languages observe the principles of spelling in very different ways – although they are clearly not the two extremes on the scale.

In this chapter we are going to take a look at the regular pronunciation of single consonant letters and consonant digraphs one by one, and also at the letter-to-sound rules that regulate the connection between sounds and letters as well as the exceptions that fail to obey these rules. The next chapter is going to discuss the same for vowel letters and vowel digraphs.[1]

Single consonant letters

Let us take a look at single consonant letters first. For each consonant letter we are going to define what sound(s) it normally represents in what environments, list exceptional cases and positions in which the letter is typically silent. We have to note again that English lacks long or so-called **geminate consonants**. Although doubled consonant letters do occur in English, they are pronounced as short sounds as in *letter* /ˈletə(r)/, *attack* /əˈtæk/, *ballet* RP /ˈbæleɪ/ (GA /bæˈleɪ/), *recommend* /ˌrekəˈmend/, *Higgins* /ˈhɪgɪnz/. Long consonants are only pronounced if two identical consonant sounds are put in adjacent positions at morpheme or word boundaries, i.e., if a word or morpheme ends in a certain consonant and the next one starts with the same as in *disservice* /dɪsˈsɜːvɪs/, *unnatural* /ʌnˈnætʃrəl/, *greenness* /ˈgriːnnɪs/.

[1] Throughout these two chapters transcriptions show RP pronunciations. Keep in mind that GA is a rhotic accent (Chapter 2) with extensive Yod-dropping (Chapter 5) and frequent tapping (Chapters 2 and 7). These and other systematic differences between RP and GA, mentioned in previous chapters, are not indicated separately. However, full transcriptions are given whenever the two accents differ more significantly.

p	It regularly represents the phoneme /p/ and all of its possible variants – weakly or strongly aspirated, unaspirated, glottalized – as in *plenty* /ˈplentɪ/, *prayer* 'words used in praying' /ˈpreə(r)/, *pen* /pen/, *pirate* /ˈpaɪ(ə)rət/, *lap* /læp/ [læp] or [læʔp], *step* /step/ [step] or [steʔp], *leopard* /ˈlepəd/, *super* /ˈs(j)uːpə(r)/, *supper* /ˈsʌpə(r)/. It is regularly silent in word-initial position in *pn-* and *ps-* as in *pneumonia* /njuːˈməʊnjə/, *pneumatic* /njuːˈmætɪk/, *psychology* /saɪˈkɒlədʒɪ/, *psychiatrist* /saɪˈkaɪətrɪst/, *psychopath* /ˈsaɪkəpæθ/. It is irregularly silent in *corps* /kɔː/, *coup* /kuː/, *cupboard* /ˈkʌbəd/, *raspberry* /ˈrɑːzbrɪ/, *receipt* /rɪˈsiːt/.
b	It regularly represents the phoneme /b/ and its – devoiced or voiced – allophones as in *banana* RP /bəˈnɑːnə/ (GA /-næ-/), *below* /bɪˈləʊ/, *label* /ˈleɪbl/, *sober* /ˈsəʊbə(r)/, *rob* /rɒb/, *stab* /stæb/, *rubber* /ˈrʌbə(r)/, *pebble* /ˈpebl/. It is regularly silent in morpheme-final position after a nasal as in *numb* /nʌm/, *bomb* /bɒm/, *climb* /klaɪm/, *numbest* /ˈnʌmɪst/, *bomber* /ˈbɒmə(r)/, *bombed* /bɒmd/, *climbing* /ˈklaɪmɪŋ/. (Cf. Chapter 5.) It is irregularly silent in certain *-bt* clusters as in *debt* /det/, *debtor* /ˈdetə(r)/, *doubt* /daʊt/, *subtle* /ˈsʌtl/.
t	It regularly represents the phoneme /t/ and its allophonic – weakly or strongly aspirated, unaspirated, glottalized or flapped – variants as in *take* /teɪk/, *tonight* /təˈnaɪt/, *better* /ˈbetə(r)/ [ˈbetə(r)] or [ˈbeɾə(r)], *rotten* /ˈrɒtn/, *late* /leɪt/ [leɪt], [leɪʔt] or [leɪʔ], *fantastic* /fænˈtæstɪk/. It regularly represents the palatals /ʃ/ and /tʃ/ in cases of lexical palatalization (see rule at the end of Chapter 11) in words like *action*

/ˈækʃn/, *literature* /ˈlɪtrɪtʃə(r)/, *motion* /ˈməʊʃn/, *nature* /ˈneɪtʃə(r)/, *picture* /ˈpɪktʃə(r)/, *question* /ˈkwestʃn/.

It is irregularly silent in words of French origin ending in *-et* as in *ballet* RP /ˈbæleɪ/, *beret* RP /ˈbereɪ/ (GA /bəˈreɪ/), *bouquet* /buːˈkeɪ/ or /bəʊˈkeɪ/, *buffet* RP /ˈbʊfeɪ/ (GA /bəˈfeɪ/), *cabaret* /ˈkæbəreɪ/, *Chevrolet* RP /ˈʃevrəleɪ/ (GA /ˌʃevrəˈleɪ/).

It is irregularly silent in consonant clusters in words like *boatswain* /ˈbəʊsn/ (also spelled *bosun*), *Christmas* /ˈkrɪsməs/, *forecastle* /ˈfəʊksl/, *listen* /ˈlɪsn/, *often* /ˈɒfn/ (this word is pronounced by some speakers as /ˈɒftən/), *wrestle* /ˈresl/, *tsar* /zɑː(r)/.

d It regularly represent the phoneme /d/ and its allophonic – devoiced, flapped – variants as in *damage* /ˈdæmɪdʒ/, *delete* /dɪˈliːt/, *rider* /ˈraɪdə(r)/, [ˈraɪdə(r)] or [ˈraɪrə(r)], *sender* /ˈsendə(r)/, *madder* /ˈmædə(r)/, [ˈmædə(r)] or [ˈmærə(r)], *bend* /bend/, *recommend* /ˌrekəˈmend/.

It regularly represents the phoneme /t/ in the past tense suffix after stem final voiceless consonants other than /t/ as in *backed* /bækt/, *kissed* /kɪst/, *laughed* RP /lɑːft/ (GA /læft/), *squashed* /skwɒʃt/, *stepped* /stept/ (for the pronunciation rule of the past tense suffix, see Chapter 6).

It regularly represents the palatal /dʒ/ in cases of Palatalization (see below) in words like *educate* /ˈedʒʊkeɪt/, *gradual* /ˈgrædʒʊəl/, *grandeur* /ˈgrændʒə(r)/, *soldier* /ˈsəʊldʒə(r)/.

It is irregularly silent in words like *grandmother* /ˈgrænmʌðə(r)/,

	grandpa /ˈgrænpɑː/, *sandwich* /ˈsænwɪtʃ/ or /ˈsænwɪdʒ/.
k	It regularly represents the phoneme /k/ and its allophonic – weakly or strongly aspirated, unaspirated and glottalized – variants as in *kettle* /ˈketl/, *king* /kɪŋ/, *baker* /ˈbeɪkə(r)/, *poker* /ˈpəʊkə(r)/, *banking* /ˈbæŋkɪŋ/, *thank* /θæŋk/. It is regularly silent in word-initial *kn-* cluters as in *knave* /neɪv/, *knife* /naɪf/, *knitting* /ˈnɪtɪŋ/, *knock* /nɒk/, *knowledge* /ˈnɒlɪdʒ/, *knuckle* /nʌkl/.
c	It regularly represents the phoneme /k/ and its – aspirated, unaspirated and glottalized – variants as in *cat* /kæt/ *cover* /ˈkʌvə(r)/, *account* /əˈkaʊnt/, *vicar* /ˈvɪkə(r)/, *acne* /ˈæknɪ/. It regularly represents the phoneme /s/ as in *city* /ˈsɪtɪ/, *lucid* /ˈl(j)uːsɪd/, *face* /feɪs/, *racing* /ˈreɪsɪŋ/, *dice* /daɪs/ (see the discussion of Velar Softening below). It regularly represents the phoneme /ʃ/ in cases of Palatalization (see below) as in *vicious* /ˈvɪʃəs/, *musician* /mjuːˈzɪʃn/, *facial* /ˈfeɪʃl/, *social* /ˈsəʊʃl/, *ocean* /ˈəʊʃn/. It irregularly represents the phoneme /tʃ/ in words of Italian origin like *cello* /ˈtʃeləʊ/, *concerto* /kənˈtʃeətəʊ/. It is irregularly silent in *Connecticut* /kəˈnetɪkət/, *endictment* /ɪnˈdaɪtmənt/, *muscle* /ˈmʌsl/, *czar* /zɑː(r)/.
g	It regularly represents the phoneme /g/ and its devoiced variant as in *gallop* /ˈgæləp/, *get* /get/, *goulash* RP /ˈguːlæʃ/ (GA /ˈguːlɑːʃ/), *linguist* /ˈlɪŋgwɪst/, *longer* /ˈlɒŋgə(r)/, *beggar* /ˈbegə(r)/, *bigger* /ˈbɪgə(r)/, *hug*

