

Thirteenth International Olympiad in Linguistics

Blagoevgrad (Bulgaria), 20–24 July 2015

Individual Contest Solutions

Problem 1. Nahuatl:

- 1: *cē*, 2: *ōme*, 3: *ēyi*, 4: *nāhui*;
- 5: *mācuilli*, 10: *mahtlactli*, 15: *cactōlli*;

$$\bullet \alpha \times 20^\beta, 1 \leq \alpha \leq 5, 1 \leq \beta \leq 3:$$

α	
1:	<i>ceM</i>
2:	<i>ōm</i>
3:	<i>yē</i>
4:	<i>nāuh</i>
5:	<i>mācuil</i>

$$- \begin{array}{|c|c|} \hline & 20^\beta \\ \hline 20: & pōhualli \\ 400: & tzonitli \\ 8000: & xiquipilli \\ \hline \end{array};$$

- 7: *chicōme*;
- $\gamma + \delta, \left\{ \begin{array}{l} \gamma \in \{10, 15\}, 1 \leq \delta \leq 4 \\ \gamma = \alpha \times 20^\beta, 1 \leq \delta < 20^\beta \end{array} \right\}: \boxed{\gamma} - oM - \boxed{\delta},$
 $M = \begin{cases} m & \text{before } m, p, \text{ or a vowel;} \\ n & \text{otherwise.} \end{cases}$

Arammba:

- 1: *ngámbi*, 2: *yànpa*, 3: *yenówe*, 4: *asàr*, 5: *tambaroy*, 6: *nimbo*;
- $\alpha \times 6, 2 \leq \alpha \leq 5: \boxed{\alpha} \text{ tàxwo};$
- $6^2 = 36: \text{fete}, 6^3 = 216: \text{tarumba}, 6^4 = 1296: \text{ndamno}, 6^5 = 7776: \text{weremeke};$
- $\alpha \times 6^\beta, 2 \leq \beta: \boxed{\alpha} \boxed{6^\beta};$
- $\alpha \times 6^\beta + \delta, 0 < \delta < 6^\beta: \boxed{\alpha \times 6^\beta} \boxed{\delta}.$

	$\begin{array}{c} 10+1 \\ 11 \times 10 = 110 \end{array}$	(1)		$1+1 = 1 \times 2$	(7)
	$\begin{array}{c} 1 \times 20 \\ 20 \times 2 = 40 \end{array}$	(2)		$1+4 = 5$	(8)
(a)	$\begin{array}{c} 3 \times 20 + (5+2) \\ 67 + 14 = 81 \end{array}$	(3)		$\begin{array}{c} 2 \times 6 \\ 12 + 60 = 72 \end{array}$	(9)
	$5+2 = 7$	(4)		$\begin{array}{c} 3 \times 6 \\ 3 \times 18 = 54 \end{array}$	(10)
	$\begin{array}{c} 10+3 \\ 13 \times 3 = 39 \end{array}$	(5)		$6 \times 36 = 216$	(11)
	$5 \times 3 = 15$	(6)		$\begin{array}{c} 2 \times 6 \\ 6 + 12 = 18 \end{array}$	(12)

$$\begin{array}{rcl} 3 \times 400 + 4 \times 20 + (15 + 1) & & \\ 1296 & = & 1296 \end{array} \quad (13)$$

$$\begin{array}{rcl} 1 \times 400 + 1 \times 20 + (10 + 2) & & 2 \times 216 \\ 432 & = & 432 \end{array} \quad (14)$$

$$\begin{array}{rcl} 1 \times 400 & & 216 + 5 \times 36 + 4 \\ 400 & = & 400 \end{array} \quad (15)$$

$$\begin{array}{rcl} 1 \times 8000 & & 7776 + 216 + 6 + 2 \\ 8000 & = & 8000 \end{array} \quad (16)$$

- (b) • $42 = 2 \times 20 + 2$: *öm-pöhualli-om-öme*;
• $494 = 1 \times 400 + 4 \times 20 + 10 + 4$: *cen-tzontli-on-nāuh-pöhualli-om-mahtlactli-on-nāhui*.
- (c) • $43 = 36 + 6 + 1$: *fete nimbo ngámbi*;
• $569 = 2 \times 216 + 3 \times 36 + 4 \times 6 + 5$: *yànpaaro tarumba yenówe fete asàr tàxwo tambaroy*.

Problem 2. Structure of the verb form:

- I.
- **me-**: affirmative form, present, indicative mood,
 - ROOT,
 - **-pe** ‘really’, **-fe** ‘pretend to’, **-f** ‘be able to’, **-n** — infinitive.

In this part of the word:

1. $C + -C > C\bar{a}C$ (**de** + **-f** + **-n** > **de-f-ä-n**, **me-** + **bäb** + **-pe** > **me-bäb-ä-pe**).
2. The last syllable receives the stress if it is closed, otherwise the penultimate is stressed (**defän** > **defän**, **mešxepe** > **mešxépe**).
3. $CéC(C)e > CáC(C)e$ (**méšxe** > **mášxe**, **mešxépe** > **mešxápe**).

- II. **-xe** — plural, **-t** — past, **-me** — conditional mood, **-qəm** — negative form.

Answers:

- (a) **zeqén** *to bite*
medéf *(he/she) is able to sew*
medáfe *(he/she) is pretending to sew*
səfän *to be able to burn*
meg^wəš’ə?e *(he/she) is speaking*
mebáb *(he/she) is flying*
- (b) **çentχ^wéfme** *if (he/she) is able to slide*
šxáfexeqəm *(they) aren’t pretending to eat*
bəbáft *(he/she) was able to fly*
šxet *(he/she) was eating*
ʔəg^wərəg^wépeme *if (he/she) really is trembling*