

en(A)

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: *mäcuilli*, 10: *mahtlactli*, 15: *caxtölli*;

α		20^β
1:	<i>ceM</i>	
2:	<i>ōm</i>	20: <i>pōhualli</i>
3:	<i>yē</i>	400: <i>tzontli</i>
4:	<i>nāuh</i>	8000: <i>xiquipilli</i>
5:	<i>mäcuil</i>	

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

$$\begin{array}{llll}
 \begin{array}{l}
 \begin{array}{rcl}
 11^{10+1} & \times 10 & = 110^{5 \times 20+10} \\
 1 \times 20 & &
 \end{array} \\
 (1) & &
 \end{array}
 &
 \begin{array}{rcl}
 1+1 & = & 1 \times 2 \\
 1+4 & = & 5
 \end{array} &
 (7) & (8)
 \end{array}$$

$$\begin{array}{llll}
 \begin{array}{l}
 \begin{array}{rcl}
 20^{1 \times 20} & \times 2 & = 40^{2 \times 20} \\
 3 \times 20+(5+2) & + 14 & = 81^{4 \times 20+1}
 \end{array} \\
 (2) & (3) &
 \end{array}
 &
 \begin{array}{rcl}
 12^{2 \times 6} & + 60^{36+4 \times 6} & = 72^{2 \times 36} \\
 3 \times 6 & & 36+3 \times 6
 \end{array} &
 (9) &
 \end{array}$$

$$\begin{array}{llll}
 \begin{array}{l}
 \begin{array}{rcl}
 67^{10+3} & \times 3 & = 39^{1 \times 20+(15+4)} \\
 5+2 & = & 7
 \end{array} \\
 (4) & (5) &
 \end{array}
 &
 \begin{array}{rcl}
 3 \times 18 & = & 54 \\
 6 \times 36 & = & 216
 \end{array} &
 (10) & (11)
 \end{array}$$

$$\begin{array}{llll}
 \begin{array}{l}
 \begin{array}{rcl}
 5 \times 3 & = & 15
 \end{array} \\
 (6)
 \end{array}
 &
 \begin{array}{rcl}
 6+12 & = & 18
 \end{array} &
 (12) &
 \end{array}$$

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

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

$$\begin{array}{rcl} 1 \times 400 \\ 400 & = & 400 \end{array} \quad (15)$$

$$\begin{array}{rcl} 1 \times 8000 \\ 8000 & = & 8000 \end{array} \quad (16)$$

- (b) • $42 = 2 \times 20 + 2$: öm-pöhualli-om-öme;
 • $494 = 1 \times 400 + 4 \times 20 + 10 + 4$: cen-tzonli-on-náuh-pöhualli-om-mahtlactli-on-náhui.
- (c) • $43 = 36 + 6 + 1$: fete nimbo ngámbi;
 • $569 = 2 \times 216 + 3 \times 36 + 4 \times 6 + 5$: yànparo 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 > CəC (**de** + **-f** + **-n** > **de-f-ə-n**, **me-** + **bəb** + **-pe** > **me-bəb-ə-pe**).
2. The last syllable receives the stress if it is closed, otherwise the penultimate is stressed (**defən** > **defən**, **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) | zéqén | <i>to bite</i> |
| | medéf | <i>(he/she) is able to sew</i> |
| | medáfe | <i>(he/she) is pretending to sew</i> |
| | səfən | <i>to be able to burn</i> |
| | megʷəš'ə?e | <i>(he/she) is speaking</i> |
| | mebáb | <i>(he/she) is flying</i> |
| (b) | çentχʷéfme | <i>if (he/she) is able to slide</i> |
| | šxáfexeqəm | <i>(they) aren't pretending to eat</i> |
| | bəbóft | <i>(he/she) was able to fly</i> |
| | šxet | <i>(he/she) was eating</i> |
| | təgʷərəgʷəpeme | <i>if (he/she) really is trembling</i> |