	/hʌg/. It regularly represents the phoneme /dʒ/ (see the discussion on Velar Softening below) and its – devoiced – variants as in *engineer* /ˌendʒɪˈnɪə(r)/, *gym* /dʒɪm/, *ginger* /ˈdʒɪndʒə(r)/, *harbinger* /ˈhɑːbɪndʒə(r)/, *huge* /hjuːdʒ/. It is irregularly pronounced as /ʒ/ in French loanwords as in *beige* /beɪʒ/, *garage* RP /ˈgærɑːʒ/ (GA /gəˈrɑːʒ/), *collage* /kəˈlɑːʒ/, *regime* RP /reɪˈʒiːm/ (GA /rəˈʒiːm/). It is regularly silent in morpheme-final position after a nasal as in *sing* /sɪŋ/, *singing* /ˈsɪŋɪŋ/, *singer* /ˈsɪŋə(r)/, *belong* /bɪˈlɒŋ/, *belonged* /bɪˈlɒŋd/. But it is irregularly pronounced in morpheme-final position after a nasal in the comparative and superlative forms of the following three adjectives: *long* /lɒŋ/, *longer* /ˈlɒŋgə(r)/, *longest* /ˈlɒŋgɪst/, *young* /jʌŋ/, *younger* /ˈjʌŋgə(r)/, *youngest* /ˈjʌŋgɪst/, *strong* /strɒŋ/, *stronger* /ˈstrɒŋgə(r)/, *strongest* /ˈstrɒŋgɪst/. (Cf. Chapter 5.) It is regularly silent in word-initial and word-final *gn* clusters as in *gnome* /nəʊm/, *gnu* /nuː/; *sign* /saɪn/, *resign* /rɪˈzaɪn/.
j	It regularly represents the phoneme /dʒ/ and its devoiced variant as in *jet* /dʒet/, *jockey* /ˈdʒɒkɪ/, *cajole* /kəˈdʒəʊl/, *Don Juan* /ˈdɒn ˈdʒuːən/. It irregularly represents the phoneme /h/ in some Spanish geographical names like *Baja* /ˈbɑːhɑː/. Note that this consonant letter is never pronounced as /j/!
f	It is regularly pronounced as /f/ as in *final* /ˈfaɪnl/, *forget* /fəˈget/, *café* RP /ˈkæfeɪ/ (GA /kæˈfeɪ/), *reference* /ˈrefrəns/, *coffee* /ˈkɒfɪ/, *strife*

	/straɪf/, *stuff* /stʌf/, *staff* RP /stɑːf/ (GA /stæf/). It is irregularly pronounced as /v/ in *of* RP /ɒv/ (GA /ʌv/) (in its strong form) or /əv/ (in its weak form). (Cf. Chapter 7.)
v	It is regularly pronounced as /v/ and its devoiced variant as in *veal* /viːl/, *vanity* /ˈvænɪtɪ/, *lover* /ˈlʌvə(r)/, *never* /ˈnevə(r)/, *Denver* /ˈdenvə(r)/, *elves* /elvz/, *wives* /waɪvz/, *grave* /greɪv/, *jive* /dʒaɪv/. It never represents the phoneme /w/!
s	It regularly represents the phonemes /s/ and /z/ depending on the environment: Word-initially it regularly represents the phoneme /s/ as in *singer* /ˈsɪŋə(r)/, *silence* /ˈsaɪləns/, *Sudan* RP /suːˈdɑːn/ (GA /-ˈdæn/), *senior* /ˈsiːnɪə(r)/. Word-finally it regularly represents /s/ as in *hazardous* /ˈhæzədəs/, *cactus* /ˈkæktəs/, *crisis* /ˈkraɪsɪs/, *minus* /ˈmaɪnəs/, *bus* /bʌs/; but it irregularly represents /z/ in word-final position in proper names and function words, i.e., in words like *is* /ɪz/, *was* RP /wɒz/ (GA /wʌz/) or /wəz/, *has* /hæz/ or /həz/, *his* /hɪz/, *Jones* /dʒəʊnz/, *James* /dʒeɪmz/, *Charles* /tʃɑːlz/. Between vowel letters it regularly represents /z/ as in *music* /ˈmjuːzɪk/, *desert* (n) /ˈdezət/, *cousin* /ˈkʌzɪn/, *phase* /feɪz/, *close* (v) /kləʊz/, *bosom* /ˈbʊzəm/, *busy* /ˈbɪzɪ/; but it irregularly represents /s/ between vowel letters, for instance in *base* /beɪs/, *basic* /ˈbeɪsɪk/, *case* /keɪs/, *bison* /ˈbaɪsn/, *promise* /ˈprɒmɪs/, *goose* /guːs/, *house* /haʊs/, *close* (adj) /kləʊs/.

Between a root vowel and an affix vowel it normally represents /s/ as in *dis-integrate* /dɪsˈɪntəgreɪt/, *dis-agree* /ˌdɪsəˈgriː/, *mis-understand* /ˌmɪsʌndəˈstænd/, *bi-sect* /baɪˈsekt/, *be-side* /bɪˈsaɪd/; but it irregularly represents /z/ in words like *divis-ible* /dɪˈvɪzɪbl/, *pre-sume* /prɪˈz(j)uːm/, *dis-ease* /dɪˈziːz/, *de-sign* /dɪˈzaɪn/ (the hyphens indicate morpheme boundaries).

It regularly represents /s/ when doubled, *ss*, as in *kiss* /kɪs/, *bass* /beɪs/, *message* /ˈmesɪdʒ/, *passing* RP /ˈpɑːsɪŋ/ (GA /ˈpæsɪŋ/), *assassin* /əˈsæsɪn/, but it irregularly represents /z/ in words like *scissors* /ˈsɪzəz/, *dissolve* /dɪˈzɒlv/, *dessert* /dɪˈzɜːt/, *possess* /pəˈzes/.

It regularly represents /s/ after *n*, *l*, and *r* (silent in the non-rhotic accents) as in *course* /kɔːs/, *horse* /hɔːs/, *universe* /ˈjuːnɪvɜːs/, *insist* /ɪnˈsɪst/, *tense* /tens/, *false* /fɔːls/, *pulse* /pʌls/.

It regularly represents /z/ in final *-es* when not a regular suffix as in *species* /ˈspiːʃiːz/, *Hercules* /ˈhɜːkjʊliːz/, *analyses* /əˈnæləsiːz/, *crises* /ˈkraɪsiːz/, *Mercedes* /mɜːˈseɪdiːz/.

It regularly represents /s/ or /z/ in the regular suffix *-(e)s*. For the rules of its pronunciation, see Chapter 6.

It regularly represents the palatalized variants of the above sounds, /ʃ/ and /ʒ/, in all the possible environments (for Palatalization see below) as in *mission* /ˈmɪʃn/, *sure* /ʃʊə(r)/, *mansion* /ˈmænʃn/, *version* RP /ˈvɜːʃn/ (GA /ˈvɜrʒn/), *vision* /ˈvɪʒn/, *measure* /ˈmeʒə(r)/, *fusion* /ˈfjuːʒn/.

z — It regularly represents the phoneme /z/ and its devoiced variant as in

	zoo /zuː/, *zeal* /ziːl/, *razor* /ˈreɪzə(r)/, *Gonzo* /ˈgɒnzəʊ/, *buzz* /bʌz/.
m	It regularly represents the phoneme /m/ as in *matter* /ˈmætə(r)/, *meringue* /məˈræŋ/, *hammer* /ˈhæmə(r)/, *summer* /ˈsʌmə(r)/, *plumb* /plʌm/, *bottom* /ˈbɒtm/. It is irregularly silent in the word-initial *mn-* cluster in *mnemonic* /nɪˈmɒnɪk/.
n	It regularly represents the phoneme /n/ as in *number* /ˈnʌmbə(r)/, *notion* /ˈnəʊʃn/, *penny* /ˈpenɪ/, *fence* /fens/, *pin* /pɪn/. It regularly represents the phoneme /ŋ/ when followed by *k* or *g* (at least in spelling) as in *ink* /ɪŋk/, *sing* /sɪŋ/, *singing* /ˈsɪŋɪŋ/, *language* /ˈlæŋgwɪdʒ/, *pink* /pɪŋk/, *banquet* /ˈbæŋkwɪt/. It is irregularly silent in final *-mn* clusters as in *autumn* /ˈɔːtəm/, *solemn* /ˈsɒləm/, *condemn* /kənˈdem/.
l	It regularly represents the phoneme /l/ and its – clear and dark – allophones (see Chapter 2) as in *light* /laɪt/, *level* /ˈlevl/, *building* /ˈbɪldɪŋ/, *follow* /ˈfɒləʊ/, *fell* /fel/, *people* /ˈpiːpl/, *final* /ˈfaɪnl/. It is irregularly silent before consonants in words like *folk* /fəʊk/, *talk* /tɔːk/, *walk* /wɔːk/, *yolk* /jəʊk/, *salmon* /ˈsæmən/, *almonds* /ˈɑːməndz/.
r	It regularly represents the phoneme /r/ as in *rifle* /ˈraɪfl/, *raccoon* /rəˈkuːn/, *redial* /riːˈdaɪəl/, *burial* /ˈberɪəl/, *borrow* /ˈbɒrəʊ/, *caring* /ˈkeərɪŋ/. It is regularly made silent before consonants and a pause by the R-Dropping Rule (see Chapter 2) as in *cart* /kɑːt/, *flair* /fleə(r)/, *barn* /bɑːn/, *steer* /stɪə(r)/.

