

Fifteenth International Linguistics Olympiad

Dublin (Ireland), 31 July – 4 August 2017

Individual Contest Problems

Rules for writing out the solutions

Do not copy over the problems. Write down your solution to each problem on a separate sheet or sheets. On each sheet indicate the number of the problem, the number of your seat and your surname. Otherwise your work may be mislaid or misattributed.

Your answers must be well-supported by argument. Even a perfectly correct answer will be given a low score unless accompanied by an explanation.

Problem 1 (20 points). Here are some arithmetic equalities in Birom:

1. $\text{tùgùn}^2 + \text{tàt} + \text{nààs} = \text{bākūrū bībā ná vè rwīt}$
2. $\text{tàt} \text{nààs} = \text{bākūrū bītīmìn ná vè fāātàt}$
3. $\text{tàāmà}^2 + \text{fāātàt} + \text{gwīnìṅ} = \text{bākūrū bīnāàs ná vè fāāgwīnìṅ}$
4. $\text{fāātàt} \text{gwīnìṅ} = \text{fāātàt}$
5. $\text{rwīt}^2 + \text{bà} + \text{tùgùn} = \text{bākūrū bītūgùn ná vè fāāgwīnìṅ}$
6. $\text{bà} \text{tùgùn} = \text{bākūrū bībā ná vè rwīt}$
7. $\text{fāātàt}^2 + \text{nààs} + \text{tàt} = \text{bākūrū bītāāmà ná vè nààs}$
8. $\text{nààs} \text{tàt} = \text{bākūrū bītūgùn ná vè nààs}$
9. $\text{kūrū ná vè nààs} + \text{kūrū ná vè fāātàt} = \text{kūrū ná vè tīmìn} + \text{bà} + \text{kūrū ná vè tùgùn}$

All numbers in this problem are greater than 0 and less than 125.

- (a) Write the equalities (1–9) in numerals.
- (b) Write the numbers **bākūrū bītāt**, **fāāgwīnìṅ**, **kūrū** and the equalities (A) and (B) in numerals.

A. $\text{bākūrū fāābītāt} - \text{tàt} - \text{kūrū ná gwē gwīnìṅ} = \text{bākūrū bītāāmà ná vè rwīt}$

B. $\text{bākūrū bīnāàs ná gwē gwīnìṅ} - \text{kūrū ná vè bà} - \text{kūrū ná vè tàt} = \text{kūrū ná vè rwīt}$

- (c) Write out in Birom: 6, 22, 97, 120.

△ Birom belongs to the Plateau group of the Benue-Congo branch of the Atlantic-Congo family. It is spoken by approx. 1,000,000 people in Nigeria.

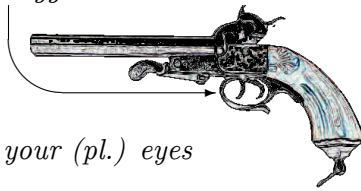
ε is a vowel. ŋ and ʃ are consonants. The doubling of a vowel denotes length. The marks ´, ¨ and ` indicate high, middle, and low tone, respectively.

$$a^k = \underbrace{a \times a \times \cdots \times a}_{k \text{ times}}; a^1 = a.$$

—Milena Veneva

Problem 2 (20 points). Here are some words and word combinations in Abui and their English translations in arbitrary order:

1. **abang**
2. **atáng heya**
3. **bataa hawata**
4. **dekafi**
5. **ebataa hatáng**
6. **ekuda hawata**
7. **falepak hawei**
8. **hatáng hamin**
9. **helui**
10. **maama hefalepak**
11. **napong**
12. **rièng**
13. **ritama**
14. **riya hatáng**
15. **tama habang**
16. **tamin**
17. **tefe hawei**

- a. *his fingertip*
 - b. *your (sg.) branch*
 - c. *my face*
 - d. *one's own rope*
 - e. *your (sg.) shoulder*
 - f. *your (pl.) mother's hand*
 - g. *our pigs' ears*
(the ear of the pig of each of us)
 - h. *father's pistol*
 - i. *your (sg.) horse's neck*
 - j. *trigger*
- 
- k. *your (pl.) eyes*
 - l. *our noses*
(the nose of each of us)
 - m. *his knife*
 - n. *seashore*
 - o. *upper part of a tree*
 - p. *your (sg.) thumb*
 - q. *your (pl.) sea*

- (a) Determine the correct correspondences.
- (b) Translate into English: 1. **amin**; 2. **deya hebataa**.
- (c) Translate into Abui:

1. *pig*
2. *your (pl.) knife*
3. *your (sg.) mother's father*
4. *my father's face*
5. *one's own ear*
6. *my sea*

⚠ Abui belongs to the Timor-Alor-Pantar family. It is spoken by approx. 16,000 people in Indonesia.

The marks ´ and ` denote tones.

—Aleksejs Peguševs

Problem 3 (20 points). Here are some sentences in Kimbundu and their English translations:

1. **ngámónà dihónzò mùdilóngà**
I saw the banana on the plate.
2. **àlózí ásángá djálà mùdikúngù**
The sorcerers met the man in the cave.
3. **ngádjà dihónzó djámì**
I ate my banana.
4. **mùdjúlù mwálà zìtéténbwà**
There are stars in the sky.
5. **dikámhá djámí djáfíkà nì djákínà**
My friend sang and danced.
6. **ngámónà dikúngú djámí**
Did I see my cave?
7. **ngámóná málà mùkitándà**
I saw the men in the square.
8. **ngásángá múlózí mwámì mùlwándà**
I met my sorcerer in Luanda.
9. **mùkitándà mwálá djálá djámì**
My man (husband) is in the square.
10. **mùdikúngù ngámónà màkòlóbóló**
Did I see the roosters in the cave?
11. **àtú ádjà dihónzò mùlwándá**
Did the people eat the banana in Luanda?

