12 Palatalization

Palatalized Spellings. When a sound is **palatalized**, it is pronounced back against the roof of the mouth, at the hard palate. For instance, the sound spelled <t> in *native*, [t], is not palatalized; it is pronounced forward in the mouth, with the tongue pressed against the upper dental ridge. But the sound spelled <t> in *nation*, [sh] is palatalized; it is pronounced well back in the mouth. 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*.

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], as in *shush*, with the <sh> spelling, [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*.

There are several different palatalizations. For instance, palatalization leads to [sh] being spelled not only <t> in *nation*, but <s> in *dimension*, <ss> in *succession*, <sc> in *luscious*, and <c> in *ancient*, and in *sexual* the complex sound [ksh] is spelled <x>. 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*), has developed some palatalized spellings: It is <s> in *casual* and *leisure*, <z> in *seizure* and *azure*, even <t> again in *equation*.

Out of this tangle of palatalized spellings, we will focus on just one subgroup. Since the suffix *-ion*, which forms nouns out of verbs, as in *act* and *action*, is so common, we will focus on palatalization at the ends of stems when they add *-ion*.

This means that we will be dealing with the so-called "shun" words — that is, words that end with the syllable [shən], spelled <tion> (*nation*), <sion> (*dimension*), or <ssion> (*succession*). We will also work with some "zhun" words, like *conversion*.

The Suffix *-ion* and [shən]. Even this subgroup is quite a tangle, but we can begin to straighten it out by using the standard procedures we discussed earlier and the standard tactics for thinking about words and their spellings.

Two Basic Spelling Procedures

Simple Addition: Adding elements together unchanged.

Final <e> Deletion: Deleting the silent final <e> from the stem when adding a suffix starting with a vowel.

In Array 62 you are sometimes given a verb, sometimes a noun. When you are given a verb, add *-ion* to it and put the noun you have formed into the "Noun" column. When you are given a noun, subtract *-ion* from it and put the verb you have formed into the "Verb" column. In either case, put the last two letters of each verb stem into the right-hand column. The first example of each kind has been done for you.

Array 62

Verb	Noun	Last Two Letters of Verb
abort	*abortion*	*<rt>*
act	*action*	*<ct>*
addict	*addiction*	*<ct>*
assert	*assertion*	*<rt>*
construct	*construction*	*<ct>*
convict	*conviction*	*<ct>*
corrupt	*corruption*	*<pt>*
direct	*direction*	*<ct>*
discuss	*discussion*	*<ss>*
distort	*distortion*	*<rt>*
except	*exception*	*<pt>*
exempt	exemption	*<pt>*
express	expression	*<ss>*
insert	insertion	*<rt>*

Verb	Noun	Last Two Letters of Verb
intersect	intersection	<*ct*>
invent	invention	<*nt*>
process	procession	<*ss*>
recess	recession	<*ss*>
select	selection	<*ct*>
subtract	subtraction	<*ct*>

Look at the column listing the last two letters of the verbs. What endings did you find there? *<rt, ct, pt, ss, nt> (<t> with a consonant in front or <ss>)* What is the spelling procedure involved when adding *-ion* to these words? *Simple Addition* Do all of the nouns thus formed end with the sound [shən]? *Yes*

Write a sentence describing what you have learned about adding *-ion* to this kind of verb: *When adding* -ion *to a verb that ends in <ss> or in <rt, ct, pt, nt> the Rule of Simple Addition applies.*

Add *-ion* to each of the verbs in Array 63 to form a noun; then put the last two letters of each verb in the "Last two letters" column:

Array 63

Verb	Noun	Last Two Letters of Verb
edit	*edition*	<*it*>
audit	*audition*	<*it*>
transit	*transition*	<*it*>
intuit	*intuition*	<*it*>
inhibit	*inhibition*	<*it*>
prohibit	*prohibition*	<*it*>
exhibit	*exhibition*	<*it*>

What procedure is involved when you add *-ion* to these verbs? *Simple Addition*

In Array 64 when you are given the verb, add *-ion* to it, using the "Analysis" column to show the procedure involved. In the "Noun" column write the noun you form. When you are given the noun, subtract *-ion* from it, again showing the procedure involved, and write the verb in the "Verb" column. In either case put the last three letters of the verb in the "Last three letters" column.

Array 64

Verb	Analysis	Noun	Last Three Letters
abbreviate	*abbreviaté+ion*	*abbreviation*	*<ate>*
associate	*associaté+ion*	*association*	*<ate>*
complete	*completé+ion*	*completion*	*<ete>*
constitute	*constitutė+ion*	*constitution*	*<ute>*
contribute	*contributė+ion*	*contribution*	*<ute>*
delete	*deletė+ion*	*deletion*	*<ete>*
devote	*devotė+ion*	*devotion*	*<ote>*
distribute	*distributė+ion*	*distribution*	*<ute>*
expedite	*expeditė+ion*	*expedition*	*<ite>*
graduate	*graduaté+ion*	*graduation*	*<ate>*
ignite	*ignitė+ion*	ignition	*<ite>*
imitate	*imitaté+ion*	imitation	*<ate>*
obligate	*obligaté+ion*	obligation	*<ate>*
pollute	*pollutė+ion*	pollution	*<ute>*
promote	*promotė+ion*	promotion	*<ote>*
recreate	*recreaté+ion*	recreation	*<ate>*
stagnate	*stagnaté+ion*	stagnation	*<ate>*
vacate	*vacaté+ion*	vacation	*<ate>*

What are the last three letters in all of the verbs in Array 64 -- vcv, cvv, or what? *vcv*

When adding *-ion* to verbs ending in this three-letter pattern, the procedure involved is _

final <e> deletion The nouns thus formed will end with a syllable that is pronounced [*shən*]

The following puzzle includes 20 *-ion* words:

10-letter words: deductions, deceptions, conception, cognitions, permission, salutation, perception