	Note that it is silent in *iron* /ˈaɪən/ (cf. footnote 1 in Chapter 4).
y	It regularly represents the phoneme /j/ as in *yet* /jɛt/, *yoghurt* /ˈjɒgət/, *mayonnaise* /ˌmeɪəˈneɪz/, *junkyard* /ˈdʒʌŋkjɑːd/. It often functions as a single vowel letter, almost like a variant of <i>, as in *cry* /kraɪ/, *analysis* /əˈnælɪsɪs/, *bicycle* /ˈbaɪsɪkl/ or, after a vowel letter, as a member of vowel digraphs like <ay>, <ey>, <oy> as in *bay* /beɪ/, *key* /kiː/, *coyote* /kɔɪˈəʊtɪ/ (see Chapter 12).
w	It regularly represents the phoneme /w/ and its – devoiced – variants as in *want* /wɒnt/, *reward* /rɪˈwɔːd/, *away* /əˈweɪ/, *watt* /wɒt/, *witch* /wɪtʃ/. It is regularly silent in initial *wr-* clusters as in *writer* /ˈraɪtə(r)/, *wrong* /rɒŋ/, *wretched* /ˈretʃɪd/, *wrist* /rɪst/. It is irregularly silent in words like *who* /huː/, *whom* /huːm/, *whose* /huːz/, *whole* /həʊl/, *answer* RP /ˈɑːnsə(r)/ (GA /ˈænsər/), *sword* /sɔːd/, *two* /tuː/. Note that when following a vowel letter, it often forms part of a vowel digraph as in *row* /rəʊ/ or /raʊ/, *coward* /ˈkaʊəd/. For details see the next chapter. For the pronunciation of the digraph *wh*, see below.
h	It regularly represents the phoneme /h/ as in *head* /hed/, *hollow* /ˈhɒləʊ/, *history* /ˈhɪstrɪ/, *ahead* /əˈhed/, *cohesion* /kəʊˈhiːʒn/. It is regularly silent in words like *Shah* /ʃɑː/, *blah-blah* /ˈblɑːblɑː/, *yacht* /jɒt/, *vehicle* /ˈviːɪkl/, *annihilate* /əˈnaɪəleɪt/. It is irregularly silent in words like *honest* /ˈɒnɪst/, *hour* /aʊə(r)/.

	For the rule on the deletion of /h/, see below.
x	It regularly represents the sequence /ks/ and its palatalized variant (see the rule of Palatalization below) as in *axe* /æks/, *expand* /ɪkˈspænd/, *exit* /ˈeksɪt/, *boxing* /ˈbɒksɪŋ/, *tax* /tæks/, *anxious* /ˈæŋkʃəs/, *luxury* /ˈlʌkʃərɪ/. It regularly represents the sequence /gz/ and its palatalized version /gʒ/ when followed by a stressed vowel as in *executive* /ɪgˈzekjʊtɪv/, *example* RP /ɪgˈzɑːmpl/ (GA /-ˈzæm-/), *exist* /ɪgˈzɪst/, *exempt* /ɪgˈzempt/, *exult* /ɪgˈzʌlt/, *luxurious* /lʌgˈʒʊərɪəs/. It regularly represents the phoneme /z/ when word-initial as in *xerox* /ˈzɪərɒks/, *xylophone* /ˈzaɪləfəʊn/, *Xavier* /ˈzævɪə/, *xenophobia* /ˌzenəˈfəʊbɪə/, Xena /ˈziːnə/.
q	It regularly represents the phoneme /k/ and its – weakly or strongly aspirated, unaspirated or glottalized – variants as in *quotation* /kwəʊˈteɪʃn/, *quickly* /ˈkwɪklɪ/, *quart* /kwɔːt/, *clique* /kliːk/, *antique* /ænˈtiːk/, *liqueur* RP /lɪˈkjʊə(r)/ (GA /lɪˈkɜr/), *liquid* /ˈlɪkwɪd/, *lacquer* /ˈlækə(r)/.

Finally, we must consider two vowel letters that may often represent the consonant /w/ in certain environments.

u	It may regularly represent the phoneme /w/ in the combinations *qu, ngu, su* in words like *language* /ˈlæŋgwɪdʒ/, *acquaint* /əˈkweɪnt/, *aquarium* /əˈkweərɪəm/, *banquet* /ˈbæŋkwɪt/, *persuade* /pəˈsweɪd/, *dissuade* /dɪˈsweɪd/, *suite* /swiːt/, *quest* /kwest/, *question* /ˈkwestʃn/.

o It may irregularly represent the phoneme /w/ or the phoneme combination /wʌ/ in words like *choir* /kwaɪə/, *one* /wʌn/, *once* /wʌns/, and in some words of French origin containing *-oir, -ois* as in *reservoir* /ˈrezəvwɑː(r)/, *bourgeois* /ˈbʊəʒwɑː/, *memoirs* /ˈmemwɑːz/.

Let us now turn to those cases when two or three consonant letters represent a phoneme regularly, i.e., to **digraphs** and **trigraphs**.

Consonant digraphs and trigraphs

Before we start discussing consonant digraphs, we must emphasize once more that although there are a great many English words containing two identical consonant letters next to one another, these are normally pronounced as a single short consonant unless they belong to two different morphemes (see above). In the following, we only discuss cases in which the two consonant letters are different.

ch It regularly represents the phoneme /tʃ/ and its glottalized variant as in *chocolate* /ˈtʃɒklɪt/, *bachelor* /ˈbætʃələ(r)/, *beach* /biːtʃ/, *chunk* /tʃʌŋk/, *munch* /mʌntʃ/, *cheque/check* /tʃek/.

It irregularly represents the phoneme /ʃ/ in words of French origin like *machine* /məˈʃiːn/, *moustache* RP /məˈstɑːʃ/ (GA /ˈmʌstæʃ/), *champagne* /ˌʃæmˈpeɪn/, *chauffeur* RP /ˈʃəʊfə(r)/ (GA /ʃoʊˈfɜr/), *chauvinism* /ˈʃəʊvɪnɪzəm/, *chic* /ʃiːk/, and also in *Chicago* /ʃɪˈkɑːgəʊ/, *Chevrolet* /ˈʃevrəleɪ/, *Michigan* /ˈmɪʃɪgən/.

It regularly represents the phoneme /k/ and its allophones, mostly in words of Latin and Greek origin as in *chaos* /ˈkeɪɒs/, *chameleon*

	/kəˈmiːlɪən/, *character* /ˈkærɪktə(r)/, *charisma* /kəˈrɪzmə/, *chemical* /ˈkemɪkl/, *choir* /kwaɪə/, *Christian* /ˈkrɪstʃən/, *Munich* /ˈmjuːnɪk/, *echo* /ˈekəʊ/, *Czech* /tʃek/.
tch	It regularly represents the phoneme /tʃ/ as in *catching* /ˈkætʃɪŋ/, *fetch* /fetʃ/, *latch* /lætʃ/, *wretched* /ˈretʃɪd/.
rh	It regularly represents the phoneme /r/, i.e., we may say that the letter <h> is regularly silent in this combination in words like *rhyme* /raɪm/, *rhythm* /ˈrɪðm/, *rheumatism* /ˈruːmətɪzm/, *rhino* /ˈraɪnəʊ/, *myrrh* /mɜː(r)/.
sh	It regularly represents the phoneme /ʃ/ as in *shooting* /ˈʃuːtɪŋ/, *fashion* /ˈfæʃn/, *cushion* /ˈkʊʃn/, *bushes* /ˈbʊʃɪz/, *crush* /krʌʃ/, *hush* /hʌʃ/, *Bolshevik* RP /ˈbɒlʃəvɪk/ (GA /ˈboʊl-/).
ph	It regularly represents the phoneme /f/ as in *phoneme* /ˈfəʊniːm/, *allophone* /ˈæləfəʊn/, *Humphrey* /ˈhʌmfrɪ/, *pamphlet* /ˈpæmflɪt/, *photograph* RP /ˈfəʊtəgrɑːf/ (GA /-græf/).
th	This digraph regularly represents the dental fricatives /θ/ and /ð/. Unfortunately there is no rule predicting when it stands for which. However, we can say that in the majority of the cases, especially in "international" words of Greek origin, it is normally /θ/ except for *rhythm* /ˈrɪðm/, and that in function words it is pronounced as /ð/, e.g., *they* /ðeɪ/, *that* /ðæt/, *those* /ðəʊz/. /θ/: *thinking* /ˈθɪŋkɪŋ/, *bath* RP /bɑːθ/ (GA /bæθ/), *cathedral* /kəˈθiːdrəl/, *healthy* /ˈhelθɪ/, *Thursday* /ˈθɜːzdɪ/, *fifth* /fɪfθ/, *length* /leŋθ/, *method* /ˈmeθəd/. /ð/: *bathe* /beɪð/, *feather* /ˈfeðə(r)/, *this* /ðɪs/, *these* /ðiːz/, *the* /ðə/,

