

# Third Asia Pacific Linguistics Olympiad

March 28 – April 11, 2021

## Problems

- Listen carefully to the invigilators and follow their instructions.
- The contest lasts five hours. The problem set consists of eight pages and it contains five problems. You may solve the problems in any order.
- You are not allowed to use any electronic device, written or printed material or other external sources of information during the contest.
- If you have a question about any of the problems, put up your hand and ask an invigilator. The invigilator will consult with the jury before answering.
- Rules for writing out solutions
  - Do not copy the statements of the problems.
  - Write down your solution to each problem on a separate sheet or sheets.
  - Use only the front side of the answer sheet.
  - On each sheet, indicate your name, the number of the problem, and the page sequence of that sheet within the problem, e.g.:

Name	...
Problem #	5
Page #	1 / 3

Name	...
Problem #	5
Page #	2 / 3

Name	...
Problem #	5
Page #	3 / 3

(meaning first, second, and third sheet of three for the fifth problem.)

Otherwise, your work may be mislaid or misattributed.

- Unless stated differently, you should describe any patterns or rules that you identified in the data. Otherwise, your solution will not be awarded full marks.

**The contest problems must be kept confidential until they are published on the official APLO website <https://aplo.asia>. Do not disclose nor discuss the problems online until that date.**

**Problem 1 (20 points).** Here are some sentences in Pitjantjatjara and their possible English translations:

1. **emanuellu mamaku canamma ɲammu ɲalku-nu**  
*Emanuel ate their(PL) egg for the father.*
2. **maɭuŋɲu canaɲa ɲalku-naɲi**  
*The kangaroo eats them(PL).*
3. **mamaku papaŋɲu ɲupalimma mariaɲa ilunta-nu**  
*The father's dog killed Maria for you(DU).*
4. **ɲali ɲuramma pica-ɲu**  
*We(DU) came for you(PL).*
5. **ɲanaɲa ɲuramma mukuri-ɲu**  
*We(PL) liked you(PL).*
6. **ɲanaɲa papaku ɲuɲcu ilunta-nu**  
*We(PL) killed the dog's mother.*
7. **ɲuɲcuku maɭu ɲalimma ciciku paka-naɲi**  
*The mother's kangaroo runs for our(DU) child.*
8. **ɲuɲcuku mama canamma mukuri-ɲaɲi**  
*The mother's father likes them(PL).*
9. **ɲuntu ɲanaɲamma papaku mukuri-ɲaɲi**  
*You(SG) like our(PL) dog.*
10. **ɲuntu pulamma mama ɲa-ɲu**  
*You(SG) saw their(DU) father.*
11. **pula mamaku maɭu u-ɲi**  
*They(DU) give the father's kangaroo.*
12. **naomiɲa pica-ɲu**  
*Naomi came.*
13. **naomilu canaɲa ilunta-naɲi**  
*Naomi kills them(PL).*
14. **cici maɭuku mukuri-ɲu**  
*The child liked the kangaroo.*
15. **ciciku ɲuɲcuŋɲu ɲupalɲa ɲa-ɲi**  
*The child's mother sees you(DU).*

(continued on next page)

(a) Translate into English:

16. **emanuelŋa pica-ŋi**

17. **ŋanaŋamma cici naomiku ŋammuku mukuri-ŋaŋi**

(b) Translate into English in all possible ways:

18. **pula puntumma mamaku papa ŋa-ŋu**

(c) Translate into Pitjantjatjara:

19. *Naomi comes for Emanuel.*

20. *You (PL) ran for us (PL).*

21. *You (SG) like us (DU).*

22. *The dog liked Emanuel.*

23. *The dog's kangaroo sees you (PL).*

24. *Maria gave your (SG) egg for the dog.*

△ Pitjantjatjara is a variety of the Western Desert language, which belongs to the Pama-Nyungan family. It is spoken by approx. 3,125 people in Central Australia.

**l**, **ŋ**, **ŋ** and **ŋ** are consonants. (NB: **l** ≠ **l**; **n** ≠ **ŋ** ≠ **ŋ** ≠ **ŋ**.)

SG = singular (one person); DU = dual (two persons); PL = plural (more than two persons).

*Emanuel*, *Naomi* and *Maria* are names of people.

