

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: *catōlli*;

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

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

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

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

Arammba:

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

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