	brother /ˈbrʌðə(r)/*, soothe* /suːð/. It irregularly represents the phoneme /t/ in a few words, typically in proper names: *Thomas* /ˈtɒməs/*, Thames* /temz/*, Anthony* /ˈæntənɪ/*, thyme* /taɪm/.
kh	It regularly represents the phoneme /k/ as in *khaki* RP /ˈkɑːkɪ/ (GA /ˈkækɪ/).
gh	It irregularly represents two phonemes, /g/ and /f/, the former before vowels as in *ghoul* /guːl/*, ghost* /gəʊst/*, ghetto* /ˈgetəʊ/*, gherkin* /ˈgɜːkɪn/, the latter in a few words as in *enough* /ɪˈnʌf/*, rough* /rʌf/*, toughness* /ˈtʌfnɪs/*, laughing* RP /ˈlɑːfɪŋ/ (GA /ˈlæfɪŋ/)*, cough* /kɒf/. It is irregularly silent in many words and indicates the length of the preceding vowel as in *sight* /saɪt/*, nightingale* /ˈnaɪtɪŋgeɪl/*, fought* /fɔːt/*, weight* /weɪt/*, although* /ɔːlˈðəʊ/*, daughter* /ˈdɔːtə(r)/*, height* /haɪt/.
wh	It regularly represents the phoneme /w/ as in *where* /weə(r)/*, why* /waɪ/*, what* /wɒt/*, whale* /weɪl/*, wheel* /wiːl/*, whether* /ˈweðə(r)/*, whine* /waɪn/. Note that in some dialects of English (especially in some American dialects and in conservative British, e.g., Scottish pronunciations) it represents a voiceless labiovelar, /ʍ/.[2] For these speakers there is a difference between *which* /ʍɪtʃ/ and *witch* /wɪtʃ/, *where* /ʍeə(r)/ and *wear* /weə(r)/.
qu	It regularly represents the phoneme /k/ word-finally as in *cheque* /tʃek/, *antique* /ænˈtiːk/, *clique* /kliːk/.

[2] This sound is similar to the sequence of a /h/ and a /w/.

	It regularly represents the phoneme combination /kw/ in other positions as in *queen* /kwiːn/, *question* /ˈkwestʃn/, *request* /rɪˈkwest/, *banquet* /ˈbæŋkwɪt/. It irregularly represents the phoneme /k/ in *queue* /kjuː/, *quay* /kiː/, *liquor* /ˈlɪkə(r)/, *liqueur* RP /lɪˈkjʊə(r)/.
gu	It regularly represents the phoneme /g/ (for the pronunciation rules of *g* see below) as in *guerrilla* /gəˈrɪlə/, *guest* /gest/, *guardian* /ˈgɑːdjən/, *colleague* /ˈkɒliːg/, *guy* /gaɪ/. It regularly represents /gw/ in the combination *ngu* as in *language* /ˈlæŋgwɪdʒ/, *distinguish* /dɪˈstɪŋgwɪʃ/. In some words *gu* is actually a sequence of *g* + *u* and is pronounced as /gjuː/ or /gjʊ/ as in *argument* /ˈɑːgjʊmənt/, *Jaguar* /ˈdʒægjʊə(r)/.
ck	It regularly represents the phoneme /k/ as in *back* /bæk/, *hacker* /ˈhækə(r)/, *reckon* /ˈrekən/, *docking* /ˈdɒkɪŋ/, *sucker* /ˈsʌkə(r)/.
cz	It regularly represents the phoneme /tʃ/ as in *Czech* /tʃek/, *Czechoslovakia* /ˌtʃekəsləˈvækɪə/, *czardas* RP /ˈtʃɑːdæʃ/ (GA /ˈtʃɑrdɑːʃ/).
dg	It regularly represents the phoneme /dʒ/ in environments where *g* would represent /dʒ/ as in *edge* /edʒ/, *hedge* /hedʒ/, *badger* /ˈbædʒə(r)/, *gadget* /ˈgædʒɪt/, *budget* /ˈbʌdʒɪt/, *bridge* /brɪdʒ/. It irregularly represents the phoneme sequence /dg/ in some words as in *Edgar* /ˈedgə(r)/.
xc	It regularly represents the phoneme sequence /ks/ before the vowel letters *e, i, y* as in *excited* /ɪkˈsaɪtɪd/, *excellent* /ˈeksələnt/, *exception*

	/ɪkˈsepʃn/.
sc	It regularly represents the phoneme /s/ before the vowel letters *e, i, y* as in *science* /ˈsaɪəns/, *scenery* /ˈsiːnərɪ/, *sci-fi* /ˈsaɪfaɪ/, *scissors* /ˈsɪzəz/.

In the last part of this chapter we take a look at the rules that regulate some of the letter-to-sound correspondences mentioned above.

Consonant rules

Lexical palatalization

Lexical palatalization is a rule that operates inside a word, i.e., a lexical item, and regulates the pronunciation of the consonant letters <t>, <d>, <s>, <c>, <x> representing the alveolar obstruents /t/, /d/, /s/, /z/ before an underlying /j/ phoneme represented by the vowel letters <i> or <u> in certain environments. It is an obligatory process independent of style, speech situation or tempo (in contrast to cross-word palatalization, discussed in Chapter 7).

1. **Palatalization by <i>**

An alveolar obstruent will be palatalized before <i> if the vowel letter if the vowel letter does not represent a stressed vowel and it is followed by another vowel letter. It is also important that palatalization does not apply in word-initial position (for exceptions see Palatalization by <u>). This environment of palatalization is often referred to as *CiV* as the alveolar consonant, i.e., C, is followed by the vowel letter <i> and another vowel letter, i.e., V, hence the name *CiV.* (We have seen a different effect of the same environment in CiV Laxness and CiV Tenseness in Chapter 3.) The vowel letter <i> is usually not

pronounced at all, e.g., *soCIAl* /ˈsəʊʃl/ (the relevant letters of the words will be capitalized).

	alveolar C ⇩	unstressed <i> ⇩	V letter ⇩		
so	c	i	a	l	/ˈsəʊʃl/
an	c	i	e	nt	/ˈeɪnʃnt/
mi	ss	i	o	n	/ˈmɪʃn/
vi	s	i	o	n	/ˈvɪʒn/
an	x	i	o	us	/ˈæŋkʃəs/
men	t	i	o	n	/ˈmenʃn/
ques	t	i	o	n	/ˈkwestʃn/
sol	d	i	e	r	/ˈsəʊldʒə(r)/

Note that because of the above requirements there is no lexical palatalization if the vowel letter <i> represents a stressed vowel, e.g., *soCIEty* /səˈsaɪətɪ/, or if it is not followed by another vowel letter, e.g., *construcTIVe* /kənˈstrʌktɪv/.

2. **Palatalization by <u>**

An alveolar obstruent will also be palatalized before <u> if the vowel letter represents an unstressed vowel and it is followed by another vowel letter or a consonant+vowel letter combination. Palatalization by <u> does not apply in word-initial position, except in the words *sugar* /ˈʃʊgə(r)/ and *sure* /ʃʊə(r)/. It logically follows from the above that there is no palatalization if <u> represents a stressed vowel, e.g., *asSUME* /əˈsjuːm/, or if <u> is not followed by another vowel letter or consonant+vowel letter combination but two consonant letters or one consonant letter in word-final position, e.g., *constrUCT* /kənˈstrʌkt/, *cacTUS* /ˈkæktəs/. The word *maTURE* /məˈtʃʊə(r)/ is

exceptional as Lexical Palatalization does apply although <u> is stressed (but it is usually /məˈtʊər/ in GA).

	alveolar C ⇩	unstressed <u> ⇩	V letter ⇩		
u	s	u	a	l	/ˈjuːʒʊəl/
ca	s	u	a	l	/ˈkæʒʊəl/
vi	s	u	a	l	/ˈvɪʒʊəl/
ac	t	u	a	l	/ˈæktʃʊəl/
sen	s	u	a	l	/ˈsenʃʊəl/

	alveolar C ⇩	unstressed <u> ⇩	C letter ⇩	V letter ⇩	
na	t	u	r	e	/ˈneɪtʃə(r)/
litera	t	u	r	e	/ˈlɪtrɪtʃə(r)/
mea	s	u	r	e	/ˈmeʒə(r)/
cen	s	u	r	e	/ˈsenʃə(r)/

