4 Processes: Assimilation, Palatalization, Shortening

In chapter three we discussed procedures, ruly ways that things are done. In this chapter we discuss processes, which are changes in pronunciation and sometimes spelling that occurred long ago and have complicated modern English spelling. The three processes we will discuss are (i) the assimilation of the final consonant of certain prefixes when they are affixed to stems that start with certain sounds and letters; (ii) the palatalization of certain consonant sounds, which means the pushing back in the mouth of the point of articulation, thus changing the pronunciation and complicating the sound-to-spelling correspondences, and (iii) the shortening of vowels at the head of certain VCV strings from the expected long vowel regular to those strings, as in *general, lemon, sanity*.

Assimilation

English borrowed dozens of Latin words containing the prefix *com-*, which means (in general) "with, together, jointly." But because of changes in pronunciation and spelling, it is sometimes hard to hear the *com-* prefix in the spoken word, or to see it in the written word. Very often *com-* does combine with a stem through simple addition, with no changes taking place at all. Thus, for instance, $\text{com} + \text{pound}$ = *compound*. But usually there are changes: Sometimes the <m> in *com-* is deleted: $\text{com} + \text{erce}$ = *coerce*. And often the <m> is replaced with an <n>: $\text{com} + \text{n} + \text{demn}$ = *condemn.*

These changes in spelling reflect earlier changes in pronunciation. People tend to make pronunciation as easy as possible. Notice what a mouthful we would have if the <m> and [m] did not delete and we ended up with *<comgnizant> rather than *cognizant,* $\text{com} + \text{gn} + \text{ize} + \text{ant}$. By the same token, although *<comdemn> can be pronounced, getting from the [m] sound to the [d] is a bit hard. It is much easier if we replace the [m] with an [n], as in *condemn*, for the tongue is in the same position for both the [n] and the [d]. Since the tongue is in much different positions for [m] and [d] but in about the same position for [n] and [d], from an articulatory point of view [n] is more like [d] than [m] is.

Linguists have a name for the way a sound changes so as to be more like a sound close to it. They call it *assimilation*. The base *simil* in *assimilation* is also in the word *similar*. It means "like."   Assimilation causes the [m] in *com-* to become an [n] in words like *condemn*. And sometimes this change in pronunciation is reflected in a change in spelling — as, once again, in *condemn*.

Actually, the change of [m] for [n] is only a partial assimilation. A full assimilation occurs when a sound changes so as to be exactly like another. This happens quite often. For instance, the word *collide* contains a full assimilation of the prefix *com-*: $\text{com} + \text{l} + \text{lide}$. Also *corrode* contains a full assimilation: $\text{com} + \text{r} + \text{rode}$. In these two cases we hear only a single [l] sound in *collide*, a single [r] sound in *corrode*. The sounds merge into

one, but we still keep the two letters, to help us identify the elements that form the word. It is because of full assimilation that there are double consonants toward the front of many words.

Sometimes, in order to ease pronunciation, a sound will simply drop out. That is what happens to the [m] in *com-* in words like *coerce* and *cognizant*. The [m] is deleted in the pronunciation and the <m> is deleted in the spelling.

Assimilation, then, is the process by which, in pronunciation, one sound is changed to make it more similar to another, and, in spelling, one letter is either deleted or replaced to reflect the change in pronunciation.

The Prefix *Com*-. The following table illustrates the things that happen when *com-* is added to stems beginning with different letters. The third column indicates the first letter of the stem to which *com-* is being added. The final four columns indicate the process that occurs when the prefix and stem combine, as shown in the Analyses column.

Table 4.1

| Words | Analyses | Before | Simple Addition | Assimilation | | <m> Deletion |
				Full	Partial	
coagulate	com̀+agulate	<a>				×
combat	com+bat	<b>	×			
concord	com̀+n+cord	<c>			×	
conduct	com̀+n+duct	<d>			×	
coerce	com̀+erce	<e>				×
confident	com̀+n++fident	<f>			×	
incongruous	in+com̀+n+gruous	<g>			×	
incoherent	in+com̀+herent	<h>				×
coincide	com̀+in+cide	<i>				×
conjugal	com̀+n+jugal	<j>			×	
collection	com̀+l+lection	<l>		×		
commit	com+mit	<m>	×			
misconnect	mis+com̀+n+nect	<n>		×		
cooperate	com̀+operate	<o>				×
compel	com+pel	<p>	×			

Words	Analyses	Before	Simple Addition	Assimilation		<m> Deletion
				Full	Partial	
conquer	com̓+n+quer	<q>			×	
correction	com̓+r+rection	<r>		×		
conscience	com̓+n+science	<s>			×	
contemptible	com̓+n+temptible	<t>			×	
inconvenient	in+com̓+n+venient	<v>			×	

The prefix *com-* and stems that start with <b> and <p> combine by simple addition because these stems begin with [b] or [p], two sounds that are already very similar to the [m] at the end of *com-*. The bilabials [p], [b], and [m] are all pronounced at the two lips (*bi-* "two," *labi+* "lip"). You can feel your lips come together as you pronounce each sound. Assimilation usually occurs to ease pronunciation by bringing two sounds closer together in terms of the place in the mouth where they are pronounced, their point of articulation. In words like *combat, compel,* and *compound* the points of articulation are already the same so there is no pressure to assimilate.