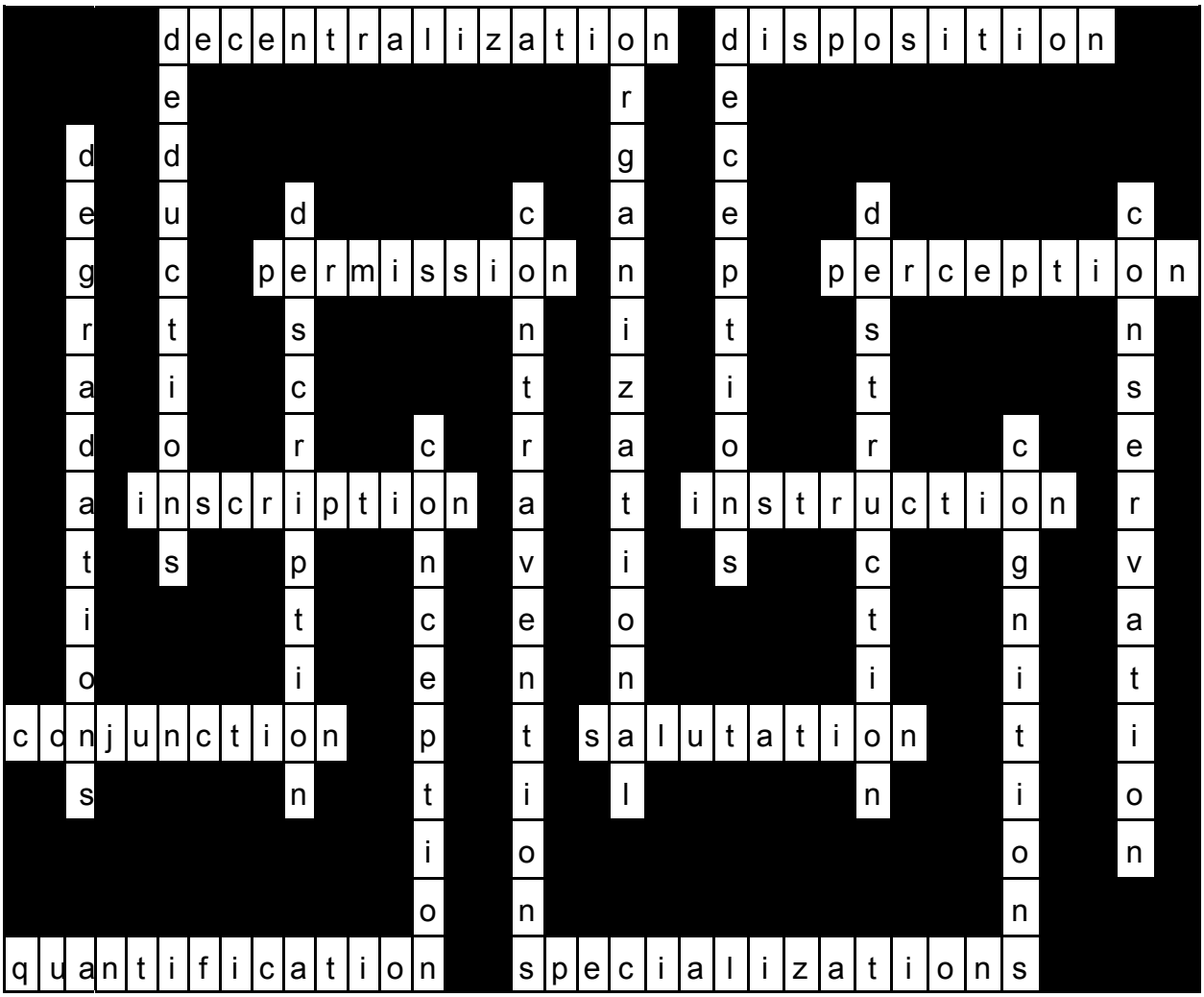
11-letter words: description, destruction, disposition, instruction, inscription, conjunction

12-letter words: degradations, conservation

14-letter words: contraventions, quantification, organizational

15-letter word: specializations

16-letter word: decentralization



Teaching Note. The positions of *deductions* and *deceptions* can be reversed in the puzzle.

Words with <ition>. Many "shun" words are really "ishun" words — that is, they end in [ishən], spelled <ition>. You've worked with some already: Array 63 contained seven of them, like *prohibition*. In those words the <it> was at the end of the verb, and you formed the noun by simply adding the suffix *-ion*. Array 64 also contained two <ition> words, *ignition* and *expedition*. In these cases the verbs ended <ite> and you deleted the final <e> when you added *-ion*.

There are other kinds of <ition> words, too. In many cases, especially with verbs that contain the base *pose*, when you add *-ion* to the verb, you must insert another suffix, *-ite*, and then delete the final <e> from *-ite*. For instance, *definition = define + ite + ion*. We have no word spelled simply <definion>. In this case we do have the intermediate

form: *define + ite, definite*. But in most cases we do not have an intermediate form ending in *-ite*. For instance, we have *dispose* and *disposition*, but we do not have the intermediate <disposite.> We could have. It is a possible word, waiting there in the possibilities of the language for someone to find a use for it.

In the first half of Array 65 you are given some verbs that form nouns by adding *-ité + ion*. In some cases there will also be an intermediate form, either a noun or an adjective, ending in *-ite*, as was the case with *definite*. Put any such *-ite* forms in the "Form with *-ite*" column. When there is no intermediate *-ite* form shown in your dictionary, as was the case with <disposite>, just leave the "Form with *-ite*" column blank. In the second half of the array you are given the nouns. Your job then is to work back to the verbs, showing your analysis and indicating any -ite forms you find.

Array 65

Verb	Noun	Analysis	Form with *-ite*
define	*definition*	*define+ité+ion*	*definite*
compose	*composition*	*composé+ité+ion*	*composite*
propose	*proposition*	*proposé+ité+ion*	
appose	*apposition*	*apposé+ité+ion*	*apposite*
add	*addition*	*add+ité+ion*	
oppose	opposition	*opposé+ité+ion*	*opposite*
suppose	supposition	*supposé+ité+ion*	
transpose	transposition	*transposé+ité+ion*	
compete	competition	*competé+ité+ion*	
juxtapose	juxtaposition	*juxtaposé+ité+ion*	

Teaching Note. *Webster's Third Unadbridged* does show *supposit*, with no final <e>. The *Oxford English Dictionary* shows an obsolete *proposite* and a now rare *supposite*, meaning "a being that exists by itself" and "a grammatical subject."

Sets. Look at these pairs of words: *transmit, transmission; receive, reception; inscribe, inscription; presume, presumption*. It is pretty clear that the second word in each pair, the noun, is directly related to the first word, the verb. The bases in these words belong to what we can call **sets**. A **set** consists of two or more elements that work together as a team. They are related etymologically and they are usually more or less similar in spelling and meaning. We put the elements of a set inside curly brackets, like this: {*mit,*

miss}, {*ceive, cept*}, {*scribe, script*}, and {*sume, sumpt*}. With such sets we choose one element in certain settings, another in different settings. For instance, if you want to form a verb, choose *mit*, but when you want to form a noun with *-ion* from that verb, you have to choose *miss*, so it is *transmit* but *transmission*.