The dropping of <b> and <g>

We have already noted in the discussion above (as well as in Chapter 5) that the consonants *b* and *g* are often dropped in certain positions. As it will be clear from what follows, the two consonants are affected by the very same letter-to-sound rule. These voiced non-coronal stops are dropped if they are preceded by a homorganic nasal and are in morpheme-final position. It follows, then, that the two stops are not dropped in morpheme-initial and internal positions.

b dropped	*b* pronounced	*g* dropped	*g* pronounced
climber /ˈklaɪmə(r)/	*timber* /ˈtɪmbə(r)/	*singer* /ˈsɪŋə(r)/	*fungus* /ˈfʌŋgəs/
number (adj) /ˈnʌmə(r)/	*number* (n) /ˈnʌmbə(r)/	*hanging* /ˈhæŋɪŋ/	*bingo* /ˈbɪŋgəʊ/
thumb /θʌm/	*sombrero* /sɒmˈbreərəʊ/	*belonged* /bɪˈlɒŋd/	*Bangor* /ˈbæŋgə(r)/

The dropping of <h>

The consonant *h* has a very restricted distribution in both English and Hungarian. In both languages the *h* is silent in word-final position and before consonants.

h silent in Hungarian
céh /tseː/, *juh* /ju/, *csehnek* /ˈtʃɛnɛk/, *méhtől* /ˈmeːtøːl/

h silent in English
Shah /ʃɑː/, *Sarah* /ˈseərə/, *John* /dʒɒn/, *yacht* /jɒt/

In a great many words in Hungarian the letter *h* is pronounced before a vowel or in final position. Note, however, that in final position it is not a glottal fricative, /h/, that occurs in pronunciation but a voiceless velar fricative, /x/ (the same sound as the so-called Ach-Laut in German), as in *doh* /dox/, *potroh* /ˈpotrox/, *jacht* /jɒxt/, *Bachtól* /ˈbɒxtoːl/.

Another difference between the two languages lies in the behaviour of *h* before vowels: in Hungarian *h* is always pronounced before vowels while in English, as mentioned in Chapter 7, *h* is only pronounced before stressed vowels. Before unstressed vowels it is always deleted in English (recall examples like *véhicle* vs. *vehícular*), except in word-initial position, where it is pronounced even before unstressed vowels, e.g., in both *hállow* and *helló*.

h pronounced in Hungarian
ház /haːz/, *juhéj* /ˈjuheːj/, *csehek* /ˈtʃɛhɛk/, *méhek* /ˈmeːhɛk/

h pronounced in English
historical /hɪˈstɒrɪkl/, *ahead* /əˈhed/, *height* /haɪt/, *Soho* /ˈsəʊhəʊ/

In some words, of typically French origin, the *h* is irregularly silent in initial position as in *honest* /ˈɒnɪst/, *honour* /ˈɒnə(r)/, *heir* /eə(r)/, *hour* /aʊə(r)/, and

before a stressed vowel in *exháust, exhíbit, exhílarate, exhórt* and all their derivatives.

Velar Softening

Velar Softening regulates the pronunciation of the consonant letters *c* and *g*, which have two regular pronunciations, a "hard" one, a velar stop, and a "soft" one, a coronal sibilant: *c* may be pronounced as /k/ or /s/ while *g* may represent /g/ or /dʒ/. According to the rule, *c* and *g* are pronounced soft, i.e., as a coronal sibilant, before the vowel letters <e>, <i>, <y> regardless of whether the vowel letter is pronounced and how it is pronounced, i.e., it is a purely graphic rule only based on spelling.

c regularly pronounced as /s/
cellar /ˈselə(r)/, *facilitate* /fəˈsɪlɪteɪt/, *cyber* /ˈsaɪbə(r)/, *dance* RP /dɑːns/ (GA /dæns/)

g regularly pronounced as /dʒ/
fragile RP /ˈfrædʒaɪl/ (GA /ˈfrædʒl/), *sergeant* /ˈsɑːdʒənt/, *stingy* /ˈstɪndʒɪ/, *gyroscope* /ˈdʒaɪrəskəʊp/

There are quite a few cases when *c* and (especially) *g* fail to be pronounced soft in this environment, for instance:

c irregularly pronounced as /k/
soccer /ˈsɒkə(r)/, *Celtic* /ˈkeltɪk/, *sceptical* /ˈskeptɪkl/

g irregularly pronounced as /g/
get /ˈget/, *give* /ˈgɪv/, *hunger* /ˈhʌŋgə(r)/, *finger* /ˈfɪŋgə(r)/, *begin* /bɪˈgɪn/, *girl* /gɜːl/

In other positions, i.e., before other vowel letters, before consonant letters and in word-final position *c* and *g* are normally pronounced hard, as a velar stop, although exceptions exist, e.g., *Caesar, gaol, margarine, veg,* etc. Note

that in morpheme-final position after a nasal, *g* is not pronounced (see above).

c regularly pronounced as /k/
catarrh /kəˈtɑː(r)/, *function* /ˈfʌŋkʃn/, *culinary* /ˈkʌlɪnərɪ/, *cancer* /ˈkænsə(r)/

g regularly pronounced as /g/
bogus /ˈbəʊgəs/, *language* /ˈlæŋgwɪdʒ/, *distinguish* /dɪˈstɪŋgwɪʃ/, *jungle* /ˈdʒʌŋgl/

We should also remember that root-final *g* is not softened if a regular, productive suffix starting with <e>, <i>, or <y> is added as in *bigger* /ˈbɪgə(r)/ and not */ˈbɪdʒə(r)/, *longest* /ˈlɒŋgɪst/ and not */ˈlɒndʒɪst/, *bagged* /bægd/ and not */bædʒd/.

There are cases, though, when a non-productive suffix is added to the stem, a suffix which is normally placed after a bound and not a free stem. In such cases, if the stem ends in *c* or *g* (which is, of course, pronounced hard in final position if no suffix follows) and the non-productive suffix begins with <e>, <i>, or <y>, then the stem-final consonant changes into a coronal sibilant, i.e., into its soft pronunciation: Velar Softening as a process has taken place. In just the other way round, if a stem ends in a *c* or *g* in their soft pronounciation when followed by a suffix then in the unsuffixed form they will be present with their hard pronunciation.

<c>	*electri*[k] - electri[s]*ity*	<g>	*analo*[g]*ous* – *analo*[ʤ]*y*
	indu[k]*tion* – indu[s]*e*		*ma*[g]*us* – *ma*[ʤ]*ic*
	dedu[k]*tion* – *dedu*[s]*e*		*lo*[g]*o* – *lo*[ʤ]*ic*

Yod-Dropping

This rule was introduced in Chapter 5 as a phonotactic restriction on homorganic consonant clusters, however, it may as well be conceived of as a letter-to-sound rule. Although it refers to the deletion of a consonant sound /j/, it is used to distinguish between two very similar vowel pairs of English, the Plain-Tense /juː/-/uː/ and their Broken-Tense variants /jʊə/-/ʊə/.

The assumption underlying this distinction is that /j/+/uː/ or /j/+/ʊə/ sequences are not really combinations of two separate sounds but form one unit, one complex vowel, like a diphthong. The main reason for this is that the combination /j/+/uː/ has interesting phonotactic characteristics as it shows a very special behaviour in syllable structure. If we list all the possible two or three-member consonant clusters that may start a syllable in English, then we will find that whenever the last member of such a cluster is /j/, it is always followed by the vowel /uː/ or /ʊə/. Of course, it cannot be a coincidence and the most obvious explanation for this state of affairs is that /j/ and /uː/ or its Broken-Tense variant /ʊə/ form one unit, /juː/ and /jʊə/. This complex vowel is regularly represented by <u>, <eu>, <ew>, <ue>, <ui> in spelling. However, it often happens that although one of these possible spellings occurs, in pronunciation we have /uː/ or /ʊə/, i.e., /j/ is missing. This is due to the rule of Yod-Dropping, which deletes the /j/ of the complex vowel /juː/ in certain environments.

1. Obligatory Yod-Dropping

Yod-Dropping is obligatory in RP after palato-alveolars, /ʃ, ʒ, tʃ, dʒ, r/ and consonant+/l/ sequences as in the words *parachute* /ˈpærəʃuːt/, *luxurious*

/lʌgˈʒʊərɪəs/, *mature* RP /məˈtʃʊə(r)/, *June* /dʒuːn/, *July* /dʒuːˈlaɪ/, *rude* /ruːd/, *rumour* /ˈruːmə(r)/.

Recall, however, that in GA Yod-Dropping is much more extensive as it applies after all coronal consonants – dentals, alveolars, palato-alveolars. As a result of this, many words are pronounced differently in (conservative – see below) RP and in GA.