As we saw earlier with *condemn*, the partial assimilation of *com-* to *con-* eases pronunciation by moving the points of articulation closer together. While the [m] at the end of *com-* is pronounced out at the two lips, the sounds spelled by the letters <c>, <d>, <f>, <g>, <j>, <q>, <s>, <t>, and <v> are all pronounced in places in the mouth closer to where [n] is articulated.

The deletion of [m] and <m> before stems that start with vowels eases pronunciation by removing the consonant sound entirely, creating an easy transition from the vowel <o> in *co-* to the vowel at the head of the stem. The full assimilation before <l> and <r> also eases pronunciation by removing a consonant sound.

To summarize: The prefix *com-* affixes by simple addition before the bilabial sounds [b], [m], and [p]. It affixes by full assimilation to the liquids and nasal [l], [r], and [n]. It affixes by <m> deletion before [h] and the vowels. It affixes by partial assimilation, becoming *con-*, everyplace else.

Notice that when the <m> in *com-* deletes, you get *co-*, a very common and still-productive prefix. *Still-productive* means that we still make up new words with *co-*. And these words do not follow the description you wrote for *com-*. *Co-* is always *co-*, pronounced [kō]: *cobelligerent, coconscious, codefendant, colingual, corecreation.* The words in English that follow the assimilation patterns in Table 4-1 are old: They were words long before they came to English. The assimilations took place back in Roman times. Words we make now often do not follow the old patterns of assimilation. Words with the prefix *co-* that don't seem to follow the normal patterns are relatively new words, coined in the last few centuries. For more on the assimilation of *com-* see *AES*,

* * * * * * * *

Palatalization

Palatalized Spellings. When a sound is palatalized, it is pronounced back in the mouth, against the hard palate. For instance, the sound spelled <t> in *native*, [t], is not palatalized; it is pronounced forward in the mouth. But the sound spelled <t> in *nation*, [sh], is palatalized; it is pronounced well back against the roof of the mouth, against the palate. We will say that we are dealing with a palatalized spelling when a letter like <t>, which normally spells a nonpalatal sound as it does in *native*, spells one that has been palatalized, as it does in *nation*.

There are several different palatalizations. For instance, palatalization leads to [sh] being spelled not only <t> as in *nation*, but <s> in *dimension*, <ss> in *succession*, <sc> in *luscious*, <c> in *ancient*, even <x> in *sexual*. The sound [ch], as in *church*, is spelled <t> about a third of the time, in words like *statuesque*, *virtuosity*, and *actual*. The sound [j], as in *judge*, is spelled <d> in words like *graduate* and *schedule*. And the sound [zh], which often comes from French where it is spelled <g> (*sabotage*, *camouflage*), has developed some palatalized spellings: It is <s> in *casual* and *leisure*, <z> in *seizure* and *azure*, even <t> in *equation*.

Palatalization is very common in English, especially with sounds spelled <t>, and it leads to some curiosities in our spelling. For instance, although we normally associate the sound [sh] with the <sh> spelling, as in *shush*, [sh] is actually spelled <sh> only about a quarter of the time. More than half the time, because of palatalization, it is spelled <t>, as in *nation*.

Palatalized spellings are due to changes in pronunciation that occurred many hundreds of years ago. For instance, the sound [t], which <t> normally spells, is pronounced by pressing the tongue against the back of the upper teeth or against the dental, or alveolar, ridge from which the teeth grow. If you move your tongue back so that it presses against your palate and try to pronounce [t], you make a sound that is like [t] followed by a [sh], [tsh], which is actually the [ch] sound. So the palatalized pronunciation of [t] was originally [tsh]. Over the centuries the [tsh] normally eased to [sh]. Thus, the <t> spelling of [sh] is due to the movement of the sound back in the mouth, to the palate, followed by an easing of [tsh] to [sh]. The basic trigger is the unstressed <i> following the <t>: When that unstressed <i> is followed by another unstressed vowel, it typically simplifies to a [y]-like glide, and the sequence [ty] pulls the tongue back onto the palate. That movement back to the palate leads first to [tsh] and ultimately to [sh].

AES provides more details on palatalized spellings in chapter 30, "The Palatal Sibilants," and most books on English phonetics and phonology discuss palatalization in considerable detail. Otto Jespersen's (hard to find) *A Modern English Grammar on*

Historical Principles, volume 1: *Sounds and Spellings* also has a good historical description (sections 12.21-12.22 and 9.87-9.88). Some linguistics refer to palatalization as *assibilation*, because it leads to a sibilant, or hissing, sound: the non-sibilant [t] becomes the sibilant [sh].

