Toba Batak

(Hayes 2009:158–160)

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. [maŋan] 'is eating'
   [baoa an] 'that man'
   [maŋab baoa an] 'that man is eating'

2. [baoa an] 'that man'
   [pɛddɛk] 'short'
   [baoa ap pɛddɛk] 'that man is short'

3. [lɛan] 'give'
   [lali] 'hen-harrier'
   [lɛal lali] 'give a hen-harrier'

4. [soŋon] 'as'
   [gottina] 'replacement'
   [soŋog gottina] 'in exchange'

5. [maɲinum] 'drink'
   [tuak] 'palm wine'
   [maɲinup tuak] 'drink palm wine'

6. [holom] 'somewhat'
   [saɔtik] 'dark'
   [holop saɔtik] 'somewhat dark'

7. [mananɔm] 'bury'
   [piɾiŋ] 'dish'
   [mananɔp piɾiŋ] 'bury a dish'

8. [manaŋ] 'or'
   [pulpen] 'pen'
   [manak pulpen] 'or a pen'

9. [daŋ] 'not'
   [tibbo] 'tall'
   [dak tibbo] 'not tall'

10. [maɾisap] 'smoke'
    [hita] 'we'
    [maɾisap pʰita] 'let us smoke'

11. [manipak] 'kick'
    [haɾaɟɟan i] 'the basket'
    [manipak kʰaɾaɟɟan i] 'kick the basket'

12. [dɔhɔt] 'smoke'
    [halak] 'we'
    [dɔhɔt tʰalak] 'let us smoke'

13. [modom] 'sleeping'
    [halah i] 'the man'
    [modop pʰalah i] 'the man is sleeping'

14. [ibɛɾɛŋ] 'saw'
    [halah i] 'the man'
    [ibɛɾɛk kʰalah i] 'the man saw'

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15. [ganup]   'every'
     [taɔn]   'year'
     [ganuʔ taɔn]   'every year'

16. [dɔhɔt]   'and'
     [lali i]   'the hen-harrier'
     [dɔhɔʔ lali i]   'and the hen-harrier'

17. [halak]   'person'
     [batak]   'Batak'
     [halaʔ batak]   'Batak person'

18. [lap]   'wipe off'
     [piŋgol]   'ear'
     [laʔ piŋgol]   'wipe off an ear'

19. [maŋihut]   'following'
     [taɔn]   'year'
     [maŋihuʔ taɔn] 'according to the year'

20. [maŋan]   'is eating'
     [halah i]   'the person'
     [maŋak kʰalah i] 'the person is eating'

Rather than give examples for all of the logical possibilities, this problem simply expresses them in Table 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.

	p	t	h	s	b	d	ɟ	g	m	n	ŋ	ɾ	l	Vowel
p	ʔp	ʔt	ppʰ	ʔs	ʔb	ʔd	ʔɟ	ʔg	ʔm	ʔn	ʔŋ	ʔɾ	ʔl	pV
t	ʔp	ʔt	ttʰ	ʔs	ʔb	ʔd	ʔɟ	ʔg	ʔm	ʔn	ʔŋ	ʔɾ	ʔl	tV
k	ʔp	ʔt	kkʰ	ʔs	ʔb	ʔd	ʔɟ	ʔg	ʔm	ʔn	ʔŋ	ʔɾ	ʔl	hV
s	sp	st	ssʰ	ss	sb	sd	sɟ	sg	sm	sn	sŋ	sɾ	sl	sV
n	pp	tt	kkʰ	ss	bb	dd	ɟɟ	gg	mm	nn	ŋŋ	ɾɾ	ll	nV
ŋ	kp	kt	kkʰ	ks	ŋb	ŋd	ŋɟ	ŋg	ŋm	ŋn	ŋŋ	ŋɾ	ŋl	ŋV
m	pp	pt	ppʰ	ps	mb	md	mɟ	mg	mm	mn	mŋ	mɾ	ml	mV
ɾ	ɾp	ɾt	ɾh	ɾs	ɾb	ɾd	ɾɟ	ɾg	ɾm	ɾn	ɾŋ	ɾɾ	ɾl	ɾV
l	lp	lt	lh	ls	lb	ld	lɟ	lg	lm	ln	lŋ	lɾ	ll	lV

Table 1: Toba Batak consonant alternations. Rows: last sound of first word. Columns: first sound of second word.

Assignment

Develop a phonological analysis of the consonant alternations shown above in Toba Batak and present it in a squib. You may use any theoretical framework of your choosing (rules, OT, or variants thereof). Please be explicit about any representational assumptions you make (e.g. features).