

en

Sixteenth International Linguistics Olympiad

Prague (Czechia), 26–30 July 2018

Individual Contest Solutions

Problem 1.

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

[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:

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

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

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

- (a) 1. **nꝝ ȝip ku ne** — *Do you_{sg} sleep?*
 2. **ati kəmə nirum lapk^{hi} t^{hi} ne** — *Did he see us?*
 3. **tarum kəmə nu?rum c^{ham} ran ne** — *Do they know you_{pl}?*
 4. **nirum kəmə tarum lan ki ne** — *Do we beat them?*
 5. **nirum kəmə nꝝ c^{ham} ti? ne** — *Did we know you_{sg}?*
 6. **nirum ka ti? ne** — *Did we go?*
- (b) 7. *Did I beat you_{sg}?* — **ŋabə nꝝ lan tꝝ? ne**
 8. *Did they see me?* — **tarum kəmə ŋa lapk^{hi} t^{hꝝ} ne**
 9. *Does he know you_{sg}?* — **ati kəmə nꝝ c^{ham} ru ne**
 10. *Do you_{pl} sleep?* — **nu?rum ȝip 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>	⁸ neíxoa
	² mbêyo	<i>pîyo</i>	<i>animal</i>	⁹ venéxo
	<i>yênom</i>	³ yîno	<i>wife</i>	¹⁰ mémitti
	⁴ ênom	<i>yêno</i>	<i>mother</i>	¹¹ ihikexovoku
	<i>ngásaxo</i>	⁵ késaxo	<i>to feel cold</i>	¹² ônju
	<i>njérere</i>	⁶ xírirí	<i>side</i>	¹³ nêwom
	<i>ndôko</i>	⁷ teôko	<i>nappe</i>	¹⁴ yáharana

- (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’

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