Out of the many issues involved in palatalized spellings, we will focus here on just one. Since the suffix *-ion*, which forms nouns out of verbs, as in *act* and *action*, starts with two unstressed vowels, it provides the setting for palatalizing the consonant before the *-ion*, as in *action*. In earlier English *-ion* was pronounced as two syllables, with two full vowel sounds. Over time they weakened, causing the the [i] to ease to the glide [y] and the vowel spelled <o> to reduce to schwa. The [y] glide triggered the palatalization. Since *-ion* is such a common and productive suffix in modern English, we will take a special look at palatalization in words ending in *-ion*. This means that we will be looking at the so-called "shun" words — that is, words that end with the syllable [shən], spelled, for instance, <tion> (*nation*), <sion> (*dimension*), or <ssion> (*succession*). We will also work with some "zhun" words, like *conversion*. Other palatalized spellings will be discued in chapter five.

The Suffix *-ion* and [shən]. The suffix *-ion* is added to verbs to form nouns, as in *infect, infection*. In many cases the stem and suffix combine via simple addition:

Table 4.8

Verbs	Nouns	Verbs	Nouns
abort	abortion	except	exception
act	action	exempt	exemption
addict	addiction	exhibit	exhibition
assert	assertion	express	expression
audit	audition	inhibit	inhibition
construct	construction	insert	insertion
convict	conviction	intersect	intersection
corrupt	corruption	intuit	intuition
direct	direction	invent	invention
discuss	discussion	prevent	prevention
distort	distortion	recess	recession
edit	edition	subtract	subtraction

All of those final <t>'s in the verbs listed above are remnants of Latin past participle stems.

In many cases, the suffix and verb combine via final <e> deletion, especially with verbs that end with the suffix *-ate*:

Table 4.9

Verbs	Nouns	Verbs	Nouns
abbreviate	abbreviation	graduate	graduation
associate	association	ignite	ignition
complete	completion	imitate	imitation
constitute	constitution	obligate	obligation
contribute	contribution	pollute	pollution
delete	deletion	promote	promotion
devote	devotion	recreate	recreation
distribute	distribution	stagnate	stagnation
expedite	expedition	vacate	vacation

*   *   *   *   *   *   *   *

Shortening Rules

By shortening rules we mean rules that motivate a short vowel sound where a larger pattern—such as VCV—would normally indicate a long one. For instance, in the word *sanity*, the <a> heads a VCV string, <ani>, and would normally be expected to be long, as it is in its stem *sane.* The fact that <a> spells the short sound [a] in *sanity* is due to a shortening rule, in this case the Suffix *-ity* Rule. We will discuss three types of shortening rules: (i) suffix rules, like that for *-ity,* (ii) the Third Vowel Rule, and (iii) the French *Lemon* Rule.

Suffix Rules. There are two main suffixes rules, one for *-ity*, the other for *-ic:*

Suffix *-ity* Rule. The Suffix *-ity* Rule states that the suffix *-ity* is regularly preceded by a vowel that is stressed and short, even if it heads a VCV string. The *-ity* rule motivates shortening of the stem vowel, as in *sane* with [ā] vs. *sanity* with [a], and it also motivates a shift of stress onto the vowel immediately preceding it, as in *civil* vs. *civility,* [si-vəl] vs. [si-v**i**l-i-tē]. Some other examples with *-ity* added to free stems:

Table 4.16

Adjectives	Nouns	Adjectives	Nouns
active	activity	mental	mentality
cave	cavity	obscene	obscenity

Adjectives	Nouns	Adjectives	Nouns
electric	electricity	profane	profanity
extreme	extremity	public	publicity

Notice the shift from hard <c> to soft in pairs like *electric, electricity,* and *public, publicity.*

Some examples with *-ity* added to bound stems:

Table 4.17

Nouns	Analyses	Nouns	Analyses
ability	*abil+ity*	humility	*humil+ity*
atrocity	*atroc+ity*	unanimity	*un+anim+ity*
capacity	*capac+ity*	proximity	*proxim+ity*
charity	*char+ity*	quality	*qual+ity*

In *unanimity* the *un* is not a prefix; it is the bound base that means "one." Etymologically, *unanimity* means "one spirit."

The two long vowels that resist shortening by the Suffix *-ity* Rule are [ū] and its extended form [yū]:

Table 4.18

Adjective/Nouns[1]	Nouns[2]	Adjective/Nouns[1]	Nouns[2]
commune	community	nude	nudity
crude	crudity	opportune	opportunity
immune	immunity	pure	purity

Another preemption of the Suffix *-ity* Rule occurs when the vowel preceding the suffix is the head of a v.v string, as in *laity, deity, homogeneity, egoity.*

Notice the sequence of increasingly more localized preemptions: The very general and widespread vcv pattern is preempted by the more local Suffix *-ity* Rule, which is itself preempted by the even more local resistant long <u> and v.v string. This tendency of more local rules to preempt more general rules is typical of ruly systems. **Exercises 4.12-4.13**