

Seventh International Olympiad in Theoretical, Mathematical and Applied Linguistics

Wrocław (Poland), 26–31 July 2009

Individual Contest Solutions

Problem #1. Here are the words from which the Sulka language constructs its numerals:

- *tgiang* 1, *lomin* 2, *korlotge* 3, *korlolo* 4, *ktiēk* 5, *mhelom* 20;
- *hori orom* addition, *lo* doubling;
- *a* singular, *o* plural (from 3 on).

Nouns have different forms for the two numbers (*tu*, *sngu*; *vhoi*, *vuo*). There are separate words for a foursome of coconuts, for a twosome and foursome of breadfruit (*ngausmia*, *moulang*, *ngaitegaap*).

Answers:

- (a) • *a ksie a tgiang*: 1 coconut
• *o ngaitegaap a korlotge*: 12 breadfruits
• *o ngausmia a ktiēk*: 20 coconuts
• *o vuo a lo ktiēk hori orom a tgiang*: 11 betel nuts
- (b) • 2 yams: *a lo tu a lomin*
• 14 yams: *o sngu a lo ktiēk hori orom a korlolo*
• 15 breadfruits: *o ngaitegaap a korlotge hori orom a moulang hori orom a tgiang*
• 20 betel nuts: *o vuo a mhelom*

Problem #2. The N’Ko script is written and read from right to left. The script is an alphabet: each letter stands for a consonant or a vowel. The letters within a word are joined.

- (a) A tilde above a vowel letter means low tone, its absence means high tone. But a vowel has middle tone if it is marked in the same way as the one before it (if both either have or lack tildes).

ብልકòró — bìlákòró

tájula — tájula

કòrikóri — kòrikóri

báwò — báwò

- (b) If two adjacent syllables have the same vowel and both letters should have a tilde or neither should have one according to the rules, only the second vowel is written.

કòlòlá — kòlòlá

támene — támene

wólówolo — wólówolo

létere — létere

bìlakóro — bìlakóro

jàmanaké — jàmanaké

Problem #3. We can see that the names of the children born on the same day of the week have similar first sounds:

- Monday: kauṇ mya?, khiṇ le nwε, khain miṇ thuṇ, kepi thuṇ
- Tuesday: zeiya cɔ, su mya? so, susu wiṇ, shan thuṇ, shu maṇ cɔ
- Wednesday: wiṇ i muṇ, lwiṇ koko, wiṇ cɔ auṇ, yadana u, yinyin myiṇ
- Thursday: pan we, pyesouṇ auṇ, mimi khain, phouṇ naiṇ thuṇ, myo khiṇ wiṇ
- Saturday: thouṇ uṇ, ne liṇ, tiṇ maun la?, the? auṇ, tiṇ za mo

Answers:

- ŋwe sinpu — 07/13/2009 (Monday);
- so mo cɔ — 06/16/2009 (Tuesday);
- yε auṇ naiṇ — 06/24/2009 (Wednesday),
- daliya — 07/18/2009 (Saturday),
- e tiṇ — 06/14/2009 (Sunday: there are no Sunday-born children in the data, nor any names beginning with vowels),
- phyuphyu wiṇ — 07/09/2009 (Thursday).

Problem #4.

| | | |
|-----------------------------------|---|---|
| If the stop consonant in the root | and the vowel in the suffix is <i>a</i> , | and the vowel in the suffix is <i>i</i> , |
| is voiced | the stress is on the suffix. | the stress is on the root. |
| is voiceless | the stress is on the root. | the stress is on the suffix. |

- (a) This rule holds if the root contains precisely one stop consonant. If there are two (*bhāg-a-*, *pad-a-*, *pat-i-*), or if there are none (*us-ri-*), the place of the stress can't be determined.
- (b) *mṛdh-rá-, phé-na-, stu-tí-, tan-tí-, bhār-á-, dū-tá-, sváp-na-, bhū-mi-, ghar-má-, abh-rá-, ghan-á-, ghýs-vi-*.

Problem #5. The Nahuatl sentences begin with the predicate. The subject and object (or objects) follow in any order, preceded by *in* (a definite article).

The verb receives the following prefixes:

- subject: *ni-* 1st person sg, *ti-* 2nd person sg, —— 3rd person sg;
- object: *nēch-* 1st person sg, *mitz-* 2nd person sg, *k-* 3rd person sg;
- another object: *tē-* ‘somebody’, *tlā-* ‘something’.

As well as the following suffixes:

- ‘make …’:
 - <intansitive verb>-*tia* (with lengthening of a preceding *i*),
 - <transitive verb>-*lia*;
- ‘do for …’: -*lia* (with change of a preceding *a* to *i*).

Often the same action with and without an object is expressed by different verbs.

Answers:

- | | | |
|-----|--|---|
| (a) | 18. <i>tiktlazohtlaltia</i> <i>in zihuātl in kuauhxīnki</i> | you make the woman love the carpenter; you make the carpenter love the woman |
| | 19. <i>nēchtzāhtzītia</i> | he makes me shout |
| | 20. <i>tikhuiteki</i> | you beat him |
| | 21. <i>nikēhuilia in kikatl in tīzītl</i> | I sing the song for the healer |
| | 22. <i>nikneki in ātōlli</i> | I want the atole |
| | 23. <i>mitztlakāhualtia</i> | he makes you leave something |
| (b) | 24. he makes me prepare the atole 25. you prepare the wine for somebody 26. the healer makes you sleep 27. I sing something 28. I fall | <i>nēchchīhualtia in ātōlli</i> <i>tiktēchīhuilia in oktli</i> <i>mitzkochītia in tīzītl</i> <i>nitlaēhua</i> <i>nihuētzi</i> |