	RP	GA
enthusiasm	/ɪnˈθjuːzɪæzəm/	/ɪnˈθuːzɪæzəm/
new	/njuː/	/nuː/
tuna	/ˈtjuːnə/	/ˈtuːnə/
dubious	/ˈdjuːbɪəs/	/ˈduːbɪəs/
super	/ˈsjuːpə(r)/	/ˈsuːpər/
exuberant	/ɪgˈzjuːbərənt/	/ɪgˈzuːbərənt/
illusion	/ɪˈljuːʒn/	/ɪˈluːʒn/

2. Optional Yod-Dropping

In RP, there is a tendency to also drop the /j/ in some environments, especially in the speech of speakers belonging to the younger generations. Elderly speakers still often retain the Yod in these words. This version of Yod-Dropping is optional, it depends on style and speech tempo. It applies after the consonants /s, z, l/ as in *super* /ˈs(j)uːpə(r)/, *suit* /s(j)uːt/, *assume* /əˈs(j)uːm/, *exuberant* /ɪgˈz(j)uːbərənt/, *presume* /prɪˈz(j)uːm/, *illusion* /ɪˈl(j)uːʒn/, *lukewarm* /ˈl(j)uːkwɔːm/, *lewd* /l(j)uːd/.

3. The absence of Yod-Dropping

It has also been mentioned in Chapter 5 above that if the complex vowel /juː/ occurs in a completely unstressed syllable, Yod-Dropping is prohibited not just in RP but also in GA, where Yod-Dropping is otherwise obligatory in a

much wider range of environments than in RP. Thus, the rule cannot apply in words like *value* /ˈvælju:/, *consulate* /ˈkɒnsjʊlət/, *annual* /ˈænjʊəl/, *menu* /ˈmenju:/.

In this chapter we have seen the regular and irregular pronunciation values of single consonant letters and consonant digraphs, as well as the positions in which they are silent. Then we have also seen the most important letter-to-sound rules that refer to the pronunciation of consonant letters.

12. Letter-to-sound rules – Part 2: Vowels

Before you study this chapter, check whether you are familiar with the following terms: CiV, digraph, free U, lax (plain/broad), laxing rules, orthography, Pre-R Breaking, Pre-R Broadening, stem, suffix, tense (plain/broken), Yod-Dropping, Vowel Shift, Trisyllabic Laxness

This chapter deals with the area of the English language that has driven many language learners crazy throughout the years: the relationship between the spelling and pronunciation of English vowels. This is probably the area that is the most difficult for language learners, especially Hungarian learners as its principles are very different from those found in Hungarian. Hungarian letter-to-sound rules for vowels are very simple, each vowel letter represents one vowel sound and each vowel sound is represented by one vowel letter; there are a few minor alternations both in length and quality but they are not significant. In English, however, each vowel sound may be represented by quite a few vowel letters or digraphs, and each vowel letter and digraph may stand for a few vowel sounds.

The main reason for this many-to-many relationship between English vowel letters and sounds originates in the fact that, as introduced in Chapter 3, there are two major types of full vowel in English, tense and lax, and each vowel letter has tense and lax pronunciations as well. Moreover, tense vowels are further divided into two subclasses, Plain-Tense and Broken-Tense vowels, while lax vowels are classified into the Plain-Lax and Broad-Lax subcategories. Logically, each vowel letter will have not just a tense and a lax pronunciation but a Plain-Tense, a Broken-Tense, a Plain-Lax and a Broad-Lax pronunciation. It is these four different pronunciations that we turn to

first, followed by a discussion of the pronunciation values of vowel digraphs, the rules determining the pronunciation of vowel letters and finally the many different kinds of regular and irregular exceptions to leave the best for last.

The **regular sound values of single vowel letters** are as follows:

	<a>	<e>	<i> = <y>	<o>	<u>
Plain-Tense	/eɪ/	/iː/	/aɪ/	/əʊ/	/(j)uː/
Broken-Tense	/eə/	/ɪə/	/aɪ(ə)/	/ɔː/[3]	/(j)ʊə/
Plain-Lax	/æ/	/e/	/ɪ/	/ɒ/	/ʌ/
Broad-Lax	/ɑː/	/ɜː/	/ɜː/	/ɔː/[2]	/ɜː/

A few important remarks are due here concerning the table above. First, we have to note an interesting peculiarity of English, namely that one of its vowel phonemes, /ʊ/ does not have a regular representation in spelling – we will only find it in the last section of the chapter, containing irregularities. Second, the vowel letter <o> actually has only three different pronunciations as its Broken-Tense and Broad-Lax pronunciations are phonetically identical. Third, the vowel letter <u> has six different pronunciations instead of the expected four since it is also affected by the rule of Yod-Dropping, i.e., in the tense values there is a yodless and yodful pronunciation (see the discussion below and in the previous chapter). Fourth, it is very easy to remember the Plain-Tense value for each vowel letter as it is the pronunciation used to name the letter in the alphabet or to spell a word letter by letter.

Let us now take a look at the **pronunciation values of vowel digraphs**.

	<ai>=<ay>	<ei>=<ey>	<ea>	<ee>	<ie>
Plain-Tense	/eɪ/	/eɪ/	/iː/	/iː/	/iː/
Brkn-Tense	/eə/	/eə/	/ɪə/	/ɪə/	/ɪə/

	<oa>	<oo>	<eu>=<ew>	<ui>	<ou>=<ow>
Plain-Tense	/əʊ/	/uː/	/(j)uː/	/(j)uː/	/aʊ/
Brkn-Tense	/ɔː/[3]	/ʊə/	/(j)ʊə/	/(j)ʊə/	/aʊ(ə)/

	<oi>=<oy>
Plain-Tense	/ɔɪ/
Brkn-Tense	/ɔɪ(ə)/

	<au>=<aw>
Plain-Lax	-
Broad-Lax	/ɔː/[1]

Again, some generalizations may be found in the tables above. First, vowel digraphs regularly represent tense vowel sounds with one exception only, <au>=<aw>. Second, the letters <i> - <y>, and <u> - <w> play the same role in the digraphs. As it will be clear from the examples below there is even a tendency (although not a rule) to predict where we find which.

Let us now take a look at some examples for the above sound values of single vowel letters and vowel digraphs.

	<a>	<e>	<i> = <y>	<o>	<u>
Plain-Tense	*mate* /meɪt/	*scene* /siːn/	*bite* /baɪt/	*sole* /səʊl/	*cute* /kjuːt/ *rude* /ruːd/
Broken-Tense	*care* /keə(r)/	*here* /hɪə(r)/	*fire* /faɪə(r)/	*sore* /sɔː(r)/	*cure* /kjʊə(r)/ *sure* /ʃʊə(r)/
Plain-Lax	*bat* /bæt/	*bet* /bɛt/	*bit* /bɪt/	*bond* /bɒnd/	*but* /bʌt/
Broad-Lax	*car* /kɑː(r)/	*her* /hɜː(r)/	*firm* /fɜːm/	*born* /bɔːn/	*burn* /bɜːn/

	<ai>=<ay>	<ei>=<ey>	<ea>	<ee>	<ie>
Plain-Tense	*bay* /beɪ/	*obey* /əˈbeɪ/	*beat* /biːt/	*bee* /biː/	*believe* /bɪˈliːv/
Brkn-Tense	*fair* /feə(r)/	*heir* /eə(r)/	*fear* /fiə(r)/	*beer* /bɪə(r)/	*pier* /pɪə/

	<oa>	<oo>	<eu>=<ew>	<ui>	<ou>=<ow>
Plain-Tense	*boat* /bəʊt/	*boot* /buːt/	*few* /fjuː/ *drew* /druː/	*suit* /sjuːt/ *fruit* /fruːt/	*house* /haʊs/ *how* /haʊ/
Broken-Tense	*boar* /bɔː(r)/	*boor* /bʊə(r)/	*Europe* /ˈjʊərəp/ *Jewry* /ˈdʒʊərɪ/	*Muir* /mjʊə/	*our* /aʊə(r)/ *Bowra* /ˈbaʊ(ə)rə/

	<oi>=<oy>
Plain-Tense	*boy* /bɔɪ/
Broken-Tense	*Moira* /ˈmɔɪ(ə)rə/

	<au>=<aw>
Plain-Lax	-
Broad-Lax	*claw* /klɔː/

As for the digraphs ending in <i> or <y> and <u> or <w> we can claim that there is a tendency to use <i> and <u> inside a word, e.g., *fair*, *heir*, *Europe*, *our*, *Moira*, *sauce*, and to use <y> and <w> in word-final position, e.g., *bay*, *obey*, *drew*, *how*, *boy*, *claw*. However, one should be careful as this is not an exceptionless rule, rather a tendency and there are quite many exceptions for it, e.g., *town*, *Bowra*, *Jewry*, *powder*, *drown*, *bowl*.