—Vlad A. Neacșu

*The remainder of this page is intentionally left blank.*

**Problem 2 (20 points).** Here are some words in Cushillococha Ticuna and their English translations:

'ka <sup>1</sup> a <sup>5</sup> ti <sup>3</sup>	ka <sup>1</sup> tree leaves	'ti <sup>2</sup> ʔe <sup>1</sup> a <sup>1</sup> ne <sup>1</sup>	cassava garden
'ku <sup>43</sup> te <sup>4</sup> e <sup>3</sup> ja <sup>1</sup>	your husband's sister	'to <sup>1</sup> ʔtʃi <sup>5</sup> ru <sup>1</sup>	owl monkey's clothes
'ku <sup>43</sup> ʔa <sup>1</sup>	your mouth	'to <sup>1</sup> ʔo <sup>1</sup>	other one's mouth
'ku <sup>43</sup> ʔu <sup>4</sup> ne <sup>1</sup>	your entire body	'to <sup>1</sup> ʔo <sup>5</sup> tʃi <sup>1</sup>	really an owl monkey
na <sup>4</sup> 'me <sup>43</sup> ʔe <sup>5</sup> tʃi <sup>1</sup>	it is really good	'tʃau <sup>1</sup> ʔtʃi <sup>5</sup> ru <sup>1</sup>	my clothes
na <sup>4</sup> 'bu <sup>3</sup> ʔu <sup>1</sup> ra <sup>1</sup>	it is sort of immature	'tʃo <sup>1</sup> ʔma <sup>1</sup> ne <sup>1</sup>	my wife's tree trunk
'to <sup>5</sup> ne <sup>1</sup>	owl monkey's tree trunk	'tʃo <sup>1</sup> me <sup>4</sup> na <sup>2</sup> ʔã <sup>2</sup>	my stick
	'to <sup>1</sup> bi <sup>2</sup>		other one's high-starch food
	'tʃo <sup>1</sup> pa <sup>3</sup> ti <sup>4</sup>		my fingernail
	'tʃau <sup>1</sup> e <sup>3</sup> ja <sup>1</sup> te <sup>4</sup>		my sister's husband
	na <sup>4</sup> 'tʃi <sup>1</sup> bi <sup>2</sup>		its high-starch food is delicious
	na <sup>4</sup> 'tʃo <sup>5</sup> o <sup>1</sup> ne <sup>1</sup> ʔi <sup>1</sup> ra <sup>1</sup>		its garden is sort of white
	'ŋo <sup>3</sup> ʔo <sup>1</sup> a <sup>1</sup> ne <sup>1</sup>		place where there are lots of ŋo <sup>3</sup> ʔo <sup>1</sup> 's

(a) What is the literal translation of 'ŋo<sup>3</sup>ʔo<sup>1</sup>a<sup>1</sup>ne<sup>1</sup>'?

(b) Translate into English:

(c) Translate into Cushillococha Ticuna:

- |  |                                 |
|--|---------------------------------|
| 1. 'ka <sup>5</sup> ne <sup>1</sup>                                  | 7. it is sort of delicious      |
| 2. na <sup>4</sup> 'tʃo <sup>1</sup> o <sup>5</sup> ti <sup>3</sup>  | 8. its clothes are really white |
| 3. 'ŋo <sup>3</sup> ʔo <sup>1</sup> ʔi <sup>5</sup> tʃi <sup>1</sup> | 9. my husband's entire body     |
| 4. 'to <sup>1</sup> o <sup>1</sup> ne <sup>1</sup>                   | 10. my high-starch food         |
| 5. 'to <sup>1</sup> ʔo <sup>4</sup> ne <sup>1</sup>                  |                                 |
| 6. 'tʃau <sup>1</sup> ne <sup>1</sup>                                |                                 |

△ Cushillococha Ticuna is a variety of the Ticuna language, which is a language isolate. It is spoken by approx. 7,000 people in Peru.

tʃ, ʃ, ŋ and ʔ are consonants. i is a vowel. au is a diphthong; consider it as one vowel. The mark [ˈ] indicates that the following syllable is stressed. 1, 2, 3, 4, 5 and 43 denote tones of the preceding syllable.

Pitch of the tones: low = 1 < 2 < 3 < 4 < 5 = high; 43 = 4 ↘ 3.

