

Here's a copy of homework 2 as it was handed in. Take note of the really good use of description and the clarity of the expository prose.

Karok: HW #2

Part 1:

The data in A show us that Karok adds the prefix *ni-* for the 1st person singular verb conjugation and the prefix *ʔu-* for the 3rd person singular. All of the examples given contain these specific prefixes, while no such prefixes show up in the imperative form. The only alteration that surfaces throughout the data in part A is the variation between [s] (a voiceless alveolar fricative) and [ʃ] (a voiceless post alveolar fricative). [s] appears word initially and also word medially directly following the non-frontal vowels *a* and *u*. [ʃ] occurs only immediately after the frontal vowel *i*.

Since [s] is found both word initially and word medially (except when preceded by *i*), and since [ʃ] shows up only in this one specific context (following the frontal vowel *i*), the underlying representation must consist of [s] and not [ʃ]. In other words, the latter case seems to be much more restrictive and probably due to some type of predictable phonological rule. For this reason, the two verbs in which alteration occurs must have as roots the un-prefixed imperative forms *si:tva* and *suprih*. Apart from this alteration, the imperative forms (posited as the roots) remain the same throughout all the conjugations. They merely add one of the two prefixes to indicate person.

Given the complementary distribution of [s] and [ʃ] as described above, the phonological rule in Karok must limit the [ʃ] to phonetic environments in which it is directly preceded by a frontal vowel. In any other contexts (word initial/following a non-frontal vowel), one would predict an [s] sound. Hence, the rule can be shown like this:

$$[s] \rightarrow [ʃ] / [i] \underline{\quad}$$

To verify our rule, let us take a few examples from the data and submit them to what we have postulated:

Root:	<i>Pasip</i>	<i>/si:tva/</i>	<i>/suprih/</i>	
1 st sg. prefix:	<i>ni pasip</i>	<i>ni ʃi:tva</i>	<i>ni ʃuprih</i>	$[s] \rightarrow [ʃ] / [i] \underline{\quad}$

In *pasip*, although we have added the prefix *ni-*, the [s] remains an [s] because it is still preceded by the non-frontal vowel *a*. With the other two words, however, the frontal vowel [i] of the prefix directly precedes the [s] sound, and thus, as our rule predicts, changes it to [ʃ].

Part 2:

Data B reveals various new alterations. First of all, the imperative does not conserve its entire form and merely get assigned a prefix as in the data from A. Rather, the two prefixes (*ni-* and $\text{ʔ}u$) combine with shortened forms of the imperative. All of the imperative forms begin with a glottal stop (ʔ) followed by a vowel (either *a*, *i*, or *u*), where neither one of these appeared before this supposed “root form” in the previous data set. The two prefixed forms of each example do not contain these sounds. Furthermore, whereas in A [s] becomes [ʃ] only directly after a frontal vowel, the data in B also show [ʃ] after a frontal vowel-consonant sequence (Ex. *nikʃah*).

Given this last new piece of data, we must now revise our rule from part A, where we stated that [s] became [ʃ] only if it directly followed a frontal vowel. Thus, we must now say that [s] becomes [ʃ] simply if it comes after a frontal vowel, while the frontal vowel can be followed optionally by a consonant. Our revised rule is the following:

$$[s] \rightarrow [ʃ] / \text{frontal vowel (C) ____}$$

Having completely accounted for the [s]/[ʃ] alteration, we continue on with the rest of the data. We noted above that all of the imperative forms in B begin with a glottal stop followed by a vowel, which do not surface in the prefixed conjugations. Since we already know that Karok does not allow words to begin with a vowel, and since we observe that “coincidentally” all of the imperative forms begin with a glottal stop, we can postulate that the imperatives in this case actually begin with vowels and that the glottal stops were added to each one so that the rule of no initial vowels would be adhered to. Therefore, we now have an explanation for the new imperative forms. The imperatives in A all begin with consonants, which explains why they are not altered in any way. The second rule of Karok goes as follows:

$$[\text{Vowel}] \rightarrow [\text{ʔ} + \text{Vowel}] / \# ____$$

The next task is to identify the reason why the vowel that begins the imperative forms (before the obligatory addition of the glottal stop) is not carried over into the two prefixed forms, seeing as the prefixes would also precede the vowel and thus allow it to exist as an acceptable word in the language. My theory on this is that Karok has another rule that mandates vowel deletion of the second of two neighboring vowels. Hence, upon adding a prefix, the vowel from the prefix would be placed alongside that of the first letter of the root (a vowel in this case), which would result in the deletion of the latter. (Ex. *Axyar* {root} \rightarrow *Ni-axyar* {with prefix} \rightarrow *Nixyar* {after vowel deletion}) This would explain why the vowels that begin the imperatives fail to appear in the prefixed forms. The third rule is shown below:

$$[\text{Vowel}] \rightarrow \emptyset / \text{Vowel ____}$$

Assuming that all three of these alterations occur in all the forms in part B (that is, if the environment in which they would take effect shows up), I propose that the underlying representations of the roots must be /axyar/, /iskak/, /iksah/, /isriv/, and /uksup/. In other words, these particular roots all begin with vowels that on the surface are either preceded by an added glottal stop or deleted when placed next to the vowel of a prefix.

Furthermore, this data is consistent with that in A as far as the [s]/[ʃ] alteration is concerned. In other words, the root forms would contain [s], while [s] would change to [ʃ] on the surface only when preceded by a frontal vowel (where the latter would sometimes appear followed by an consonant).

The three phonological rules outlined above must in fact be ordered in a certain way if we are to get the correct results. Since the [s]/[ʃ] alteration is dependent upon the preceding vowel (i.e., whether or not it is frontal), the vowel deletion rule must take place before this alteration is determined. Thus, when the root *uksup* adds the prefix *ni-*, the *u* of the root must be deleted so that the *i* of the prefix will effect the [s], which, as we predicted, must change to [ʃ]. The correct 1st person singular form is in fact *nikʃup*.

Moreover, the addition of the glottal stop before a word-initial vowel needs to occur after any prefixes have been added and any vowel deletions (if such conditions are presented) have taken place. If the verb adds a prefix, it no longer begins with a vowel, and hence the glottal stop rule does not even take effect. After the possible addition of a prefix and after vowel deletion has had the chance to occur, a glottal stop would be added to all un-prefixed words whose root begins with a vowel. Finally, the [s]/[ʃ] alteration would take place depending on the vowel that has ended up in the preceding syllable. The order is as follows:

1. [Vowel] → / Vowel ____
2. [Vowel] → [ʔ + Vowel] / # ____
3. [s] → [ʃ] / frontal vowel (C) ____

Some examples from both data sets will prove that this is the necessary ordering of the three rules:

Root:	<i>si:tava</i>	<i>ʔaktiv</i>	<i>iskak</i>	<i>uksup</i>	
Imperative:	<i>si:tava</i>	<i>ʔaktiv</i>	<i>iskak</i>	<i>uksup</i>	Vowel deletion
	<i>si:tava</i>	<i>ʔaktiv</i>	<i>ʔiskak</i>	<i>ʔuksup</i>	Glottal stop
	<i>si:tava</i>	<i>ʔaktiv</i>	<i>ʔiʃkak</i>	<i>ʔuksup</i>	[s] vs. [ʃ]
1 st sing.:	<i>nisi:tva</i>	<i>niʔaktiv</i>	<i>niskak</i>	<i>niksup</i>	Vowel deletion
	<i>nisi:tva</i>	<i>niʔaktiv</i>	<i>niskak</i>	<i>niksup</i>	Glottal stop
	<i>niʃi:tva</i>	<i>niʔaktiv</i>	<i>ni kak</i>	<i>nikʃup</i>	[s] vs. [ʃ]

2nd sing.:	<i>ʔusi:tva</i>	<i>ʔuʔaktuv</i>	<i>ʔuskak</i>	<i>ʔuksup</i>	Vowel deletion
	<i>ʔusi:tva</i>	<i>ʔuʔaktuv</i>	<i>ʔuskak</i>	<i>ʔuksup</i>	Glottal stop
	<i>ʔusi:tva</i>	<i>ʔuʔaktuv</i>	<i>ʔuskak</i>	<i>ʔuksup</i>	[s] vs. [ʃ]

Note: vowel deletion has taken place in all of the prefixed verbs whose roots begin with a vowel. (Ex. *Ni-iskak*, *Ni-usksup*, *ʔu-iskak*, *ʔu-uksup*).