In the following we enumerate and discuss the rules which are responsible for the letter-to-sound correspondences in English vowels. The first such rule concerns the distinction between the vowels /juː/, /jʊə/ and /uː/, /ʊə/, that is the yodful and yodless variants. The basic rule is that the five graphic representations, <u>, <eu>, <ew>, <ue>, <ui> normally stand for the variants starting with /j/. All other representations normally stand for the variants without /j/, typically <oo> and in some irregular cases <o> and <ou> (for irregular cases, see below). However, in many environments the vowel

letters and digraphs normally representing /juː/ or /jʊə/ are pronounced without /j/, a case often referred to as Yod-Dropping. The details of this rule may be found at the end of Chapter 11.

Before actually discussing the pronunciation rules of vowel letters, we must introduce a pair of notions referring to the positions of vowel letters in the orthographic word. The two types of **graphic positions** are called **Free Position** and **Covered Position**. In the examples below the vowel letter in question is in underlined boldface and the letters of the relevant environment are in capitals. (V = vowel letter, C = consonant letter, S = stop, L = liquid; the hyphen indicates the position of the stressed vowel letter.)

Free Position				Covered Position	
(1) -V	(2) -CV	(3) -SLV	(4) -#	(5) -CC	(6) -C#
d**i**Al	b**a**KE	**a**PROn	m**y**#	b**a**NK	sp**a**M#
g**o**Ing	m**u**TE	c**y**CLone	s**o**#	th**u**NDer	f**i**T#
d**i**E	c**a**RE	m**a**PLE	b**e**#	y**a**CHT	h**e**R#
d**o**Er	h**o**CUs-p**o**CUs	**o**GRE	fl**y**#	f**i**RSt	sp**o**T#

As it can be seen in the table above, vowel letters are said to be in free graphic position if they are followed by another vowel letter, a consonant+vowel letter, two consonant letters representing a stop and a liquid sound plus a vowel letter and also when they are word-final. Single vowel letters are in covered graphic position if they are followed by two consonant letters (which are either not followed by a vowel letter, or if they are, then they do not represent a stop and a liquid sound) and if they are followed by a word-final consonant letter.

Note that there are some problematic cases. On the one hand, the consonant letter <x> normally represents the sound sequence /ks/, so it must

be counted as a sequence of two consonant letters. As a result, words like *t**a**Xi* will belong to class (5) in the table. On the other hand, if we recall that consonant digraphs regularly represent a single consonant sound, they must be counted as one letter. As a result again, words like *g**o**PHer* will belong to class (2) and *b**u**SH* to (6). Bear in mind that these are *graphic* positions for *letters* – whether these letters are pronounced or not does not matter. That is why *dial* and *die*, for instance, belong to the same category. The word *yacht* (/jɒt/) contains a silent digraph followed by another consonant letter, but is totally identical to *bank* (in class 5) in this respect.

There are two rules that help us decide the pronunciation of vowel letters on the basis of whether they are in a free or covered position. If we take a look at the words in columns (1) to (4), we can see that they all contain a stressed (plain or broken) tense vowel. Thus, the **Free Position Basic Rule** (FPBR) can be stated as follows:

FPBR: Stressed single vowel letters in free position are normally pronounced as tense. (See exceptions below.)

On the other hand, columns (5) and (6) both contain words in which the stressed vowels are (plain or broad) lax. On the basis of this we can state the **Covered Position Rule** (CPR) as follows:

CPR: Stressed single vowel letters in covered position are normally pronounced as lax. (See exceptions below.)

Remember that these two rules only refer to stressed single vowel letters – unstressed or weak vowels behave differently, while vowel digraphs usually represent tense vowels, i.e., a rule is unnecessary in their case. Also,

note that the expression "stressed single vowel letter" is just a short hand for a single vowel letter representing a stressed vowel.

In the following part of the chapter we take a look at exceptions, i.e., those cases when a vowel letter is not pronounced according to the two rules above. Exceptions may fall into two different types: those that simply do not obey the two rules but the vowel is pronounced with one of its regular pronunciations (discussed in the very first table above) – this type of exception is often called a **tenseness reversal** – and those that involve a vowel letter pronounced as an irregular sound, i.e., it has a sound value which is not one of its four regular pronunciations – a kind of exception often referred to as a **quality deviation**. We address the two types in this order below.

Tenseness reversals

In some cases the stressed single vowel letter is not pronounced with the tense/lax value predicted by the FPBR or the CPR, i.e., it is pronounced with a tenseness/laxness which is just the opposite of what is expected on the basis of the rules.

Tenseness reversal exceptions to the Covered Position Rule

bind /baɪnd/, *bold* /bəʊld/, *both* /bəʊθ/, *chamber* /ˈtʃeɪmbə(r)/, *comb* /kəʊm/, *danger* /ˈdeɪndʒə(r)/, *fight* /faɪt/, *find* /faɪnd/, *fold* /fəʊld/, *gross* /grəʊs/, *island* /ˈaɪlənd/, *kind* /kaɪnd/, *manger* /ˈmeɪndʒə(r)/, *mild* /maɪld/, *most* /məʊst/, *old* /əʊld/, *range* /reɪndʒ/, *Ruth* /ruːθ/, *sign* /saɪn/, *soldier* /ˈsəʊldʒə(r)/, *told* /təʊld/, *truth* /truːθ/, etc.

Tenseness reversal exceptions to the Free Position Basic Rule

In the case of the Free Position Basic Rule we may add one more clause to the rule: stressed single vowel letters in free graphic position are pronounced tense *unless they are laxed by one of the laxing rules*. These **laxing rules** are those that we have already discussed in Chapter 3 in connection with the Vowel Shift. Recall that in the Vowel Shift a tense vowel of a stem becomes lax if a certain kind of suffix is added. The original stem vowel is tense, which means that if it is a regular word then the vowel letter representing the tense vowel must be in a free graphic position. If a suffix is added, the stressed vowel may still be in free position but its pronunciation becomes lax because of one of the laxing rules. Let us repeat the most important features of the laxing rules for the convenience of the reader now focussing on the spelling of the stem and the suffix. Before we start enumerating the laxing rules, we must remember that the vowel /(j)uː/ is non-laxable in any position, i.e., it is a regular exception to all the laxing rules below.

Trisyllabic Laxness

If the stressed vowel is in at least the third-last syllable of the word then it must be lax. This is a result of the Trisyllabic Laxing rule, an active phonological rule which applies if a suffix is added to the stem. In the present context, it is simply applied to any word even without adding suffixes.

<a>	<e>	<i> = <y>	<o>
C<u>a</u>nada	*pr<u>e</u>sident*	*m<u>i</u>racle*	*s<u>o</u>litude*
l<u>a</u>minate	*h<u>e</u>sitate*	*s<u>i</u>milar*	*d<u>o</u>mino*
s<u>a</u>livate	*r<u>e</u>giment*	*c<u>i</u>nema*	*mah<u>o</u>gany*
C<u>a</u>pricorn	*f<u>e</u>derate*	*p<u>i</u>tiful*	*p<u>o</u>sitive*
c<u>a</u>baret	*g<u>e</u>neral*	*m<u>i</u>litant*	*s<u>o</u>litary*
r<u>a</u>dical	*H<u>e</u>mingway*	*t<u>y</u>pical*	*d<u>o</u>minant*

In some words the stressed single vowel letter remains tense as required by the FPBR in spite of the fact that it is in a trisyllabic position, e.g., *<u>i</u>solate*, *m<u>i</u>crophone*, *n<u>o</u>tify*, *n<u>i</u>ghtingale, <u>o</u>mega*, etc. Also, recall from Chapter 3 that regular, productive suffixes are not counted when determining whether a word serves as an input to the rule. Free <u> is non-laxable; this is illustrated by examples like *cubicle, puritan, enumerate*.

Laxing by ending

In some words the stressed single vowel letter in free graphic position is pronounced lax despite the FPBR because one of the so-called laxing endings follows.

<a>	<e>	<i> = <y>	<o>
m<u>a</u>nic	*m<u>e</u>tric*	*cl<u>i</u>nic*	*p<u>o</u>lish*
st<u>a</u>tic	*intr<u>e</u>pid*	*t<u>i</u>mid*	*t<u>o</u>nic*
h<u>a</u>bit	*<u>e</u>dit*	*optim<u>i</u>stic*	*s<u>o</u>lid*
t<u>a</u>blet	*l<u>e</u>vel*	*l<u>i</u>mit*	*sh<u>o</u>vel*
est<u>a</u>blish	*<u>E</u>ric*	*cr<u>i</u>tic*	*n<u>o</u>vel*
p<u>a</u>rish	*p<u>e</u>rish*	*l<u>y</u>ric*	*c<u>o</u>met*

There are a few words in which the stressed vowel is followed by one of the laxing endings but still it is pronounced as tense as in *b<u>a</u>sic*, *strat<u>e</u>gic*, *l<u>a</u>bel*, *n<u>a</u>vel*, *s<u>e</u>cret*. Recall also that the ending *-ish* is only laxing when producing a noun or a verb but it is non-laxing if it makes an adjective, hence the difference between *Polish* /ˈpəʊlɪʃ/ vs. *polish* /ˈpɒlɪʃ/ and *Swedish* /ˈswiːdɪʃ/ vs. *finish* /ˈfɪnɪʃ/.[1] Free <u> is non-laxable; this is illustrated by examples like *Punic, Cupid, rubric, unit*.