A tilde below a vowel (e.g. ã) denotes a creaky voice (a type of phonation that is often perceived as low-pitched and 'rough'). A tilde over a vowel (e.g. ā) denotes nasal sound.

Owl monkey is a kind of monkey. Cassava is a woody plant native to South America. ka<sup>1</sup> tree is a kind of fruit tree. ŋo<sup>3</sup>ʔo<sup>1</sup> is a kind of fish. —Tsuyoshi Kobayashi

**Problem 3 (20 points).** Here are four different representations of a certain number:

Somali language (Latin script)	toddoba iyo sagaashan
Somali language (Osmanya script)	ጥኩዐዐኩሣና ዓይኩ ዕደጸጻጻጻጻ
Osmanya numerals	፲፭
Arabic numerals	97

Below are ten arithmetic equalities written using the four types of systems shown above with some parts left blank. All the numbers that appear in the equalities are integers.

- [ 1 ]  $\text{፩}፻፵፱፻፲፭ + ፭ = ፻፵$
- [ 2 ]  $C \times \text{siddeed boqol} = 4800$
- [ 3 ]  $፻፻ \times \text{አኩሣ ዓይኩ ጥኩሣጻጻ} = ፻፻፻$
- [ 4 ]  $\text{አኩካ} + \text{sagaal iyo sagaashan} = \text{boqol}$
- [ 5 ]  $፻፻ \times ፻፻፻፲፻ጻጻ = C \times \boxed{\text{A}}$
- [ 6 ]  $\text{ኸ} \times \boxed{\text{B}} = ፻፻፻ ዓይኩ አኩጋጥኩጋ$
- [ 7 ]  $፻፻፻ ሣኩጸኩቢ ዓይኩ ጻጻጻ ዓይኩ ዕፃፀፀፀፀፀ \times ፲፲፲ = \text{rug}$
- [ 8 ]  $\text{፩}፻፲፱ \times \boxed{\text{C}} = \text{ሣኩጸኩቢ} + \text{koob iyo toddobaatan}$
- [ 9 ]  $\text{፩}ፃፀፀፀፀ ሣኩጸኩቢ ዓይኩ ቢፃጢፀጻጻ = ፻፲፱ + \text{lix boqol iyo koow}$
- [ 10 ]  $\text{ቢ፻ሣኩ አገጋ ዓይኩ አኩሣ ዓይኩ ቢ፻ሣጻጻጻጻ} = 2021 = \boxed{\text{D}}$

- (a) Fill the blanks (A–D) in Osmanya numerals.
- (b) Write the equalities [1–9] in Arabic numerals.
- (c) Write in Somali (Latin script):
  - E. 401
  - F.  $፸፬፻$
  - G.  $\text{አገጋ ዓይኩ ሣኩጸኩቢ ዓይኩ ዕኩዐዐኩጋ}$
- (d) Write in Somali (Osmanya script):
  - H. 71
  - I.  $፲፱፻፶$
  - J.  $\text{saddex iyo afartan}$

(!) No additional explanation besides the answers is required, nor will be marked.

△ Somali belongs to the Cushitic branch of the Afro-Asiatic family. It is spoken by approx. 1,600,000 people in East Africa, mainly in Somalia and Djibouti.  
The Osmanya script is a writing system that was created between 1920 and 1922 to transcribe the Somali language. In 1961, it was recognized as one of the official scripts by the Somali government. Nowadays, it is mostly substituted by the Latin script. —Minkyu Kim

**Problem 4 (20 points).** Here are some verb forms in Hdi and their English translations:

<b>yaka</b>	<i>you(SG) give birth to it</i>	<b>dfadɸaka</b>	<i>you(SG) fell</i>
<b>ɸifaxən</b>	<i>they hide it</i>	<b>ksiksaxən</b>	<i>they caught me</i>
<b>kakati</b>	<i>I help them</i>	<b>ɸaɸadzaɸaɸadza</b>	<i>they got spoiled</i>
<b>dadamu</b>	<i>we fall</i>	<b>ɸifaghadifa</b>	<i>it hid you(SG)</i>
<b>katakata</b>	<i>it helped it</i>	<b>kakatamukakata</b>	<i>it helped us</i>
<b>ɸidɸifaka</b>	<i>you(SG) hide them</i>	<b>yiyaɸən</b>	<i>they gave birth to me</i>
<b>sana</b>	<i>they know</i>	<b>kasakuni</b>	<i>you(PL) catch them</i>
<b>ghali</b>	<i>I steal it</i>	<b>yaya</b>	<i>it gives birth to them</i> <i>/ it gave birth to it</i>

