

## First Asia Pacific Linguistics Olympiad

May 5, 2019

Solutions

## Problem 1. Rules

- **kɔn** — 1, **leβetse** — 2, **aɖe** — 3, **ts'agúsé** — 4, **túde** — 5.

- $10 = \text{tomíní}$                        $10 Y = \text{tomínékwa } Y$  ( $2 \leq Y \leq 9$ )  
 $100 = \text{ɲamíá kɔn}$                        $100 Y = \text{ɲamíá } Y$  ( $2 \leq Y \leq 9$ )  
 $1000 = \text{álfika kɔn}$                        $1000 Y = \text{álfika } Y$  ( $2 \leq Y \leq 999$ )

cf. **tomíní** (< Turkana *tomon*), **ɲamíá**, **álfika** (< Swahili *mia*, *elfu*)

- $5 + X = \begin{cases} \text{túde } \boxed{\text{ńda kɪdɪ}} X & (X = 1) \\ \text{túde } \boxed{\text{ńda kɪdɪ}} X & (2 \leq X \leq 4) \end{cases}$   
 $10 Z + W = \begin{cases} 10 Z \boxed{\text{ńda néβe}} W & (1 \leq Z \leq 9, W = 1) \\ 10 Z \boxed{\text{ńda jɪrɪmɪ}} W & (1 \leq Z \leq 9, 2 \leq W \leq 9) \end{cases}$   
 $100 Z + W = 100 Z \boxed{\text{ńda}} W$  ( $1 \leq Z \leq 9, 10 \leq W \leq 99$ )  
 $1000 Z + W = 1000 Z \boxed{\text{ńda}} W$  ( $1 \leq Z \leq 999, 100 \leq W \leq 999$ )
- Final vowel is deleted (e.g. **ts'agúsé** → **ts'agús**).

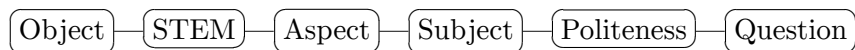
## Answers

- (a) a. 256 (=  $4^4$ ); b. 4096 (=  $8^4$ ); c. 6561 (=  $9^4$ ); d. 10000 (=  $10^4$ ); e. 1296 (=  $6^4$ ); f. 81 (=  $3^4$ ); g. 16 (=  $2^4$ ); h. 1 (=  $1^4$ ); i. 2401 (=  $7^4$ ); j. 625 (=  $5^4$ ).
- (b) k. **álfika tomíní ńda jɪrɪmɪ leβets** — 12000  
 l. **tomínékwa túde ńda kɪdɪ kɔn** — 60  
 m. **tomínékwa túde ńda néβe kɔn** — 51  
 n. **álfika ɲamíá kɔn** — 100000
- (c) 3108 — **álfika aɖe ńda ɲamíá kɔn ńda túde ńda kɪdɪ aɖ**
- (d) 14641 — **álfika tomíní ńda jɪrɪmɪ ts'agúsé ńda ɲamíá túde ńda kɪdɪ kɔn ńda tomínékwa ts'agúsé ńda néβe kɔn**

**Problem 2.** Rules

1. Sentence structure: (Ta) (O) V (S) (Ta is used for a negative question.)

2. Verb structure:



• Object:

Stem begins with	C	V
1st person singular	ka-	k-
2nd person singular	i-	dʒ-
3rd person singular	∅-	∅-

(C = consonant, V = vowel)

• Aspect:

{	-∅	'...-ed ...'					
	-si	'... had finished -ing ...'					
	<table border="0"> <tr> <td rowspan="2" style="font-size: 2em; vertical-align: middle;">{</td> <td>-he</td> <td>if stem ends with -a</td> <td rowspan="2">'... was -ing ...'</td> </tr> <tr> <td>-ahe</td> <td>otherwise</td> </tr> </table>	{	-he	if stem ends with -a	'... was -ing ...'	-ahe	otherwise
{	-he		if stem ends with -a	'... was -ing ...'			
	-ahe	otherwise					

• Subject: 2nd person singular -i, 3rd person singular -a.