Laxing by free <u>

The stressed single vowel letter occurring in free graphic position is regularly pronounced lax if it is followed by a free vowel letter <u> in the next syllable, i.e., a <u> followed by a vowel or a consonant+vowel combination.

<a>	<e>	<i> = <y>	<o>
gr<u>a</u>dual	*s<u>e</u>nsual*	*v<u>i</u>sual*	*s<u>o</u>luble*
v<u>a</u>lue	*sch<u>e</u>dule*	*r<u>i</u>tual*	*m<u>o</u>dule*

A typical exception to this laxing rule is the ending *-ure*, which often attaches to a stem whose vowel is pronounced tense in spite of the free <u> of the suffix, as in *cl<u>o</u>sure, er<u>a</u>sure, n<u>a</u>ture*, etc. Free <u> itself is non-laxable; this is illustrated by examples like *usual*.

CiV laxing

The rule of CiV laxing only applies if there is a stressed vowel letter <i> or <y> which is followed by a consonant letter + another vowel letter <i> + one more vowel letter. The rule does not apply to any of the other vowel letters (cf. CiV tensing below). Its application may be witnessed in words like *<u>i</u>diot*,

[1] The word *Sp<u>a</u>nish* is exceptional.

idiom, *decision*, *revision*, *dominion, Syria*. The rule does not have any exceptions.

Before continuing to a rule which works just in the opposite direction as compared to the ones we have just discussed, let us note that there is a further restriction on all laxing rules, namely, that vowels occurring before another vowel, i.e., prevocalic vowels, are non-laxable, they have to remain tense even before suffixes, even if one of the laxing rules could apply. That is, as explained in Chapter 3, **Prevocalic Tenseness** is stronger than any of the laxing rules. The following examples could as well be subject to either Trisyllabic Laxness or Laxing by ending, still, their stressed vowel (underlined) is tense.

<a>	<e>	<i> = <y>	<o>
prosaic	*nucleic*	*variety*	*heroic*
archaic	*spontaneity*	*diet*	*stoic*
laity	*simultaneity*	*sobriety*	*echoic*
mosaic	*deity*	*anxiety*	*poet*

CiV tensing

Recall that the rule of CiV tensing is the mirror image of CiV laxing in two senses: firstly, it applies to all vowel letters except <i> or <y> – remember that CiV laxing only applies to these. Secondly, it requires that the stressed vowel letter followed by CiV be tense, while CiV laxing enforces the opposite. A very important feature of this rule is that it overrides the laxing rules, i.e., it blocks their application and applies instead resulting in tense vowels in an environment where some of the laxing rules, in most cases Trisyllabic Laxness, should apply.

<a>	<e>	<o>
m<u>a</u>niac	*s<u>e</u>rious*	*n<u>o</u>tion*
Austr<u>a</u>lia	*s<u>e</u>rial*	*Gl<u>o</u>ria*
r<u>a</u>diate	*s<u>e</u>nior*	*ph<u>o</u>bia*

There are no examples listed for the vowel letters <i/y> and <u>. For the former we noted that it is made lax in this environment; for the latter we have already mentioned that it is an exception to all the laxing rules, that is, in free graphic position it will always be tense even if a laxing rule could apply (cf. *fusion, union, Muriel*, etc.). Since CiV tensing makes a vowel tense, it is not necessary to indicate it for a vowel letter which is always pronounced as tense in free positions anyway.

The rule has a few exceptions in which the vowel letters <a>, <e>, <o> are followed by CiV in spelling but they are pronounced as lax – but remember, this cannot be the result of CiV laxing as that rule only applies to the vowel letter <i/y>! Exceptions to CiV tensing include words like *D<u>a</u>niel, Slov<u>a</u>kia, sp<u>e</u>cial, n<u>a</u>tional, pr<u>e</u>cious,* RP *p<u>a</u>triot* etc.

Irregular tenseness reversals

There are cases where the stressed single vowel letter occurring in free graphic position is not made lax by any of the laxing rules but, for some reason, it is still lax. This typically happens in the last or only syllable of a word, which is pronounced as if the final silent <e> was not present at the end, and also in the second-last syllable of the word.

Irregular tenseness reversal in last or only syllable	Irregular tenseness reversal in second-last syllable
<a> *are, have*	<a> *cabin, Latin, salad, atom*
<e> *were, allege*	<e> *lemon, tenant, very, devil*
<i> *live* (v), *give*	<i> *city, pity, linen, consider*
<o> *gone*, RP *shone*[2]	<o> *body, copy, orange, forest*
	<u> *punish, study, Dublin, public*

Quality deviations

In a great number of words the single vowel letters or vowel digraphs are not pronounced with one of their regular pronunciation values given in the tables at the beginning of this chapter. Since these are not simple exceptions from the FPBR or the CPR, i.e., they do not belong to any of the tenseness reversal cases discussed above, they are often called **quality deviations** as the graphemes deviate from their own regular qualities and take on the quality of some other vowel grapheme. As a result, the spelling and pronunciation of these words is not predictable by any of the rules we have seen, they must be memorized as exceptions.

1. *Isolated deviating words*

There are a few sporadic quality deviations which are isolated in the sense that there are very few examples for them, e.g., <a> = /e/ as in *any, many, ate* RP /et/ (cf. GA /eɪt/)*, Thames* (exhaustive list!), <u> = /ɪ/ as in *busy, business*, <u> = /e/ as in *bury, burial*, or <oa> = /ɔː/ as in *broad, abroad* (cases of broadness without *r*).

[2] GA /ʃoʊn/ is regular.

2. *Groups of deviating words*

Some quality deviations are unpredictable but much more common than the ones above and can be classified according to some pronunciation or spelling characteristics. (A few of these groups have been mentioned in Chapter 4.)

Deviations due to neighbouring sounds/letters

WANT-words	<a> = /ɒ/	*want, was, wash, swan, quality, quantity, squash*
WAR-words	<a> = /ɔː/	*war, thwart, dwarf, quarter, swarm, warmth*
CALL-words	<a> = /ɔː/	*call, fall, bald, talk, alter, stalk, walk, Balkans*
ASK-words	<a> = /ɑː/	*ask, dance, fast, past, class, path, last, example*
CALM-words	<a> = /ɑː/	*calm, palm, calf, halve, balm, psalm*
WORK-words	<o> = /ɜː/	*work, worth, world, word, worth, Wordsworth*

Foreignisms (French or Italian loanwords with spelling imitating the original)

MACHINE-words	<i> = /iː/	*machine, clique, kilo, ski, pizza, visa*
CREPE-words	<e> =/eɪ/	*crepe, fete, suede, régime, café, née*, *fiancé(e)*
CHAUFFEUR-words	<au> = /əʊ/	*chauffeur, mauve, chauvinism, sauté*
SOUP-words	<ou> = /uː/	*soup, group, route, souvenir, rouge, douche* (also some original English words like *you, youth, wound* (n))
MEMOIR-words	<oi> = /wɑː/	*memoir, bourgeois, reservoir*

Traditional spellings with <e>, <ea>

CLERK-words	<e> =/ɑː/	*clerk, sergeant, Derby, Berkeley*[3]
BREAD-words	<ea> = /e/	*bread, health, meant, pleasant, jealous*
EARTH-words	<ea> = /ɜː/	*earth, heard, pearl, earn*
BEAR-words	<ea> = /eə/	*bear, swear, tear* (v)

[3] GA *clerk* /klɜrk/ and *Derby* /ˈdɜrbɪ/ are regular. Also, the place in California called *Berkeley* is pronounced /ˈbɜ(r)klɪ/.

Traditional spellings with <o>, <oo>, <ou>, <u>

LOVE-words	<o> = /ʌ/	*love, come, onion, mother, London, among*
MOVE-words	<o> = /uː/	*move, do, prove, tomb*
LOOK-words	<oo> = /ʊ/	*look, book, crook, good, wool*
TROUBLE-words	<ou> = /ʌ/	*trouble, country, courage*[4]*, young*
SOUL/BOWL-words	<ou/ow> = /əʊ/	*soul, shoulder, bowl, know*
THOUGHT-words	<ough> = /ɔː/	*thought, brought, nought*
PUT-words	<u> = /ʊ/	*put, full, butcher, cushion*

However numerous these exceptions may seem, the majority of English words, including new coinages, do conform to the basic letter-to-sound rules introduced in the first half of the chapter.

[4] GA /ˈkɜrɪdʒ/ – cf. the exceptions to the Carrot-Rule in Chapter 4.

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Subject index

This index lists all the technical terms introduced and/or highlighted as significant in the book. They appear in boldface in the text. Whenever thought to be relevant and useful, the RP pronunciation of the term is given in slashes and the Hungarian equivalent in italics. The first number refers to the chapter, the number(s) following the colon indicate(s) the page(s) where the term is (first) mentioned.