AN INTRODUCTION TO:

# TRISYLLABIC LAXING, VOWEL SHIFT, AND CANADIAN RAISING

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In our English language we have a number of words that we know are somehow the same and yet we pronounce them very differently. Let's take a look at the phonetic form of some of these words, in particular, certain vowel sounds. In the tables below, the underlined vowels in columns 1, 2, and 3 are phonetically different from each other. At the head of each column, I have indicated the phonetic nature of the vowel in question.

| A. | 1 | 2 | 3 |
|---|---|---|---|
| | I | ay | ʌy |
| | divinity | divine | |
| | analytical | analyse | |
| | lineal | line | |
| | definition | define | |
| | confidential | confide | |
| | infinity | finite | finite |
| | situation | | site |
| B. | ʌ | aw | ʌw |
| | profundity | profound | |
| | pronunciation | pronounce | |
| | renunciation | renounce | |
| | southerner | | south |

These words are all phonetically different but we know words like divine and divinity do have something in common. Divine is an adjective meaning 'God-like' and divinity is a noun meaning 'something having a divine quality'. Define is a verb meaning 'to make clear' whereas definition is a noun meaning 'the act of defining'. Pronounce is a verb meaning 'to speak'; pronunciation is a noun meaning 'the act of speaking'. These words, then, do have a common meaning or something very similar. The words in column 1 contain the same morphemes as the corresponding words in columns 2 and 3 but in addition contain a suffix or prefix. The meanings of these words are similar and we want to express this relationship in the grammar of English. One way to do this is to set up an abstract (underlying) representation in which related words are identical, apart from the suffix or prefix.

Before we see if this is possible as far as the above words are concerned, let's have a look at the phonetic descriptions of the different sounds we have: in table A:

| [I] | [ay] | [ʌy] |
|---|---|---|
| high | low | mid |
| front | back | back |
| lax | tense | tense |
| | high glide | high glide |

in table B:

| [ʌ] | [aw] | [ʌw] |
|---|---|---|
| mid | low | mid |
| back | back | back |
| lax | tense | tense |
| | round glide | round glide |

It is evident that these sounds are phonetically quite different from each other. Now let's see if we can decide on a common form for each of our words. Below I show possible abstract representations, in which the vowels in question are uniformly represented for the words in table A above as high front tense vowel /Ī/, and in table B as a high back tense vowel /ū/.

| A. | 1 | 2 | 3 |
|---|---|---|---|
| | divinity<br>/dɪvīn+itē/ | divine<br>/dɪvīn/ | |
| | analytical<br>/ænəli+tɪkəl/ | analyse<br>/ænəlīz/ | |
| | lineal<br>/līnēəl/ | line<br>/līn/ | |
| | definition<br>/dɛfīn+ɪšən/ | define<br>/defīn/ | |
| | confidential<br>/kɔnfīd+ɛnčəl/ | confide<br>/kənfid/ | |
| | infinity<br>/ɪn+fīnīt+itē/ | | finite<br>/fīnīt/ |
| | situation<br>/sīt+yuēšən/ | | site<br>/sīt/ |
| B. | profundity<br>/profūnd+itē/ | profound<br>/profūnd/ | |
| | pronunciation<br>/pronuns+ēšən/ | pronounce<br>/pronūns/ | |
| | renunciation<br>/renūnç+iation/ | renounce<br>/renūns/ | |
| | southerner<br>/sūð+ərnər/ | | south<br>/suθ/ |

By comparing the two forms we can see it is possible to make an abstract common form. But why don't we pronounce all the words the same then? What is the relationship of the abstract representations /Ī/, /ū/, to the actual phonetic form of these words? It is important to realize that when we do say these words something regular is happening. Consider again the phonetic form of the words in tables A and B, columns 1 and 2 (repeated below in part for ease of reference):

| 1 | 2 |
|---|---|
| divinity | divine |
| lineal | line |
| pronunciation | pronounce |
| southerner | south |

In column one the vowels I have underlined are all phonetically lax whereas those in column two are tense. You will notice that the lax vowel always appears when it is three or more syllables from the end. Therefore, we can make the following generalization:

Trisyllabic Laxing

Convert the tense vowels /Ī, ū/ to the lax vowels [I, ʌ], respectively, when they occur in the third or further syllable from the end, i.e., Ī --> I and u --> ʌ when followed by two or more syllables.

| | | |
|---|---|---|
| /dIvĪn+itē | ---> | dIvIn + Itē |
| /ænəli+tIkəl/ | ---> | ænælIt + Ikəl |
| /lĪnēəl/ | ---> | lIn +ēəl |
| /dɛfĪn+Išən/ | ---> | dɛfIn + Išən |
| /kɔnfĪd+ɛnčəl/ | ---> | kɔnfId + ɛnčəl |
| /In+fĪnĪt+itē/ | ---> | In + fInIt + ē |
| /sĪt+yuēšən/ | ---> | sIt + yuēšən |
| /profūnd+itē/ | ---> | profʌnd + Itē |
| /pronuns+eēšən/ | ---> | pronʌns + ēēšən |
| /renūnç+iation/ | ---> | rənʌns + ēēšən |
| /sūð+ʌrnər/ | ---> | sʌð + ərnər |

So even though these words in column 1 are pronounced differently from those in column 2, it is reasonable enough to say that they have the same underlying forms. The generality of trisyllabic laxing makes us pronounce them different.