(a) Translate into English (one of the sentences is very similar in meaning to one of the sentences above):

12. **múlózí mwámónà zìtéténbwá**
13. **zìtéténbwá zjálà mùdjúlù**
14. **ngákínà**
15. **djálá djámónà màhónzò mùlwándá**

(b) Translate into Kimbundu (one of the sentences may have more than one translation):

16. *Did I sing?*
17. *The person met the sorcerer and the friend in the square.*
18. *My man (husband) saw the cave.*
19. *There are sorcerers in Luanda.*

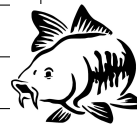
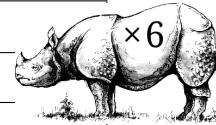
△ Kimbundu (North Mbundu) belongs to the Bantu group of the Benue-Congo branch of the Atlantic-Congo family. It is spoken by approx. 50,000 people in Angola.

w = *w* in *win*. **j** = *y* in *yum*. **ʃ** and **ʒ** are consonants. The marks ´ and ` indicate high and low tone, respectively.

—Bruno L'Astorina

Problem 4 (20 points). Here are some word combinations in Laven written in the Khom script and in phonetic transcription and their English translations:

1	𑄓𑄛𑄚𑄛	praj trie	<i>to wake up the wife</i>
2	𑄓𑄛𑄚𑄛	ca:k caj	<i>from the heart/mind/soul</i>
3	?	taw bæ:	<i>to see the raft</i>
4	𑄓𑄛𑄚𑄛	kriət blaw	<i>to scratch the thigh</i>
5		plaj priət	<i>banana</i>
6	?	?	<i>three bananas</i>
7	𑄓𑄛𑄚𑄛	?	<i>six rhinoceros</i>
8	𑄓𑄛𑄚𑄛	?	<i>four hands of bananas</i>
9	𑄓𑄛𑄚𑄛	?	?
10	?	cie pɰh la:	<i>seven sheets of paper</i>
11	𑄓𑄛𑄚𑄛	?	<i>aubergine/eggplant leaf</i>
12		?	<i>two aubergines/eggplants</i>
13	𑄓𑄛𑄚𑄛	plaj hnat pɰh plaj	<i>seven pineapples</i>
14	𑄓𑄛𑄚𑄛	kruat pɛ: to:	<i>three bees</i>
15		la: priət traw la:	?
16	?	kə:r bə:r to:	<i>two doves</i>
17		bla:k puan ka:	<i>four carp</i>
18	𑄓𑄛𑄚𑄛	piet traw pla:	<i>six knives</i>
19	𑄓𑄛𑄚𑄛	bə:r ka:	?
20	𑄓𑄛𑄚𑄛	?	<i>four blades</i>



Fill in the cells with the question marks (you don't have to fill in the shaded ones).

⚠ Laven (Jru') belongs to the Austroasiatic family. It is spoken by approx. 28,000 people in Laos. The Khom script was used for this language from 1924 to 1936. —Tae Hun Lee

Problem 5 (20 points). Here are some words in Madak and their English translations:

lavatbungmenemen	<i>the whole world</i>	loxongkao	<i>hot coal (ember)</i>
laxangkatli	<i>many eyes</i>	loxontaamang	<i>part of a garden</i>
laxanoos	<i>many vines</i>	lualeng	<i>two days</i>
laxao	<i>fire</i>	lubungtadi	<i>group of men</i>
lemparoos	<i>big vines</i>	luneton	<i>two brothers; two sisters</i>
lengkompixan	<i>songs</i>	lurubuno	<i>grandchild</i>
levempeve	<i>hearts</i>	luuna	<i>tree</i>
levenaleng	<i>days</i>	luvanga	<i>two things</i>
levengkot	<i>places</i>	luvatpeve	<i>two big hearts</i>
levenmenemen	<i>villages</i>	luvutneton	<i>brothers; sisters</i>
livixan	<i>singing (noun)</i>	luvuttadi	<i>men</i>
loroonan	<i>spirit</i>	luxavus	<i>two white men</i>

(a) Give a literal translation of the word **lavatbungmenemen**.

(b) Translate into English:

1. **laradi**
2. **lavatkonuna**
3. **laxantoonan**
4. **levengkatli**
5. **loxot**
6. **lubungkavus**
7. **luvaroos**

(c) Translate into Madak:

8. *heart*
9. *gardens*
10. *many things*
11. *grandchildren*
12. *two parts of day (two moments)*
13. *branches*
14. *big branches*

△ Madak belongs to the Meso-Melanesian group of the Malayo-Polynesian branch of the Austronesian family. It is spoken by approx. 3,000 people in Papua New Guinea (New Ireland).

ng = *ng* in *hang*. **x** is the voiced counterpart of *ch* in Scottish *loch* or German *Bach*.

—Ivan Derzhanski

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Good luck!