• Politeness: -tʃe

- Used when communicating with adults of the opposite sex.
- Exception for males: The marker is used when speaking with son-in-laws/father-in-laws.

• Question:  $\begin{cases} -na & \text{positive question} \\ -ne & \text{negative question} \end{cases}$

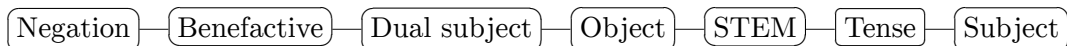
3. e → i / \_\_a (i.e. e is raised to i when followed by a.)

Answers

1. *The dark capuchin monkey told (it) to me.*
2. *Was the owl monkey meeting the woman?*
3. *Hadn't he/she finished looking for the man?*
4. All males, i.e. Manoel, Hwāa, Fwerisi, Tçūki and Fwaboro.
5. All females, i.e. Lomaj, Marja, Isabeli and Marata.
6. Tçūki, Fwaboro and Manoel.
7. **Etoe kuretiahiatçena**
8. **Dʒesenetaatçe kati**
9. **Katça ariahiatçe**
10. **Ibiana**

**Problem 3.** Rules

1. Verb structure:



• Negation: *tee-*

• Tense:

• Benefactive ('for ...'):

	singular	plural
1st person	<i>na-</i>	<i>niya-</i>
2nd person	<i>ka-</i>	<i>kiya-</i>
3rd person	<i>ya-</i>	—

$$\left\{ \begin{array}{l} -p \text{ past } (\neq \text{today}) \\ -g \text{ past (today)} \end{array} \right.$$

• Dual subject: *aa-*

• Object:

	singular	plural
1st person	<i>na-</i>	<i>ne-</i>
2nd person	<i>ka-</i>	<i>ke-</i>
3rd person	<i>e-</i>	<i>e-</i>
reciprocal	<i>aka-</i>	

• Subject:

	singular	plural
1st person	<i>-a</i>	<i>-e</i>
2nd person	<i>-e</i>	<i>-aa</i>
3rd person	<i>-i</i>	<i>-ai</i>

2. Meanings of the verbs:

	intransitive	transitive	reciprocal
<i>mee</i>	<i>come</i>	<i>bring</i>	—
<i>doo</i>	—	<i>see</i>	<i>meet</i>
<i>bukai</i>	—	<i>save</i>	<i>save each other</i>
<i>dokai</i>	—	<i>carry</i>	—
<i>wagee</i>	—	—	<i>fight</i>

Answers

(a) 13. *aameepai* — *They two came.*

14. *tekedoogi* — *He did not see you(pl) today.*

15. *naaameegaa* — *You two came for me today.*

16. *teenadokaipaa* — *You(pl) did not carry me.*

(b) 17. *You(sg) saw them today.* — *edooge*

18. *I did not come for him today.* — *teeyameega*

19. *You two saw him for us.* — *niyaaaedoopaa*

20. *They saved each other.* — *akabukaipai*

(c) 21. *kameepi* — (1) *He brought you(sg);* (2) *He came for you(sg).*

22. *edoope* — (1) *You(sg) saw him;* (2) *You(sg) saw them;* (3) *We saw him;* (4) *We saw them.*

**Problem 4.** Rules

1. Verb roots: **g-d-l** — *grow up*; **z-k-n** — *grow old*; **kh-l** — *eat*; **h-v** — *love*; **g-n-v** — *steal*; **k(∼x)-t-v** — *write*; **b-t-l** — *shame*; **sh-m-r** — *guard*.