In the first part of Array 66 you are given some verbs and the set to which the base of each verb belongs. Your job is to choose a different base from the set so that you form a correctly spelled noun ending in *-ion*. In the bottom part of the array you are given the nouns, which you should convert to verbs by subtracting the *-ion* and selecting the proper form for the base. The first one is done for you.

Array 66

Verbs	**Sets**	**Nouns in *-ion***
transmit	{mit, miss}	*transmission*
commit	{mit, miss}	*commission*
submit	{mit, miss}	*submission*
omit	{mit, miss}	*omission*
prescribe	{scribe, script}	*prescription*
receive	{ceive, cept}	*reception*
produce	{duce, duct}	*production*
assume	{sume, sumpt}	*assumption*
attend	{tend, tent[1], tense}	*attention*
retain	{tain, tent[2]}	*retention*
abstain	{tain, tent[2]}	*abstention*
remit	{mit, miss}	remission
admit	{mit, miss}	admission
emit	{mit, miss}	emission
intermit	{mit, miss}	intermission
describe	{scribe, script}	description
perceive	{ceive, cept}	perception
conceive	{ceive, cept}	conception
reduce	{duce, duct}	reduction

Verbs	Sets	Nouns in *-ion*
retain	{tain, tent[2]}	retention
consume	{sume, sumpt}	consumption

Teaching Note. *Tent*[1] descends from Latin *tendere*, “to stretch”; *tent*[2] descends from Latin *tenere*, “to hold or keep.”

The {*mit, miss*} set demonstrates an important point: According to the Twinning Rule, you might expect verbs ending in <mit> to twin the <t> when adding *-ion*. But they do not; they take the base *miss* from the set instead. Twinning would lead to <admittion>. And the sound [shən] is never spelled <ttion> in English. It can be <tion>, <sion>, or <ssion> — but never <ttion>.

The Set {*cede, ceed, cess*}. There are some fairly common and important verbs that descend from the Latin verb *cedere*, "to go." These verbs all contain a base that is pronounced with a long <e>, but sometimes is spelled <cede>, sometimes <ceed>. The set {*cede, ceed, cess*} can create a nasty problem for spellers.

Part of the problem is due to the fact that in the word *proceed* the base is spelled <ceed> and remains <ceed> in inflected forms like *proceeding*, but when it adds the suffix *-ure*, it shifts to the base in the set spelled <cede>: *procedure*. It helps to remember that *exceed, proceed*, and *succeed* are the only three verbs that choose the base spelled <ceed>. Some memory gimmicks can help, too. You could try a sentence like "If you **proceed** and do not **exceed**, you will **succeed**." Or just remember the word SPEED: The <S> reminds you of *succeed*, the <P> reminds you of *proceed*, the <E> of *exceed*, and the <EED> reminds you of the spelling of the base itself, ceed:

Succeed
Proceed
Exceed
E
D

Array 67 requires that you add *-ion* to each of the verbs listed, forming nouns that go into the "Nouns" column. In the "Minus *-ion*" column, write in any words you get by simply subtracting the *-ion* from the nouns. If you don't get a word when you subtract the *-ion*, just leave the "Minus *-ion*" column blank. In the second half of the array you go at it the other way around, starting with the noun. The first one has been done for you.

Array 67

Verbs	Nouns in *-ion*	Minus *-ion*
accede	*accession*	*access*
concede	*concession*	
intercede	*intercession*	
precede	*precession*	*precess*
proceed	*procession*	*process*
recede	recession	*recess*
secede	secession	
succeed	succession	*success*
proceed	procession	*process*

Teaching Note. The *OED* shows an obsolete noun *concess* meaning "concession," an obsolete verb *intercess* meaning "to intercede," and an obsolete noun *secess* meaning "a withdrawing, retirement." *Supersede*, often misspelled *supercede, is completely unrelated to the {*cede, ceed, cess*} set. It comes from Latin *sedēre*, "to sit."

Write a sentence describing what happens when you add *-ion* to verbs with the base spelled <cede> or <ceed>. When you add *-ion* to verbs ending in *cede* and *ceed*, you replace the base with *cess*.

The Set {*tend, tent[1], tense*}. Earlier we said that [shən] cannot be spelled <ttion>. It also cannot be spelled <dion>, which affects what happens when *-ion* is added to verbs with the base *tend* from the set {*tend, tent[1], tense*}. In Array 68 you are given some verbs and nouns with bases from this set. Your job is to analyze the nouns.

Array 68

Verbs	Nouns	Analysis
pretend	pretension	*pretens+ion*
extend	extension	*extens+ion*
contend	contension	*contens+ion*
intend	intention	*intent+ion*
intend	intension	intens+ion

Verbs	Nouns	Analysis
attend	attention	attent+ion
distend	distension	distens∉+ion
distend	distention	distent+ion

Clearly there is the stuff of spelling problems here. When should it be <tion>? When <sion>? And what are the differences between the two nouns formed from *intend* and between the two formed from *distend*?

There is one easy answer here: The noun formed from *distend* is just one word that can be spelled either of two ways, <distention> or <distension>. So you can just take your pick of the spellings — no problems. However, *intention* and *intension* are two quite different words: *Intention* is the more common word, meaning something like "purpose, motive." *Intension* is a rare technical term, used by logicians and semanticists.

All in all, it makes sense to start by saying, "When adding *-ion* to verbs with the base *tend*, usually its <tion>, seldom <sion,> and never <dion>." The only two you are likely to encounter with <sion> are *extension* and *pretension*. And they are just a plain nasty pair. Notice, for instance, that we have *extensive* but also *extent*! And we also have *pretense* but *pretentious*.

Write a sentence or two describing what happens when you add *-ion* to verbs with the base *tend*:

When you add *-ion* to verbs that end with the base *tend*, except for *extension* and *pretension*, you use the base *tent*, so [shən] is spelled <tion>.

