

en

Fifteenth International Linguistics Olympiad

Dublin (Ireland), 31 July – 4 August 2017

Individual Contest Solutions

Problem 1. The number system is duodecimal.

- **gwīnīj** — 1, **bà** — 2, **tàt** — 3, **nààs** — 4, **tùjūn** — 5, **tiīmīn** — 6, **tàāmà** — 7, **rwīt** — 8
- **ʃāā- α** = $12 - \alpha$ ($1 \leq \alpha \leq 3$): **ʃāātāt** — 9, **ʃāābà** — 10, **ʃāāgwīnīj** — 11
- **kūrū** — 12
- **bā-kūrū bī- γ** = $\gamma \cdot 12$ ($2 \leq \gamma \leq 8$), **bā-kūrū ʃāā-bī- γ** = $(12 - \gamma) \cdot 12$ ($1 \leq \gamma \leq 3$)
(the tone in the first syllable of γ becomes middle)
- β **ná** $\left\{ \begin{array}{ll} \text{gw}\bar{\epsilon} & \text{gwīnīj } (\delta = 1) \\ \text{v}\bar{\epsilon} & \delta \text{ } (2 \leq \delta \leq 11) \end{array} \right\} = \beta + \delta$ ($\beta = k \cdot 12$)

Answers:

- (a) 1. $5^2 + 3 + 4 = 32$
2. $3^4 = 81$
3. $7^2 + 9 + 1 = 59$
4. $9^1 = 9$
5. $8^2 + 2 + 5 = 71$
6. $2^5 = 32$
7. $9^2 + 4 + 3 = 88$
8. $4^3 = 64$
9. $16 + 21 = 18 + 2 + 17$

- (b) **bākūrū bītāt** — 36, **ʃāāgwīnīj** — 11, **kūrū** — 12.

- A. $108 - 3 - 13 = 92$
B. $49 - 14 - 15 = 20$

- (c) 6 — **tiīmīn**, 22 — **kūrū ná v̄e ʃāābà**, 97 — **bākūrū bīrwīt ná gw̄e gwīnīj**, 120 — **bākūrū ʃāābībā**.

Problem 2. Word order: <possessor> <possessed>.

Possessive prefixes:

possessor	possessed
1st person sg	n-
2nd person sg	Ø-
3rd person sg	h-
‘... of each of us’	t-
‘one’s own ...’	d-
2nd person pl	ri-

Answers:

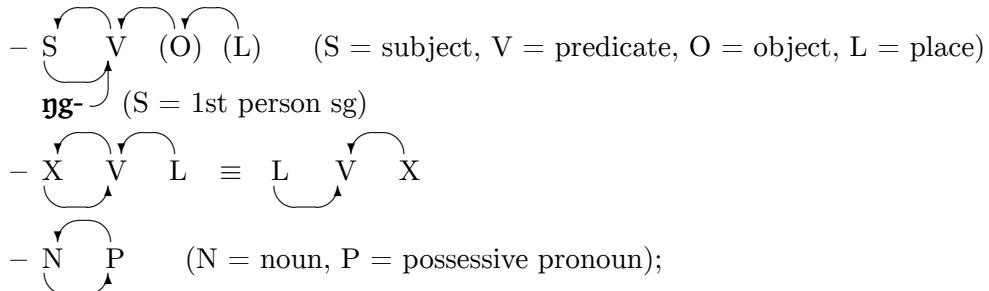
- (a) 1. **a-bang** e. *your (sg.) shoulder*
 2. **a-táng he-ya** p. *your (sg.) thumb* ['your (sg.) hand's mother']
 3. **bataa ha-wata** o. *upper part of a tree* ['tree's neck']
 4. **de-kafi** d. *one's own rope*
 5. **e-bataa ha-táng** b. *your (sg.) branch* ['your (sg.) tree's hand']
 6. **e-kuda ha-wata** i. *your (sg.) horse's neck*
 7. **falepak ha-wei** j. *trigger* ['pistol's ear']
 8. **ha-táng ha-min** a. *his fingertip* ['his hand's nose']
 9. **he-lui** m. *his knife*
 10. **maama he-falepak** h. *father's pistol*
 11. **na-pong** c. *my face*
 12. **ri-èng** k. *your (pl.) eyes*
 13. **ri-tama** q. *your (pl.) sea*
 14. **ri-ya ha-táng** f. *your (pl.) mother's hand*
 15. **tama ha-bang** n. *seashore* ['sea's shoulder']
 16. **ta-min** l. *our noses (the nose of each of us)*
 17. **te-fe ha-wei** g. *our pigs' ears*
(the ear of the pig of each of us)

