

Sixteenth International Linguistics Olympiad

Prague (Czechia), 26–30 July 2018

Individual Contest Solutions

Problem 1.

$$\text{word} = \overbrace{\left\{ \begin{array}{c} \circ\circ \\ \circ\bullet \\ \bullet \end{array} \right\}}^{\text{0 or more times}} \left\{ \begin{array}{c} \downarrow \\ \circ\circ \\ \circ\bullet \\ \bullet \end{array} \right\} [\circ], \quad \begin{array}{l} \circ = (\text{C})\text{V} \\ \bullet = \begin{cases} (\text{C})\text{V}: & \text{C, C' are consonants} \\ (\text{C})\text{VC}' & , \text{ V is a vowel} \\ (\text{C})\text{V:C}' \end{cases} \end{array}$$

[ifá]	<i>dog</i>	[ifó.ci]	<i>puppy</i>
[nâ:...nakí]	<i>things</i>	[sâ: sák.wa]	<i>goose</i>
[ak .. topá]	<i>bridge</i>	[hok takí]	<i>women</i>
[wana.yítá]	<i>to tie</i>	[awa nayí.ta]	<i>to tie to</i>
[isis .. kitó.ci]	<i>little drinking vessel</i>	[a:.tami.homá]	<i>bonnet (car hood)</i>
[honan.tá:.ki]	<i>men</i>	[ili . toh . tałí.ta]	<i>to cross legs</i>

Problem 2.

The sentences have the following structure:

$$\frac{S}{S \left\{ \begin{array}{ll} -bə & (S = 1\text{st person sg, 2\text{nd person sg}) \\ kəmə & (S = 3\text{rd person sg, plural}) \end{array} \right.} \overline{O} \Bigg\} V \times ne,$$

S: subject, O: object, V: predicate,

$$X: \begin{array}{|c|c|c|} \hline 1\text{st} > 2\text{nd} > 3\text{rd} & \text{past} & \text{present} \\ \hline S \rightarrow (O) & t-\vartheta & k- \\ \hline O \leftarrow S & t^h- & r- \\ \hline \end{array} + \begin{cases} \begin{array}{l} 1\text{st person sg} \in \{S, O\} : -v \\ 1\text{st person pl} \in \{S, O\} : -i \\ 1\text{st} \notin \{S, O\} : \end{array} \\ \begin{array}{l} 2\text{nd person sg} \in \{S, O\} : -u \\ 2\text{nd person pl} \in \{S, O\} : -an \end{array} \end{cases}$$

- (a)
 1. **nv ʒip ku ne** — *Do yousg sleep?*
 2. **ati kəmə nirum lapkhi thi ne** — *Did he see us?*
 3. **tarum kəmə nu?rum cham ran ne** — *Do they know youpl?*
 4. **nirum kəmə tarum lan ki ne** — *Do we beat them?*
 5. **nirum kəmə nv cham ti? ne** — *Did we know yousg?*
 6. **nirum ka ti? ne** — *Did we go?*
- (b)
 7. *Did I beat yousg?* — **ŋabə nv lan tv? ne**
 8. *Did they see me?* — **tarum kəmə ɳa lapkhi thv ne**
 9. *Does he know yousg?* — **ati kəmə nv cham ru ne**
 10. *Do youpl sleep?* — **nu?rum ʒip kan ne**

Problem 3.

- 1st person sg:
 - if the word contains at least one voiceless consonant, the first one becomes nasal+voiced ($\langle \mathbf{p} \rightarrow \mathbf{mb}, \mathbf{t} \rightarrow \mathbf{nd}, \mathbf{h} \rightarrow \mathbf{nz}, \mathbf{x} \rightarrow \mathbf{nj}, \mathbf{k} \rightarrow \mathbf{ng} \rangle$)
 - otherwise the whole word is nasalised (-m)
- 2nd person sg:
 - if the word begins with a vowel different from i (í, î): y-
 - otherwise the first vowel different from i (í, î) changes as follows:
 - * a → e, á → é, â → eâ;
 - * o → e, ó → é, ô → eô;
 - * ú → iû;
 - * e → i, é → í, ê → î (the same happens in the immediately following syllables).

(a)	1st person sg	2nd person sg	1st person sg	2nd person sg
<i>mbîho</i>	₁ pîhe	<i>to go</i>	<i>noínjoa</i>	₈ neíxoa <i>to see it</i>
₂ mbêyo	<i>pîyo</i>	<i>animal</i>	<i>vanénjo</i>	₉ venéxo <i>to buy</i>
<i>yênom</i>	₃ yîno	<i>wife</i>	<i>mómindi</i>	₁₀ mémitti <i>to be tired</i>
₄ ênom	<i>yêno</i>	<i>mother</i>	<i>ínzikaxovoku</i>	₁₁ ihikexovoku <i>school</i>
<i>ngásaxo</i>	₅ késaxo	<i>to feel cold</i>	₁₂ ônju	<i>yôxu</i> <i>grandfather</i>
<i>njérere</i>	₆ xírirí	<i>side</i>	₁₃ nêwom	<i>nîwo</i> <i>nephew</i>
<i>ndôko</i>	₇ teôko	<i>nappe</i>	<i>ánzarana</i>	₁₄ yáharana <i>hoe</i>

- (b) 1. 2nd person sg: in Portuguese loanwords á → eá; in native words á → é, â → eâ.
2. lândana, ngápana.