Some Conclusions about [shən]. As you've seen, verbs like *succeed* and *commit* involve some fancy procedures when *-ion* is added to them. But beyond that they behave regularly enough. That is, they form nouns that end with [shən] spelled <tion>, <sion>, or <ssion>. Array 69 gives you some more work with nouns ending in <ssion> and <tion> pronounced [shən]. Sort the nouns into the two groups described in the array:

Array 69

abbreviation	composition	discussion	omission
action	concession	distortion	opposition
attention	deception	exhibition	organization
competition	description	exhilaration	succession
completion	detention	tension	transmission

Words Ending in <tion>		Words in <sion> and <ssion>
abbreviation	*description*	*concession*
action	*detention*	*discussion*
attention	*distortion*	*tension*
competition	*exhibition*	*omission*
completion	*exhilaration*	*succession*
composition	*opposition*	*transmission*
deception	*organization*	

In words ending in [shən] spelled <tion> what letters precede the <t>? *<a>, <c>, <n>, <i>, <e>, <p>*, and *<r>.* In words ending in [shən] spelled <ssion> what letters precede the <ss>?

<e>, <i>, and *<u>* In words ending in [shən] spelled <sion> what precedes the <s>? *<n>*

Teaching Note. In all 32 words that end in [shən] spelled <sion> found in a 130,000 word database the <s> was preceded by <n>.

Obviously the issue of adding *-ion* to turn verbs into nouns that end with the sound [shən] is a complicated one. But it is not chaotic, nor is it whimsical. It is systematic and patterned. Admittedly, there is a bit of perversity injected here and there, as with <ceed> and <cede> or with <tent> and <tense>. The foregoing pages, though not complete, at least block out the main lines of the issue — and suggest some things to expect when spelling *-ion* nouns that end with the sound [shən].

Write a brief paragraph describing as clearly and concisely — and thoroughly — as possible what you have learned so far about adding *-ion* to verbs to form nouns.

When you add -ion *to form a noun that ends with the sound [shən],use Simple Addition*

*if the verb ends in <t> or <ss> and delete the final <e> if the verb ends in silent final <e>. Sometimes you must select a different base from a set, as in [*mit, miss*], [*scribe, script*], [*ceive, cept*], [*duce, duct*], [*sume, sumpt*], [*tend, tent[1], tense*], [*tain, tent[2]*], and [*cede, ceed, cess*]. In the set [*tend, tent[1], tense*], only the nouns* extension *and* pretension *take* tense*; all others take* tent.

The Suffix -*ion* and [zhən]. Usually nouns that are formed by adding -*ion* to a verb end with the sound [shən]. But sometimes these words can end with [zhən]. The difference between [zh] and [sh] is slight enough that you may have some trouble hearing it.

[zh] is the sound spelled <z> in *azure* [sh] is the sound spelled <sh> in *ashes*

Write down the sounds you hear at the end of each noun in Array 70, [zhən] or [shən].

Array 70

Nouns	Sounds
adoption	*[shən]*
compression	*[shən]*
constitution	*[shən]*
conversion	*[zhən]*
donation	*[shən]*
eviction	*[shən]*
exertion	*[shən]*
explosion	*[zhən]*
extradition	*[shən]*
immersion	*[zhən]*
precision	*[zhən]*
prevention	*[shən]*

Check in your dictionary to see how well you did. If you had problems, go back over the list, pronouncing each word carefully as your dictionary describes it. Listen for the

difference in sound between [sh] and [zh].

Sometimes although you can't hear the difference at first, you can feel it— just as with the two sounds of <th> in *bath* and *bathe*. Put your fingers lightly on your throat just under your chin. Say [sh] several times. You should feel no buzzing. Now say [zh]. You should feel a buzzing caused by the vibration of your vocal cords. You vibrate your vocal cords when you say [zh] but not when you say [sh]. (Also, the sound [zh] is very similar to the sound [j]. Some words, like *garage*, can be pronounced with either a final [j] or a [zh].)

Now try the words in Array 71 Listen for the difference between [zhən] and [shən] and write down what you hear.

Array 71

Nouns	Sounds
affection	*[shən]*
contradiction	*[shən]*
diversion	*[zhən]*
exertion	*[shən]*
interruption	*[shən]*
invasion	*[zhən]*
inversion	*[zhən]*
propulsion	*[zhən]*
retrogression	*[shən]*
revision	*[zhən]*

Now look at the nouns in Array 72, all of which end with [zhən]. Decide what verb the noun is derived from and write it in the "Verb" column. You'll notice that some sets are involved here, accounting for the <r> in *adhere* changing to an <s> in *adhesion*. But we are mostly concerned here with the spelling of [zhən].

Array 72

Noun	Verb	Spelling of [zhən]
adhesion	*adhere*	*<sion>*
explosion	*explode*	*<sion>*
erosion	*erode*	*<sion>*
corrosion	*corrode*	*<sion>*
division	*divide*	*<sion>*
revision	*revise*	*<sion>*
collision	*collide*	*<sion>*
evasion	*evade*	*<sion>*
conclusion	*conclude*	*<sion>*
submersion	*submerge*	*<sion>*
immersion	*immerse*	*<sion>*
precision	*precise*	*<sion>*
prevision	*previse*	*<sion>*
diffusion	*diffuse*	*<sion>*
confusion	*confuse*	*<sion>*
transfusion	*transfuse*	*<ion>*
perversion	*pervert*	*<sion>*
diversion	*divert*	*<sion>*

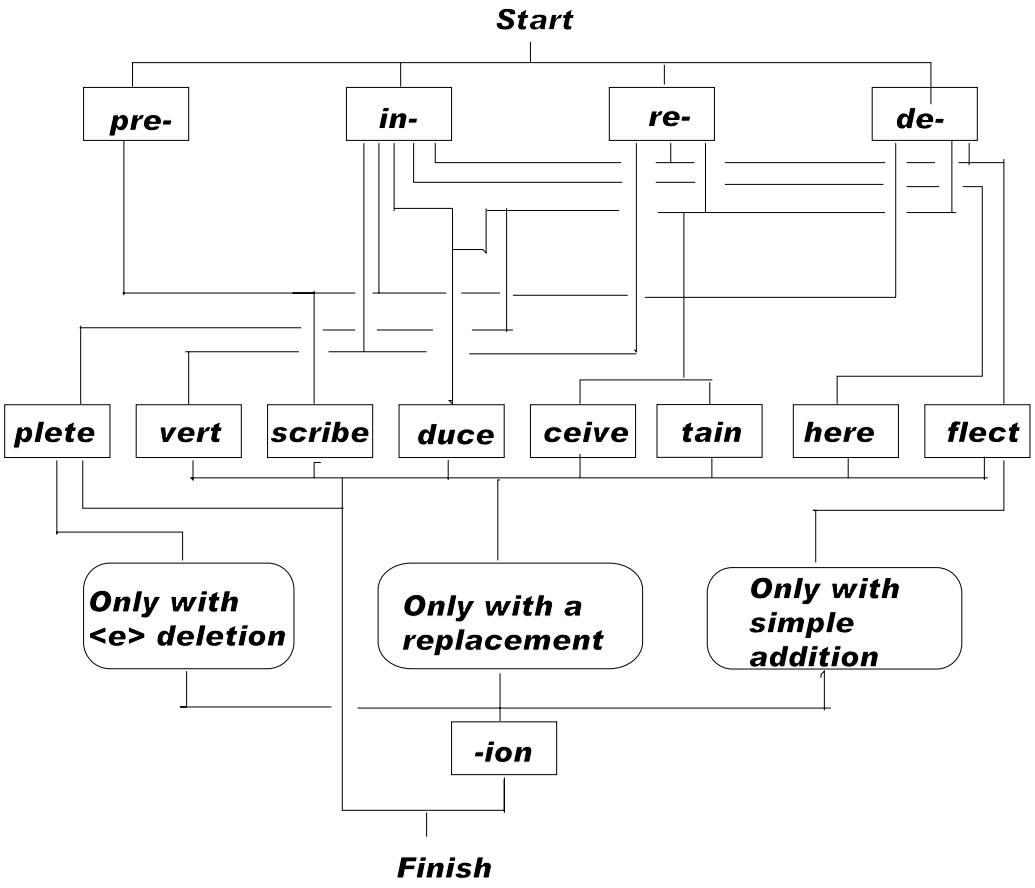
Teaching Note. It takes a pretty big dictionary to find *precise* as a verb, but *Webster's Third Unabridged* does list it.