Consider the vowels in the words in columns 2 and 3 now. How do we get from the underlying forms to the phonetic forms -- the way we actually say the words. When we say /Ī/ we acutally add a glide and say ±ayl and /ū/ becomes ±awl. This is quite general, and so again we have a rule:

Vowel Shift:

Convert the tense vowels /Ī, ū/ to the diphthongs [ay, aw], respectively, i.e., Ī --> ay and ū --> aw.

Therefore:

| | | |
|---|---|---|
| /dIvĪn/ | ---> | dIvayn |
| /ænəlĪz/ | ---> | ænəlayz |
| /lĪn/ | ---> | layn |
| /defĪn/ | ---> | dɛfayn |
| /kɔnfid/ | ---> | cɔnfayd |
| /fĪnĪt/ | ---> | faynayt |
| /sĪt/ | ---> | sayt |
| /profūnd/ | ---> | profawnd |
| /pronūns/ | ---> | pronawns |
| /renūns/ | ---> | rənawns |
| /suθ/ | ---> | sawθ |

Now we have moved from the abstract underlying forms to the phonetic form -- the way we actually articulate the sounds of these words. But is this really the way we say all the words? Let's look at these words: finite, site, south, and their phonetic forms as we have found them to be: [faynayt], [sayt], [sawθ]: [cɔnfayd], [layn], [pronawns]. Do we pronounce the [ay] in site the same as the [ay] in define? Do we say the [aw] in south the same as the [aw] in pronounce? I have found that I don't and this is true for virtually all Canadian speakers of English. In some words the [ay] and [aw] seem to be higher, i.e. the vowel in the diphthong is not really [a], but rather a mid vowel [ʌ]. The distribution is as follows:

| [ʌy] | [ay] |
|---|---|
| site | confide |
| finite | line |
| [ʌw] | [aw] |
| south | profound |

In the words in the first column, [ʌy] and [ʌw] preceed a voiceless consonant: [t] or [θ], whereas in the second column, [ay] and [aw] preceeds a voiced consonant: [n] or [d]. Thus the distribution of the mid diphthongs [ʌy], [ʌw] and the low diphthongs [ay], [aw] is completely predictable on a phonological basis. When [ay] or [aw] preceeds a voiceless consonant, we raise them to [ʌy] or [ʌw], respectively:

Canadian Raising

ay --> ʌy and aw --> ʌw before a voiceless consonant.

In one set of words we have both sounds: [faynʌyt]. In the first syllable [ay] is followed by [n], a voiced consonant, whereas in the second syllable the diphthong is followed by a voiceless consonant. Therefore [ay] becomes [ʌy] in the second syllable.

But what happens to words like: typology, micrometer, citation? Many people, including the present writer, pronounce the first vowel the same as that in line even though in the above words, the diphthong is followed by a voiceless consonant. But the first vowel in the following words which are clearly related to the above, are pronounced with the raised diphthong [ʌy] by the same people: typological, hypothetical, microphone, cite. A comparison of the two sets of words does yield a generalization, however. In the first set we find that the vowel following [ay] is stressed, whereas in the second set it is not and instead a different vowel in the word is stressed, either the first vowel or some other.

| | |
|---|---|
| typ$\overset{1}{\text{o}}$logy | typol$\overset{1}{\text{o}}$gical |
| hyp$\overset{1}{\text{o}}$thesis | hypoth$\overset{1}{\text{e}}$tical |
| mic$\overset{1}{\text{r}}$ometer | m$\overset{1}{\text{i}}$crophone |
| c$\overset{1}{\text{i}}$tation | c$\overset{1}{\text{i}}$te |

What happens then, is that the diphthong is not raised to [ay] when the vowel following the diphthong is stressed, even though the environment is otherwise correct for the application of the Canadian Raising rule. Phonetically these can be written as follows.

| | |
|---|---|
| [tayp$\overset{2}{\text{ɔ}}\overset{1}{\text{l}}$ɔ̆j$\overset{\breve{}}{\text{e}}$] | [tʌypɔlɔ̆jIkəl] |
| [haypɔ$\overset{1}{\text{θ}}$ɛsIs] | [hʌypɔth$\overset{1}{\text{ɛ}}$tIkəl] |
| [maykr$\overset{1}{\text{ɔ}}$mɛtər] | [m$\overset{1}{\text{ʌ}}$ykrofon] |
| [sayt$\overset{1}{\text{ĕ}}$šən] | [cʌyt] |

Our entire rule, then, can now be written as follows:

Canadian Raising (Second Version)

[ay] --> [ʌy] and [aw] --> [ʌw], before a voiceless consonant provided the next vowel is not stressed.

Although probably all English-speaking Canadians have Canadian Raising, it is usually only Central Canadians who have the second version, and most Western Canadians lack the stress condition found in the second version. That is, most Western Canadians pronounce all the above words with a raised diphthong: [tʌypɔ̝logiy].

To get these various pronunciations and phonetic forms all we do is apply certain rules to common underlying forms. So by setting up these rules and common underlying forms, we are able to bring out the relationships among phonetically diverse dialects.

## REFERENCES

Trysyllabic Laxing and Vowel Shift are presented in:

Chomsky, N., and Halle, M. *The Sound Pattern of English*, Harper and Row, 1968.

Chambers, J. "Canadian Raising". *Canadian Journal of Linguistics*. 1973. Volume 18, pages 113-135.