Problem 4.

singular	plural	
-b	-(a)bys	bø-bys ‘betel nuts’, juhuru-bys ‘eggs’
-h	-(a)ruh	ara-ruh ‘sugar canes’
-g	-(a)gas	bai-gas ‘sheets of sago bark’
-t	-(o)gu	nyba-t ‘4’

$$\left(\begin{array}{ll} \boxed{\text{anowip}} & 6 \\ \text{wiwis} & 2 \times 6 = 12 \\ \boxed{\text{araman}} & 4 \times 6 = 24 \end{array} \right) + \left(\begin{array}{ll} \text{atu-} & 1 \\ \text{bi-} & 2 \\ 2 + 1_{\text{sg}} & 3 \\ 2 + 1_{\text{pl}} + 1_{\text{sg}} & 4 \\ 2 + 1_{\text{pl}} + 2 & 5 \end{array} \right) \times \left\{ \begin{array}{l} \text{baig(as)} \\ \text{bøb(ys)} \\ (\text{nybat}) 4 + \left\{ \begin{array}{ll} \text{atu-} & 1 \\ \text{bi-} & 2 \\ 2 + 1_{\text{sg}} & 3 \end{array} \right\} \times \left\{ \begin{array}{l} \text{ara(ru)h} \\ \text{juhurub(ys)} \end{array} \right. \end{array} \right\}$$

- (a) (6, 9, 11): 4 = **nybat**, 8 = **biogu nybat**, $k \times 4$ ($3 \leq k$) = **k-t/gu nybat**.
- (b) 12. **biabys atub bøbys** — 3 betel nuts
 13. **atub juhurub** — 1 egg
 14. **nybat atuh araruh** — 5 sugar canes
 15. **biagas atugas biagas baigas** — 5 sheets of sago bark
 16. **wiwis baigas** — 12 sheets of sago bark
- (c) 17. 4 betel nuts — **biabys atubys atub bøbys**
 18. 11 eggs — **biogu nybat biabys atub juhurubys**
 19. 20 eggs — **biogu atugu biogu juhurubys**
 20. 25 sheets of sago bark — **araman atug baigas**

Problem 5.

Yefre me N: ‘My name is N’

ne ...: ‘and ...’

Yefre me R N: ‘My R’s name is N’

-nom: plural

Terms for a man’s kin:

ena ‘mother; mother’s sister’

agya ‘father; father’s brother’

nua ‘sibling; father’s brother’s son/daughter; mother’s sister’s son/daughter’

ba ‘son/daughter; fraternal nephew/niece (brother’s son/daughter)’

sewaa ‘father’s sister’

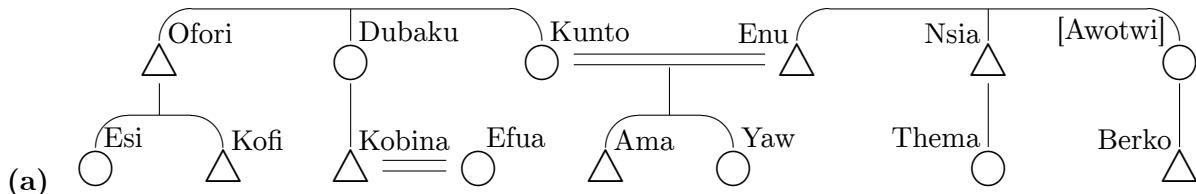
sewaaba ‘father’s sister’s son/daughter’

wøfa ‘mother’s brother’

wøfaba ‘mother’s brother’s son/daughter’

wøfaase ‘sororal nephew/niece (sister’s son/daughter)’

yere ‘wife’



- (a)
- (b)
 1. **Yefre me Yaw.** **Yefre me enanom Dubaku ne Kunto.** **Yefre me agyanom Nsia ne Enu.** **Yefre me nuanom Thema ne Ama ne Kobina.** **Yefre me sewaa Awotwi.** **Yefre me wøfa Ofori.** **Yefre me wøfabanom Esi ne Kofi.** **Yefre me sewaaba Berko.**
 2. **Yefre me Ofori.** **Yefre me banom Kofi ne Esi.** **Yefre me wøfaasenom Yaw ne Ama ne Kobina.** **Yefre me nuanom Kunto ne Dubako.**