How is [zhən] spelled in all these words? *<sion>* Is it spelled any other way in the words you've worked with in 70, 71, and 72? *No* Now you get a chance to write a really easy spelling rule. Write a sentence describing how [*zhən]* is spelled at the end of nouns ending in *-ion*: *In nouns that end in* -ion *[zhən] is always spelled <sion>.*

Summing Up. You have observed many changes that occur when *-ion* is added to verbs to make nouns. Go over your work on *-ion* and write a statement that summarizes all you have learned about adding *-ion* to verbs:

When you add -ion *to a verb to form a noun that ends in [zhən], the [zhən] is spelled <sion>.* (**Note**: From here on, the statement should be essentially a version of what was said in the statement the student wrote following Array 69.)

The flow chart below gives you a chance to work with verbs that add *-ion* to form nouns. A number of them involve bases that come in sets, and when you add *-ion* to them, you must replace the base given in the chart with one of its partners in a set. If you trace your way through correctly and make the correct replacements, you should form eighteen verbs and eighteen nouns.



Verbs		Nouns	
deflect	*retain*	*deflection*	*retention*
deceive	*replete*	*deception*	*repletion*
detain	*reduce*	*detention*	*reduction*
deplete	*revert*	*depletion*	*reversion*
deduce	*inflect*	*deduction*	*inflection*
describe	*induce*	*description*	*induction*
reflect	*inscribe*	*reflection*	*inscription*
receive	*invert*	*reception*	*inversion*
inhere	*prescribe*	*inhesion*	*prescription*

Teaching Note. *Webster's Third* lists the verb *replete*, "to fill to satiety, to stuff; to replenish."

Name _____ Date _____

Word	Is the ending [shən] or [zhən]?	How is it spelled?
0. donation	*[shən]*	<tion>
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Word	Is the ending [shən] or [zhən]?	How is it spelled?
1. procession	[shən]	<ssion>
2. description	[shən]	<tion>
3. revision	[zhən]	<sion>
4. immersion	[zhən]	<sion>
5. omission	[shən]	<ssion>
6. diversion	[zhən]	<sion>
7. inhibition	[shən]	<tion>
8. constitution	[shən]	<tion>
9. competition	[shən]	<tion>
10. abbreviation	[shən]	<tion>

13 <I> Before <E>

It's <i> before <e>, except after <c>
Or when sounded [ā], as in *neighbor* or *weigh*.

—Folk Wisdom

The Original Rule. That little jingle, or at least the first line of it, is probably the best known bit of spelling wisdom around. And it can be very useful, because often <i> and <e> do come together in a word, and you can't always remember which comes first. So if you can remember both lines of the jingle, and understand what they mean, they can help.

Notice that the jingle describes three different cases so far as <i> and <e> are concerned:

According to the first half of line one in the jingle, which is usually the case, <ie> or <ei>? _<*ie*>_ According to the second half of line one in the jingle, which is usual, <cie> or <cei>? _<*cei*>_ According to the second line, how is the sound [ā] spelled, <ei> or <ie>? _<*ei*>_

It's easier to get things straight if you arrange ses in reverse order:

Case 1. If you're spelling the sound [ā], is it <ei> or <ie>? _<*ei*>_

Case 2. If you're spelling something right after the letter <c>, is it <ei> or <ie>? _<*ei*>_

Case 3. In every other case it's _<*ie*>_.

Any words that fit any one of those three cases are **instances** of the rule. Any words that do not fit into one of the three cases are **holdouts**. Among the following twelve words you should find six instances and six holdouts to the <i> before <e> rule. Sort the words into the two groups described below — and be ready to explain your sorting:

Array 73

achieve	deceit	grief	neighbor
ancient	weird	foreign	society
height	eight	herein	hygiene

Instances of the Rule	Holdouts to the Rule
achieve	*ancient*
deceit	*height*
eight	*weird*
grief	*foreign*
neighbor	*herein*
hygiene	*society*

As it stands, our rule is "leaky" — that is, it lets too many holdouts through. In fact, it lets so many through that you can't trust it, and a rule that you can't trust is in some ways worse than no rule at all. We have to plug some of the leaks. And the way to do that is to add more details to the rule. The more detail we add, the less leaky the rule will be.

Read each of the 50 words in Array 74, pronouncing each word aloud. If you are not sure of what a word means or how it is pronounced, look it up in your dictionary. You should find 21 words that are instances of the rule — that is, words that fit one of the three cases described on page 136 — and 29 words that are holdouts. Sort the words into the four groups described.

