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Homework 3

4. [ɸ] and [b] are phonetically different, and therefore represent separate phonemes. Although there are no minimal pairs present in the dataset, both items appear in the same environment. They always appear in the form in our dataset:

_ [vowel]

For example, in the case of “bara” vs “ɸari,” both words begin with the allophone and are immediately followed by the [a] sound and only differ again in how they end. This is present for the other items in the dataset as well, and using natural classes we can see that both [b] and [ɸ] are voiced bilabials, however, they differ in the fact that [b] is a stop/plosive while [ɸ] is a implosive or breathy sound, and that is definitely phonemic in Hindi.

6I) [p] and [b] belong to separate phonemes and you can tell in the difference in the voicing. They’re both bilabial stops, but [p] is voiceless while [b] is voiced. This is apparent in the words [pak] versus [əbəs]. We can see that [p] appears at the beginning of the word and is not voiced, while [b] appears between the [ə] sounds and receives the voicing.

II) Similar to the last problem, [t] and [d] are of different phonemes due to their voicing. [t] is voiceless while [d] is voiced, and we can see that in the words [mɛtka] as opposed to [padazikhal] where they both appear after a vowel, however, the [t] in [mɛtka] is voiceless while the [d] in [padazikhal] is voiced.

III) Similar to the previous two problems, [k] and [g] are both velar stops, however, [k] is voiceless while [g] is voiced. This appears in the words [mɛtka] and [pak] as opposed to [tabagən]. Where in the former words the [k] sound is voiceless and the latter words the [g] sound is voiced. This is best shown in the word [keguw] which features both phonemes, where the [k] again is voiceless and the [g] is voiced.

IV) For the phonemes [k^w] and [g^w], we can observe them as separate with the words [k^wədagən] and [ptəg^wap]. In the former word the [k^w] is voiceless and in the latter word the [g^w] is voiced.

V) In all of these examples of consonant phonemes we are dealing with the same place and manner of articulation, however, the variance occurs in the voicing. I'd generalize that it is the voiced ([b], [d], [g], [g^w]) and voiceless ([p], [t], [k], [k^w]) nature of these phonemes in their environments that make them separate and not allophones of the same phoneme.

VI) I think this voicing difference also occurs in the [dʒ] (voiced) and [tʃ] (voiceless) fricatives, however, these seem to be extensions of the previous generalization.