2.	Root	→	Simple	Intense	Causative	Reflexive
	<b>p-'-l</b>	→	<b>pa'al</b>	<b>pi'el</b>	<b>hif'il</b>	<b>hitpa'el</b>
	$(C_1)-C_2-C_3$	→	$(C_1)aC_2aC_3$	$(C_1)iC_2eC_3$	$hi(C_1)C_2iC_3$	$hit(C_1)aC_2eC_3$

3. Person and gender:

- Subject = 1st person:  $V_\omega \rightarrow a$ ; suffix **-ti**.
- Subject = 2nd person male:  $V_\omega \rightarrow a$ ; suffix **-ta**.
- Subject = 2nd person female:  $V_\omega \rightarrow a$ ; suffix **-t**.
- Subject = 3rd person female:  $V_\omega (\neq i) \rightarrow \text{ə}$ ; suffix **-a**.

( $V_\omega$  = final vowel)

Answers

- (a)
1. *I grew up*. — **gadalti**
  2. *She loved (someone)*. — **ahəva**
  3. *She grew up*. — **gadəla**
  4. *I rewrote (something)*. — **kitavti**
  5. *You(masc) grew old*. — **zakanta**
  6. *He stole (something) repeatedly*. — **ginev**
  7. *You(fem) humiliated (someone)*. — **bitalt**
  8. *You(fem) corresponded (with someone)*. — **hitxatavt**
  9. *She wrote (something)*. — **katəva**
  10. *He grew (something)*. — **higdil**
  11. *You(masc) fed (someone)*. — **hikhalta**
  12. *She smuggled (something)*. — **higniva**
  13. *He shamed himself*. — **hitbatel**
  14. *I guarded (something) firmly*. — **shimarti**
- (b)
- zakan** — *He grew old*.  
**katav** — *He wrote (something)*.  
**hitshaməra** — *She guarded herself*.  
**ganavt** — *You(fem) stole (something)*.
- (c)
15. *I wrote (something)*. — **katavti**
  16. *You(masc) shamed (someone)*. — **batal**
  17. *She loved (someone) back*. — **hitahev**

**Problem 5.**

- (a)
1.     𐰃𐰆     ärän     *men*
  2.     𐰃𐰆𐰆𐰆𐰆𐰆     bīčdī     *he/she cut*
  3.     𐰃𐰆𐰆𐰆     köñül     *heart*
  4.     𐰃𐰆𐰆𐰆     otuz     *thirty*
  5.     𐰃𐰆𐰆𐰆     qayan     *khagan*
  6.     𐰃𐰆𐰆𐰆𐰆𐰆𐰆     tizligig     *the knee-bearer, the mighty one*

- (b)     𐰃𐰆𐰆𐰆 = ölägäm, ölägim, ölgäm, ölgüm, ölügäm, ölügüm,  
          ülägäm, ülägim, ülgäm, ülgüm, ülügäm, ülügüm.

- (c) 1. The Old Turkic script is written from right to left.  
2. “Front” and “back” consonant letters:

Adjacent vowels	b	n	t	d	s	r	l	y	k/q	g/ɣ
Front (ä/i/ö/ü)	𐰃	𐰆	𐰆	𐰆	𐰆	𐰆	𐰆	𐰆	𐰆 (k)	𐰆 (g)
Back (a/ı/o/u)	𐰆	𐰆	𐰆	𐰆	𐰆	𐰆	𐰆	𐰆	𐰆 (q)	𐰆 (ɣ)

𐰃 (m), 𐰆 (z), 𐰆 (č), 𐰆 (š) and 𐰆 (ŋ) do not have front/back glyph pairs.

3. Rules for writing vowels (+: written, -: not written):

Vowels	Letter	(1)	(2)	(3)	(4)
a/ä	𐰆	-	+	-	-
ı/i	𐰆	+	+	-	+
o/u	𐰆	+	+	+	-
ö/ü	𐰆	+	+	+	-

- (1) first vowel in the word;
- (2) word-finally;
- (3) elsewhere, after a/ä/ı/i;
- (4) elsewhere, after o/ö/u/ü.

4. Syllable structure (C = consonant, V = vowel):

- first syllable: (C)V(C)
- elsewhere: CV(C)

5. The rounded low vowels o and ö appear only in the first syllable.