LX 513 Phonology
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First Assignment
Greenlandic Eskimo p. 43 (GP)
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In stating a phonological rule, we need to ensure that the rule fulfills certain requirements for it to be viable. A phonological rule should, therefore, subsume certain properties that fulfill those requirements. A breakdown of those properties would be the following:

X --> Y / A ___ B
where
a) Y has a distribution restriction, and is more predictable than X.
b) X does not have a distribution restriction, and is unpredictable.
c) Y is affected by either its preceding sound A or the following sound B.
d) Y is more marked than X, i.e., it is less frequent than X in many languages.
e) X is less marked than Y, i.e., its frequency of occurrence is relatively higher than Y.

Upon examining the list of both preceding and following segments of sounds in Greenlandic Eskimo, the following linguistically relevant differences were found:

Phonetic Vowel	Preceding Vowel	Following Vowel
a	n, r, m, v, s, q, l, g, i	q, #, s, l, t, k, r
i	#, s, q, t, k, p	v, p, m, t, n, s, k, l, g, a
u	l, t, n, k, #	v, m, n, s, v, g
e	p, n, s, m, n	r, q, #
o	n, l, #, k	r, q, #

A closer scrutiny of the sounds preceding and following the Greenlandic phonetic vowels reveals that there is a predictable distribution restriction on [e] and [o]. According to our requirement (a), both [e] and [o] should be Y, since they are always followed by [r,q], or #, which is the place before the onset and after the coda. Assuming [e] and [o] to be Y also fulfills our requirement (c). Thus, we will have the following rule:

X --> [e, o]/_____ [consonant] or #
+ uvular

Now that we have determined what Y is, we should also determine what X may be. Condition (b) states that X does not have distribution restriction, and is, therefore, unpredictable. Since both [i] and [u] are never followed by [q,r], or # in Greenlandic, we can assume that they are X. This is a valid assumption because these vowels have the tendency to occur anywhere, which makes them unpredictable. Furthermore, X cannot

be [a] because as evident in our data, [a] is followed by [q,r], or #. This rules out the possibility of [a] being X. On the basis of these facts, we will now rewrite our rule:

[, u] --> [e, o] / _____ [consonant] or #

Our condition (d) requires that Y be more marked than X. A cross-linguistic examination of the sound inventories of different languages would reveal that [, u, a] exist in many languages, whereas [e] and [o] do not. We stated earlier that the frequency of occurrence is a relative determinant of markedness. Similarly, we can now safely assume that [, u,] are less marked than [e, o]. This fulfills our conditions (d) and (e).

In terms of vowel height, we see that condition (c) is an assimilation rule. That is, in Greenlandic Eskimo the [+high] vowels [, u] become [-high] vowels [e, o]. In this particular case, our data shows that [+high] vowels assimilate to the context B, which is a uvular consonant, or #. The assimilation of [+high] vowels to the following context will yield the following rule:

[+high] --> [-high] / _____ [consonant] or #
vowel vowel +uvular

It is obvious that our rule operates in two different environments. It is, therefore, advisable that we write two versions of the rule, but before we do that, we need to specify one more feature. Since [ ] and [e] are both front vowels, it would be reasonable to assume that [ ] becomes [e]. The same assumption can be made that [u] becomes [o] because they are both back vowels. This assumption is in line with the ease of articulation; the transition from front to front and back to back vowels is supposed to be more natural and smooth. The transition from front to back and back to front vowels, on the other hand, would be more cumbersome from an articulatory perspective. Therefore, we will write the rules as:

(i) [+high] [-high]
[+front]--> [+front] / _____ [consonant] or #
[vowel] [vowel] +uvular

(ii) [+high] [-high]
[+back] -->[+back] / _____ [consonant] or #
[vowel] [vowel] +uvular

Since we stated that Y is more predictable because it manifests itself in the environment in which it occurs, it would be reasonable to assume that according to our data, y is an allophone of X. It only strengthens the claim that allophones are in complementary distribution with their underlying phonemes. We can, therefore, state that in Greenlandic Eskimo [, u] are the two underlying vowels and [e, o] are their respective allophones. This obviously leaves [a] as the third phoneme as it does not have distribution restriction, and is unpredictable.

As mentioned previously, we can now write the two versions of each rule:

(ia)

[+high] [-high]
[+front] --> [+front] / _____ [consonant]
[vowel] [vowel] +uvular

(ib)

[+high] [-high]
[+front] --> [+front] / _____ #
[vowel] [vowel]

(iia)

[+high] [-high]
[+back] --> [+back] / _____ [consonant]
[vowel] [vowel] +uvular

(iib)

[+high] [-high]
[+back] --> [+back] / _____ #
[vowel] [vowel]