6 Toba Batak consonant alternations

Toba Batak is an Austronesian language spoken in northern Sumatra (Indonesia). This language has several processes which modify consonants in various contexts. Here is an example:

Ex. 1. [halak] ‘person’ Ex. 2. [tuak] ‘palm wine’
[an] ‘that’ [i] ‘the’
[halah an] ‘that person’ [tuah i] ‘the palm wine’

These forms illustrate a rule of /k/ Weakening, which requires that whenever /k/ is placed before a vowel, it becomes [h]. (This process will not, however, be crucial for this rest of the problem.)

Here are some other data illustrating additional rules. These rules apply to the consonant clusters that arise when words are combined into phrases or sentences.

1. [maṣan] ‘is eating’ 2. [baoa an] ‘that man’
[baoa an] ‘that man’ [peddek] ‘short’
[maṣab baoa an] ‘that man is eating’ [baoa ap peddek] ‘that man is short’

3. [lean] ‘give’ 4. [sonon] ‘as’
[lali] ‘hen-harrier’ [gottina] ‘replacement’
[leal lali] ‘give a hen-harrier’ [sonog gottina] ‘in exchange’

5. [manijnun] ‘drink’ 6. [holom] ‘somewhat’
[tuak] ‘palm wine’ [saṭik] ‘dark’
[manijnup tuak] ‘drink palm wine’ [holop saṭik] ‘somewhat dark’

7. [mananɔm] ‘bury’ 8. [maṇan] ‘or’
[pirıŋ] ‘dish’ [pulpen] ‘pen’
[mananɔp pirıŋ] ‘bury a dish’ [manak pulpen] ‘or a pen’

[tibbo] ‘tall’ [hita] ‘we’
[dak tibbo] ‘not tall’ [marisap pʰita] ‘let us smoke’

[halak] ‘person’ [harajjana i] ‘the basket’
[dohot tʰalak] ‘and a person’ [manipak kʰarajjana i] ‘kick the basket’
Rather than give examples for all of the logical possibilities, this problem simply expresses them in table 7.1, which works as follows. To find out what happens when you put a /p/-initial word after an /n/-final word, you examine where the row for /n/ intersects the column for /p/; thus phonemic /np/ sequence appears phonetically as [pp]. (There is an actual example of this change under (2) above.)

Gray cells are the ones that involve no change. The overlapping outlines are meant to help: look inside them to see the rules that are applying.

Table 7.1  Toba Batak consonant alternations

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</tbody>
</table>

Rows:  last sound of first word.
Columns: first sound of second word.
Determine what rules, other than /k/ Weakening, are applying in the Batak data. How must the rules be ordered with respect to each other? For each case of ordering, provide a derivation to illustrate it. Show both correct and incorrect orders, indicating how only the correct order will work.

Further reading

The rule-ordered analysis of [ˈjawɛn] vs. [ˈjawɛn] given in §7.1 was first proposed in Morris Halle (1962) “Phonology in generative grammar,” Word 18: 54–72. It is not clear that the analysis works for all dialects that have [ˈjawɛn] vs. [ˈjawɛn]. Subsequent research has located dialects in which [a] and [ai] have evolved into two separate phonemes, which can be diagnosed by straightforward, monomorphemic minimal pairs. See Timothy Vance (1987) “‘Canadian Raising’ in some dialects of the Northern United States,” American Speech 62: 195–210. An interesting question that this work raises is just how diachronically stable cases of displaced contrast are – does the displaced contrast tend to be reanalyzed by new learners as a straight phonemic contrast?