Array 74

achieved	eiderdown	hygiene	receive	society
ancient	eight	iciest	reign	sovreign
believe	feisty	kaleidoscope	relieve	stein
ceiling	financier	leisure	science	surfeit
conceive	foreign	lie	seeing	therein
conscience	forfeit	neighbor	seismic	tie
counterfeit	grief	niece	seize	vein
deceit	heifer	piece	shriek	vie
die	height	poltergeist	siege	weir
efficiency	herein	protein	sleight	weird

Instances of the rule with <ie>		Instances with <cei>	Instances with <ei> spelling [ā]
achieved	*piece*	*ceiling*	*eight*
believe	*relieve*	*conceive*	*neighbor*
die	*shriek*	*deceit*	*reign*
grief	*siege*	*receive*	*vein*
hygiene	*tie*		
lie	*vie*		
niece			
Holdouts to the Rule			
ancient	*forfeit*	*protein*	*stein*
conscience	*heifer*	*science*	*surfeit*
counterfeit	*height*	*seeing*	*therein*
efficiency	*herein*	*seismic*	*weir*
eiderdown	*iciest*	*seize*	*weird*
feisty	*kaleidoscope*	*sleight*	
financier	*leisure*	*society*	
foreign	*poltergeist*	*sovereign*	

Teaching Note. Array 74 can be difficult for students. A good classroom activity, beyond checking for the correct listing of instances and holdouts, is to go over a number of instances, asking "What makes this word an instance?" Answers will be "Because it has <ei> after <c>, because it has <ei> spellling [ā], or because it has <ie> that is not right after <c> and is not spelling [ā]." Then go over a number of the holdouts, asking "What makes this word a holdout?" Answers: "Because it has an <ei> that is not right after <c> and is not spelling [ā]" or "because it has <ie> right after <c>." It is worth taking some time to be sure the students have those three cases clear in mind and can identify with some ease instances of and holdouts to them.

The First Revision. The first detail we want to add to the rule concerns where the <i> and <e> are in the word. If the <e> is in one element — say, in the base — and the <i> is in a different element — say, in a suffix — you are not likely to get the <e> and <i> mixed up so long as you recognize the elements with which you are working. For instance, the word *being* is a holdout to the rule, but if you recognize that the base is *be*

and the suffix is *-ing*, you are not likely to try spelling the word <*bieng*>. So the first thing we can do is to restrict our rule to only those cases where the <i> and <e> come in the same element in the word, because in other cases we don't need the rule to help us out.

Before you go on to Array 75, study the three boxes below. They will acquaint you with one base and four suffixes that will help you see some important element boundaries:

Three useful suffixes that start with <e>:
1. *-ent*, "doing or being" (forms adjectives)
2. *-ence*, "act or state" (forms nouns)
3. *-ency*, "quality or state"(forms nouns)

Five words with the same base:
society social sociable association dissociate
What is the base? *soci*
Notice that the base ends with <i>

Seven words with the same suffix:
financier bombardier cashier clothier hosier glazier courtier
What is the suffix? *-ier*
Are the <i> and <e> in the same element? *Yes*

Teaching Note. In answering the questions in the second and third boxes above, the easiest and best strategy might be called the Principle of the Longest Common String: Tell students who might be fuddled simply to look for the longest string of letters that all five or seven words have in common. Those longest common strings will be the base and suffix we're looking for. This is not an infallible strategy, but it works often enough to be useful.

Go back to Array 74 and look at the list of 29 holdouts there. Among them you should find nine words in which the <i> is in one element and the <e> is in another. Find them and write them into Array 75 below. As you write them down, mark them off the list of holdouts in Array 74.

Array 75

Words in which the <i> and <e> are in Different Elements		
ancient	*herein*	*seeing*
conscience	*iciest*	*society*
efficiency	*science*	*therein*

Be sure you cross these nine off of your list in Array 74, because they are no longer holdouts. Now we can add this new detail to the <i> before <e> rule, so as to account for these nine and thus make the rule less leaky:

> **Within a single element** it's <i> before <e>, except after <c>,
> Or when sounded [ā], as in *neighbor* or *weigh*.

Long <i> Spelled <ei>. The original rule makes a special case of words in which <ei> spells [ā]. We are going to look now at words in which <ei> and <ie> spell [ī]. You should find eight such words among those left on your list of holdouts in Array 74 and four of them among your list of instances with <ie>. Find the twelve and sort them into the two groups described below. As you do so, cross them off of your lists in Array 74.

Array 76

Words with [ī] at the End	Words with [ī] at the Beginning or in the Middle	
die	*eiderdown*	*poltergeist*
lie	*feisty*	*seismic*
tie	*height*	*sleight*
vie	*kaleidoscope*	*stein*

When the sound [ī] is at the end of the word, is it spelled <ie> or <ei>? *<ie>* When the sound [ī] is at the front or in the middle of a word, is it spelled <ie> or <ei>? *<ei>*

Now we can add another detail to our <i> before <e> rule, thus closing another leak:

> Within a single element it is always <i> before <e>, except after <c>
> Or when sounded [ā] as in *neighbor* or *weigh*,
> **Or when sounded [ī] and not at the end of the word.**

Special Cases and Hardcore Holdouts. It doesn't rhyme so well now, but it doesn't leak so much, either. In fact, it has only around a dozen hardcore holdouts. But before we deal with those holdouts, there are some special cases we should look at:

Either, neither. When these two are pronounced with <ei> spelling long <e>, they would seem to be holdouts. But although some people pronounce them with long <e>, some pronounce them with long <i> (and some shift back and forth in different

situations). Since they can be pronounced correctly with long <i> spelled <ei> at the front (*either*) or in the middle (*neither*), they are instances of our revised rule.

***Inveigle, sheik*.** Each of these two words also has two accepted pronunciations. Since they can correctly be pronounced with <ei> spelling long <a>, they are also instances of our rule.

***Their, heir*.** In most parts of the country the <ei> in these two can be accurately described as a long <a>. The [r] coming right after changes the vowel sound somewhat so that it sounds a little like [e] rather than a pure [ā] (you might compare, say, the vowel sound in *heir* with that in *ate*). But for our purposes we can still treat these as two more instances in which long <a> is spelled <ei>.

Look at your list of holdouts in Array 74. Among them you will find three words that all contain the same base, a base that contains the <ei> spelling. What are the words?

counterfeit	*forfeit*	*surfeit*

And what is the base? *feit*

If you remember just one of these three words, as an example of that base, you've accounted for all three. Pick one and cross the other two off of your list of holdouts in Array 74.

Now you should have only ten hardcore holdouts left on your list in Array 74. If you have more or less than that, go back and check your work.