(a) Translate into English:

1. **ksaghaksi**
2. **kakataghunikakatamu**
3. **katakataɸən**
4. **ɸadza**

(b) Translate into Hdi:

5. *it caught you(PL)*
6. *we hide it*
7. *they fell*
8. *they gave birth to them*
9. *you(SG) stole them*
10. *I knew*

△ Hdi belongs to the Chadic branch of the Afro-Asiatic family. It is spoken by approx. 29,000 people in Cameroon and Nigeria.

**x** and **gh** are consonants that are pronounced using the same part of the tongue as **k**. **ɸ**, **ɸɸ**, **dz** and **y** are consonants. **ə** is a vowel.

The language has two tones, but they were not considered in this problem for the sake of simplicity.

SG = singular; PL = plural.

—Chih-Chun Wang

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**Problem 5 (20 points).** Here are some sentences in Sandawe and their English translations:

1. **!`inéysù kòḅkòrisà xé?éwáá**  
*A hunter(F) brought roosters.*
2. **thíméysù kókósà ḽ`èésú**  
*A cook(F) skinned a hen.*
3. **múk`ùmè kókó xé?éwáátshú**  
*A cow didn't bring hens.*
4. **kòḅkòri múk`ùmè?à khàású**  
*Roosters hit [=did hit] a cow.*
5. **!`inéysò k`ámbà khàáyétshógé**  
*Apparently, hunters didn't hit a bull.*
6. **thíméy !`inéy xééyétshèégé**  
*Apparently, a cook(M) didn't bring a hunter(M).*
7. **!`inéysò kókógé?à ḽ`èésú**  
*Apparently, hunters skinned a hen.*
8. **!`inéysò kókó?à khă?áwáá**  
*Hunters hit [=did hit] hens.*
9. **kòḅkòri !`inéyà xééyé**  
*A rooster brought a hunter(M).*
10. **thíméysù kókó khă?áwáátshúgé**  
*Apparently, a cook(F) didn't hit hens.*
11. **!`inéy thíméysògéà khàá?ín**  
*Apparently, a hunter(M) hit [=did hit] cooks.*
12. **!`inéysò thíméysò ḽ`èé?íntshó**  
*Hunters didn't skin cooks.*
13. **kòḅkòri !`inéysò xéé?íntshó**  
*Roosters didn't bring hunters.*
14. **thíméy kòḅkòri khă?áwáátshèé**  
*A cook(M) didn't hit roosters.*

Given below are some more words in Sandawe and their English translations:

**ḽ!áméy** — *blacksmith(M)*; **bálóó** — *to herd*; **théká** — *leopard (of any gender)*.

(continued on next page)

(a) Translate into English:

15. thíméy kòṅkórìgéà ǁ'èéyé
16. ŋ!àméysù thíméysùsà xéésú
17. k'ámbà théká khàásútshógé
18. múk'ùmè !'ínéysòsà bálóó?ín

(b) Translate into Sandawe:

19. *Cooks herded hens.*
20. *Apparently, a blacksmith (F) didn't skin leopards.*
21. *A leopard (F) didn't herd a rooster.*
22. *Apparently, a bull didn't bring cooks.*
23. *Apparently, a hunter (M) brought blacksmiths.*

△ Sandawe is a language isolate. It is spoken by approx. 60,000 people in the Dodoma region of Tanzania.

x, th, tsh, kh, k', ŋ, ŋ!, ʔ, !' and ǁ' are consonants. The marks  $\square$ ,  $\square$ ,  $\square$  indicate low, high, and rising (low ↗ high) tone, respectively. A circle under a vowel (e.g. **ǣ**) indicates a devoiced vowel.

M = masculine; F = feminine. In this problem, a cow is a female cattle and a bull is a male cattle. Likewise, a hen is a female chicken and a rooster is a male chicken.

—Shen-Chang Huang

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Good luck!