- (b) 1. **a-min** — *your (sg.) nose*; 2. **de-ya he-bataa** — *one's own mother's tree*

- (c) 1. *pig* — **fe**
 2. *your (pl.) knife* — **ri-lui**
 3. *your (sg.) mother's father* — **e-ya he-maama**
 4. *my father's face* — **ne-maama ha-pong**
 5. *one's own ear* — **da-wei**
 6. *my sea* — **ne-tama**

Problem 3. Rules:

- word order:



- ↗: gender and number concord —

singular	plural
mú-	à-
dì-	má-
	ʒì-
mù+ (place)	

(before a vowel i- > j-, u- > w-, a- > Ø);

- ↘: the tone of the last syllable assimilates to the tone of the first syllable of the following word;
- the tone of the last syllable of the last word is low in a declarative sentence and high in an interrogative one.

Answers:

- (a) 12. **múlózí mwámónà ʒítéténbwá**
Did the sorcerer see the stars?
13. **ʒítéténbwá ʒjálà mùdjúlù**
There are stars in the sky. = (4)
14. **ŋgákínà**
I danced.
15. **djálá djámónà màhónzò mìlwándá**
Did the man see the bananas in Luanda?
- (b) 16. *Did I sing?*
ŋgáfíká
17. *The person met the sorcerer and the friend in the square.*
mútú mwásájgá múlózì nì díkámbà mùkítándà
18. *My man (husband) saw the cave.*
djálá djámí djámónà díkúngù
19. *There are sorcerers in Luanda.*
mìlwándà mwálà àlózì; àlózí álá mìlwándà

Problem 4. Word order: [[⟨class⟩] ⟨species⟩] [⟨numeral⟩ ⟨class⟩].

The direction of writing is from left to right. One syllable = two characters:

C(C)-	-V(V)(C)
ବ୍ର b, ବ୍ରୁ bl, ବ୍ରୁଁ c, ହ୍ରୁ hn, କ୍ରୁ k, କ୍ରୁଁ kr, ଲ୍ରୁ l, ପ୍ରୁଁ p, ପ୍ରୁଁ pl, ପ୍ରୁଁଁ pr, ତ୍ରୁଁ t, ତ୍ରୁଁଁ tr	ଅୟ a:, ଅୟୀ a:k, ଅୟୀଁ aj, ଅୟୁ at, ଅୟୁଁ aw, ଅୟୁଃ ଓର, ଏୟେଁ ei, ଏୟେଁଁ ie, ଏୟେଁଁଁ et, ଏୟେଁଁଁଁ et, ଏୟୋଁ o:, ଏୟୁନ୍ଦୁଁ uan, ଏୟୁଅୟୁତ୍ସୁଁ uat, ଏୟୁଅୟୁତ୍ସୁଁଁ ah

Answers:

3	→ ເຄື່ອລໍ່ມໍາ ←	taw be:	to see the raft
6	→ ປາຍ ນາງ ພັບ ປາຍ ນາງ ←	→ plaj priət pe: plaj ←	three bananas
7	ຫຼາກສິ່ງແຮງ	→ hna: traw to: ←	six rhinoceros
8	ເປັນ ດຸກ	→ puān lāh ←	four hands of bananas
9	ເປັນ ດຸກ ລຳ	→ pe: la: ←	→ three leaves ←
10	→ ຜັນເປັນ ດຸກ ລຳ ←	cie pāh la:	seven sheets of paper
11	ຫຼາກ ນາງ	→ la: plo: ←	aubergine/eggplant leaf
12		→ plaj plo: bə:r plaj ←	two aubergines/eggplants
15		la: priət traw la:	→ six banana leaves ←
16	→ ດີ ສິ່ງ ສິ່ງ ແຮງ ←	kə:r bə:r to:	two doves
19	ດີ ສິ່ງ ລຳ	bə:r ka:	→ two fish ←
20	ເປັນ ດຸກ ລຳ	→ puān pla: ←	four blades

Problem 5.

1. number: l-	<table style="margin-left: 20px; border-collapse: collapse;"> <tr> <td style="border-bottom: 1px solid black; padding-bottom: 5px;">V-</td><td style="border-bottom: 1px solid black; padding-bottom: 5px; border-left: 1px solid black; padding-left: 10px; border-right: 1px solid black; padding-right: 10px; text-align: center;"> $\left\{ \begin{array}{l} \dots \dots \dots \dots \dots \dots \\ \left\{ \begin{array}{ll} \text{vut-} & \text{people} \\ \text{ven-} & \text{otherwise} \end{array} \right. \end{array} \right\}$ </td><td style="border-bottom: 1px solid black; padding-bottom: 5px; border-left: 1px solid black; padding-left: 10px; border-right: 1px solid black; padding-right: 10px; text-align: center;">singular</td></tr> <tr> <td style="border-bottom: 1px solid black; padding-bottom: 5px;">u-</td><td style="border-bottom: 1px solid black; padding-bottom: 5px; border-left: 1px solid black; padding-left: 10px; border-right: 1px solid black; padding-right: 10px; text-align: center;"> $\left\{ \begin{array}{l} \dots \dots \dots \dots \dots \dots \\ \text{xan-} \dots \dots \dots \dots \dots \dots \\ \dots \dots \dots \dots \dots \dots \end{array} \right\}$ </td><td style="border-bottom: 1px solid black; padding-bottom: 5px; border-left: 1px solid black; padding-left: 10px; border-right: 1px solid black; padding-right: 10px; text-align: center;">plural 'many'</td></tr> </table>	V-	$\left\{ \begin{array}{l} \dots \dots \dots \dots \dots \dots \\ \left\{ \begin{array}{ll} \text{vut-} & \text{people} \\ \text{ven-} & \text{otherwise} \end{array} \right. \end{array} \right\}$	singular	u-	$\left\{ \begin{array}{l} \dots \dots \dots \dots \dots \dots \\ \text{xan-} \dots \dots \dots \dots \dots \dots \\ \dots \dots \dots \dots \dots \dots \end{array} \right\}$	plural 'many'	
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u-	$\left\{ \begin{array}{l} \dots \dots \dots \dots \dots \dots \\ \text{xan-} \dots \dots \dots \dots \dots \dots \\ \dots \dots \dots \dots \dots \dots \end{array} \right\}$	plural 'many'						

(V = the vowel in the following syllable);

2. **pat-** 'big';
3. **bung-** 'group', **kon-** 'part'.

Rules:

- before another prefix **le-ven-** > **len-**
- before **p -n** > **m**
- before **k -n** > **ng**
- p, p- > v
- between two vowels -t, t- > r
- k, k- > x.

Answers:

- (a) **lavatbungmenemen** — big group of villages
- (b)
 1. **laradi** — man
 2. **lavatkonuna** — big branch
 3. **laxantoonan** — many spirits
 4. **levengkatli** — eyes
 5. **loxot** — place
 6. **lubungkavus** — group of white men
 7. **luvaroos** — two big vines
- (c)
 8. **heart** — leveve
 9. **gardens** — leventaamang
 10. **many things** — laxampanga
 11. **grandchildren** — luvuttubuno
 12. **two parts of day** — luxonaleng
 13. **branches** — lengkonuna
 14. **big branches** — lempatkonuna