To these ten we must add two more: *fiery* and *hierarchy*. According to the original jingle, these would not be holdouts, but with our revision concerning long <i> spelled <ei>, they now are holdouts. As with any holdouts there is not much we can do except remember them, though knowing something about them can help with the remembering. *Fiery* is clearly *fire* + *y*, which ought to be <firy> after the <e> is deleted. But hundreds of years ago there was much indecision about how to spell both *fire* and *fiery*. Apparently the spelling of *fiery* is based on a common earlier spelling of *fire* as <fier>. *Hierarchy* (along with all the other words with the base *hier*, like *hieroglyphics*) comes from a Greek word, *ieros*, meaning "sacred." Not much help there, except to remember that as you move up a hierarchy, you get **hi**gher.

Just to get all twelve of the hardcore holdouts together, write them into Array 77.

Array 77

Hardcore Holdouts to the <i> Before <e> Rule		
counterfeit	*heifer*	*seized*
fiery	*hierarchy*	*sovereign*
financier	*leisure*	*weir*
foreign	*protein*	*weird*

Twelve holdouts are not too many for a rule that has as many instances as our revised <i> before <e> rule has. But it's a good idea to try to remember as many of these twelve as you can. A relatively easy way to do that is to borrow a trick from the memory experts: Make up a little scene that can be described in one sentence that contains all twelve holdout words. Get the picture of the scene clearly in your mind. Here's an example of the scene, followed by a sentence that describes it, using all twelve holdouts:

Scene: A strange looking old gent with flashing eyes and hundred dollar bills sticking out of his pocket is grabbing a young cow alongside a small dam in a small creek while the king and his court snooze away.

Description: "The **weird foreign financier** with **fiery** eyes and no taste for **counterfeit protein seized** the **sovereign**'s **heifer** beside the **weir** as the **hierarchy** took their **leisure**."

The idea is that you can easily remember the scene, which will remind you of the description, which will remind you of the twelve holdouts. People have been using this kind of device for centuries to help them remember various kinds of lists.

But it works best if you create your own scene and compose your own description. So try you own version. It works better if the scene is a bit whacky.

Scene: _____

_____

_____

_____

Description: _____

_____

_____

_____

Your Final Rule. Now go over this chapter and rewrite the <i> before <e> rule so that it has no more than the twelve holdouts we worked it down to. Try to make your statement of the rule as short and clean as you can. And if you can make it rhyme, so much the better!

The New Revised <I>-Before-<E> Rule: *This should be some version of the framed statement following Array 76.*

The puzzle below contains 24 <ei> words. As you find them, sort them into the four groups described below the puzzle — three groups of instances and one small group of holdouts.

d	e	i	g	n	h	c	e	i	l	i	n	g	e	h
e	d	e	i	p	s	r	e	c	e	i	p	t	i	e
c	e	f	r	o	t	e	i	m	i	g	h	t	h	i
e	c	k	a	l	e	i	d	o	s	c	o	p	e	n
i	e	s	g	t	i	r	v	b	u	p	v	n	i	o
v	i	e	h	e	n	r	e	e	r	o	e	e	g	v
e	t	i	t	r	g	h	i	i	e	l	i	i	h	s
w	w	e	i	g	h	t	n	s	e	i	l	g	t	e
s	u	r	v	e	i	l	l	a	n	c	e	h	i	i
r	e	i	n	i	e	g	h	n	s	t	e	b	v	g
v	s	e	i	s	m	i	c	c	e	g	n	o	e	h
f	e	i	s	t	y	r	s	e	i	z	u	r	e	t
e	i	p	e	r	c	e	i	v	e	s	h	e	i	k

Instances with [ā] Spelled <ei>		Instances with <cei>	Instances with [ī] Spelled <ei>
deign	*surveillance*	*deceive*	*kaleidoscope*
veil	*weight*	*deceit*	*poltergeist*
neighbor	*sheik*	*ceiling*	*stein*
eight	*vein*	*receipt*	*height*
rein	*obeisance*	*perceive*	*feisty*
			seismic

Holdouts	
leisure	*seizure*

Name _____ Date _____

Word	Is it an instance of or a holdout to the <i> before <e> rule?
0. *conscience*	*Instance*
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Word	Is it an instance of or a holdout to the <i> before <e> rule?
1. ceiling	Instance
2. protein	Holdout
3. seizures	Holdout
4. deceitfully	Instance
5. hygiene	Instance
6. forfeit	Holdout
7. weirdly	Holdout
8. sleight	Instance
9. achiever	Instance
10. foreignness	Holdout

14 The Elusive Schwa

What Schwa Is. Schwa is the weak, rather nondescript sound you hear at the beginning of *along* or *upon*. It is like a very weak [u] sound and is represented with an inverted <e>, [ə]. It is the most common vowel sound in English because most vowels, when they are unstressed, tend to reduce to the sound of schwa. As we saw in the discussion of unstressed suffixes like *-ate* in chapter 9, some unstressed vowels tend to become [i], as in the adjective form of *approximate*, where the second <a> is unstressed and pronounced [i] in contrast with the verb form, where the second <a> is stressed and pronounced [ā]. In fact, *Webster's Third Unabridged* dictionary uses a special symbol, a dotted schwa, to indicate the range of sounds that reduced vowels can have, from pure [ə] to [i].

Though there is quite a range of sounds that unstressed vowels can have, we will speak simply in terms of schwa. For schwa is a formidable problem in and of itself, perhaps the largest single problem in English spelling.

The problem — though not its solution! — is simple enough: Schwa is hard to spell because it can be spelled by any vowel letter and nearly any combination of vowel letters. The bold face letters in the following words represent twenty different spellings of schwa:

abridge	serg**ea**nt	cab**i**net	**o**bscure
halleluj**ah**	bur**eau**crat	parl**ia**ment	tort**oi**se
mount**ai**n	sover**ei**gn	pat**ie**nt	miracul**ou**s
ep**au**let	lunch**eo**n	anx**iou**s	calcul**u**s
emerg**e**ncy	right**eou**s	nasturt**iu**m	ox**y**gen

When you are trying to spell schwa, sounding out the word will not help. What does help is thinking through the word, learning the kinds of things you've been learning about elements, procedures, and word stress. Though there are no easy and simple rules for spelling schwa (and probably never can be), it helps to know some things about how words work. The most useful help has to do with word stress and stress-shifting.

Schwa and Stress-shifting. Schwa is always weakly stressed. But if you can shift the stress onto the syllable that contains the schwa, you can usually hear the fuller vowel sound that the schwa is reducing. Often you can shift the stress by adding and subtracting elements.

In the word *confidence*, for example, the last two vowel sounds are schwas: [konˈfədəns], with stress on the first vowel, the [o]. But if we remove the suffix *-ence*, and thus shift the stress to the second vowel, we get *confide*, in which we can hear the [ī], suggesting strongly that the vowel letter should be <i>. Also, if we replace the suffix in *confidence*, making the adjective *confidential*, with the stress on the third vowel, we can hear the [e] vowel, which suggests an <e> for that last vowel sound in our original word, *confidence*. This strategy of shifting the stress by adding, subtracting, or replacing elements (especially derivational suffixes) can often reveal which vowel letter to use to spell a schwa sound.

In Array 78 the words in the "Original word" column all contain at least one schwa sound. The letters spelling the schwas we are interested in are in boldface. Mark the primary stress in each word. Try on your own first, then if you have any doubts, check your dictionary. Then subtract one element from each original word so that the stress shifts in the shortened form. Write that shortened form in the "Shortened form" column, and mark the primary stress in it. The first one has been done for you.

Array 78

Original Word	Shortened Form	Original Word	Shortened Form
cónf**i**dent	*confíde*	bréakf**a**st	*fást*
déf**i**nite	*defíne*	**o**ríginal	*órigin*
éxc**e**llent	*excél*	ínt**o**nation	*intóne*
séd**a**tive	*sedáte*	chlór**i**nate	*chloríne*
cig**a**rétte	*cigár*	**a**nál**o**gy	*ánalog*

Teaching Note. The stress-shifting in *chlorinate* is not entirely disambiguating, since both *-ine* and *-ene* are common suffixes in chemistry. However, *-ine* is far more common and does not have the specific technical sense that *-ene* has.

In Array 79 the schwas that you are to spell will be written with a <ə> in the original words rather than with the actual letter. Subtract elements to shift stress to the vowel spelled <ə>, write out the shortened form, and in the right-hand column write the correct spelling of each original word.

Array 79

Original Word	Shortened Form	Correct Spelling of Original
confədent	*confide*	*confident*
distəllation	*distill*	*distillation*
məniacal	*maniac*	*maniacal*
təlegraphy	*telegraph*	*telegraphy*
negətive	*negate*	*negative*
ləborious	*labor*	*laborious*
accommədate	*commode*	*accommodate*
illustrətive	*illustrate*	*illustrative*
drəmatic	*drama*	*dramatic*
osteopəthy	*osteopath*	*osteopathy*

Teaching Note. The *accommodate* to *commode* shortening is historically accurate though today because of semantic changes, it can be a bit surprising. Working with it, however, does provide a chance to look at the structure of the often-misspelled *accommodate*, which is *ad+c+com+mode+ate*. There are two <c>'s and two <m>'s. A common misspelling is with only one <m>, but you need two, one for the prefix *com-* and one for the base *mode*.

Sometimes you can shift the stress in a word by adding elements. The suffixes *-ity*, *-ic*, and *-ial* are particularly useful for this kind of thing. Add one or the other of these three suffixes to each of the words in Array 80 so as to shift the stress onto the vowel spelled <ə>, and on the basis of the sound of the vowel once it is stressed, spell the original word the way it should be:

Array 80

Original Word	Lengthened Form	Correct Spelling of the Original
prəfessər	*professorial*	*professor*
residənt	*residential*	*resident*
patriət	*patriotic*	*patriot*
soləmn	*solemnity*	*solemn*
polər	*polarity*	*polar*

Original Word	Lengthened Form	Correct Spelling of the Original
existənt	*existential*	*existent*
symbəl	*symbolic*	*symbol*
periəd	*periodic*	*period*
artifəce	*artificial*	*artifice*
vocəl	*vocalic, vocality*	*vocal*
arəd	*aridity*	*arid*
prejudəce	*prejudicial*	*prejudice*
facəle	*facility*	*facile*
flaccəd	*flaccidity*	*flaccid*
finəl	*finality*	*final*
punctuəl	*punctuality*	*punctual*
geniəl	*geniality*	*genial*
sterəl	*sterility*	*sterile*
neutrəl	*neutrality*	*neutral*

Sometimes the only way you can shift the stress in a word is by replacing certain elements with others. In Array 81 you are to replace elements so as to get enough stress shifted to the vowel spelled <ə> to reveal the full vowel and thus suggest how it should be spelled. This is harder than just subtracting or adding elements, so we will give you some help by telling you the element that is to be brought in as a replacement. You just figure out what it replaces and write the new, word in the "Stress-shifted word" column. Then, using what you learned there, write the correctly spelled original word in the "Correct Spelling" column.

Array 81

Original Word	Replace-ment	Stress-shifted Word	Correct Spelling
ənalysis	lyze	*analyze*	*analysis*
psychəlogical	-y	*psychology*	*psychological*

Original Word	Replace-ment	Stress-shifted Word	Correct Spelling
barbərous	-ian	*barbarian*	*barbarous*
bibliogrəphy	-ic	*bibliographic*	*bibliography*
cənservətism	-ion	*conservation*	*conservatism*
pragmətism	-ic	*pragmatic*	*pragmatism*
existənce	-ential	*existential*	*existence*
grammərs	-ian	*grammarian*	*grammars*
necəssary	-ity	*necessity*	*necessary*
reəlize	-ity	*reality*	*realize*
psychiətrist	-ic	*psychiatric*	*psychiatrist*
essənce	-ential	*essential*	*essence*
specəfy	fic	*specific*	*specify*
melədy	-ic	*melodic*	*melody*
spontəneity	-ous	*spontaneous*	*spontaneity*
substənce	-antial	*substantial*	*substance*
inferənce	-ential	*inferential*	*inference*

Some Conclusions about Schwa. Stress-shifting can help quite a bit with the elusive schwa, but sometimes no amount of adding and subtracting and replacing elements will shift the stress enough to help. In cases like that, the best help (outside of your dictionary) is to be able to recognize common elements — especially prefixes and suffixes, which are often unstressed and thus often contain schwas. Remember especially your work with assimilated prefixes. It also helps to be able to recognize bases from Latin and Greek — for instance, those that occur in the sets talked about in chapter 12 — because Latin and Greek bases often occur in quite long words, which are also going to contain schwas. If you can recognize — or at least suspect — prefixes, suffixes, and common Latin and Greek bases, you can often figure out how to spell schwa.

Name _____ Date _____

Word	Mark the primary stress
0. punctual	*púnctual*
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Word	Mark the primary stress
1. dramatically	dramátically
2. distillation	distillátion
3. excellence	éxcellence
4. necessary	nécessary
5. accommodation	accommodátion
6. illustrative	illústrative *or* íllustrative
7. bibliography	bibliógraphy
8. analysis	análysis
9. psychiatrist	psychíatrist
10. existence	exístence