

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. **emanuelli mamaku canamma ɳammu ɳalku-nu**
Emanuel ate their(PL) egg for the father.
2. **maɍuŋju canaja ɳalku-napi**
The kangaroo eats them(PL).
3. **mamaku papaŋju nupalimma mariaja ilunta-nu**
The father's dog killed Maria for you(DU).
4. **ɳali puramma pica-ɳu**
We(DU) came for you(PL).
5. **ɳanaɳa puramma mukuri-ɳu**
We(PL) liked you(PL).
6. **ɳanaɳa papaku ɳuŋcu ilunta-nu**
We(PL) killed the dog's mother.
7. **ɳuŋcuku maɍu ɳalimma ciciku paka-napi**
The mother's kangaroo runs for our(DU) child.
8. **ɳuŋcuku mama canamma mukuri-ɳapi**
The mother's father likes them(PL).
9. **nuntu ɳanaɳamma papaku mukuri-ɳapi**
You(SG) like our(PL) dog.
10. **nuntu pulamma mama ja-ɳu**
You(SG) saw their(DU) father.
11. **pula mamaku maɍu u-ni**
They(DU) give the father's kangaroo.
12. **naomija pica-ɳu**
Naomi came.
13. **naomilu canaja ilunta-napi**
Naomi kills them(PL).
14. **cici maɍuku mukuri-ɳu**
The child liked the kangaroo.
15. **ciciku ɳuŋcuŋju nupalipa ja-ni**
The child's mother sees you(DU).

(continued on next page)

(a) Translate into English:

16. emanuelŋa pica-ŋi
17. ɳanaɳamma cici naomiku ɳammuku mukuri-ɳapi

(b) Translate into English in all possible ways:

18. pula nuntumma mamaku papa na-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.*

Δ 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, ɳ, n̄ and p̄ are consonants. (NB: l ≠ l̄; n̄ ≠ ɳ ≠ n̄ ≠ p̄.)

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

Emanuel, Naomi and Maria are names of people.

—Vlad A. Neacsu

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

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

(a) What is the literal translation of 'ŋo³ ?o¹ a¹ ne¹?

(b) Translate into English:

1. 'ka⁵ ne¹
2. na⁴ 'tʃo¹ o⁵ ti³
3. 'ŋo³ ?o¹ ?i⁵ tʃi¹
4. 'to¹ o¹ ne¹
5. 'to¹ ?o⁴ ne¹
6. 'tʃau¹ ne¹

(c) Translate into Cushillococha Ticuna:

7. it is sort of delicious
8. its clothes are really white
9. my husband's entire body
10. my high-starch food

⚠️ 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 ɿ are consonants. i is a vowel. au is a diphthong; consider it as one vowel. The mark [] 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. a) 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. ka¹ tree is a kind of fruit tree. ŋo³ ?o¹ 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)	٩٨٦ ٣٨٩٩٥٢
Osmanya numerals	٤٣
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] $٣٥٠٠٦ + J = ٥٠$
- [2] $C \times \text{siddeed boqol} = ٩٨٠٠$
- [3] $٥٥ \times ٩٨٦ \times A = ٥٨٦$
- [4] $٩٨٦ + \text{sagaal iyo sagaashan} = \text{boqol}$
- [5] $٦٦ \times ٣٤٦٧٦٦ = C \times \boxed{}$
- [6] $٦ \times \boxed{} = ٣٤٦٧٩٨٦ \times ٦٦$
- [7] $٣٤٦٧٧٦٦٦٦ ٩٨٦ ٩٦٦ ٣٩٠٠٦٦٦ \times ٧٧٦ = \text{rug}$
- [8] $٣٨٩٦ \times \boxed{} = ٩٨٦ + \text{koob iyo toddobaatan}$
- [9] $٣٩٠٠٦٦٦٦ ٩٨٦ ٩٦٦ ٣٩٦٦٦ \times ٦٦ = \text{rug} + \text{lix boqol iyo koow}$
- [10] $٦٦٦٦ ٩٨٦ ٩٦٦ ٩٨٦ ٦٦٦٦ = ٢٠٢١ = \boxed{}$

(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. ٦٦٦٦ G. ٩٨٦ ٩٨٦ ٩٨٦ ٩٨٦ ٣٩٠٠٦٦

(d) Write in Somali (Osmanya script):

H. ٧١ I. ٦٦٦٦ J. 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:

yaka	<i>you (SG) give birth to it</i>	dfaddfaka	<i>you (SG) fell</i>
dfifaxən	<i>they hide it</i>	ksiksaxən	<i>they caught me</i>
kakati	<i>I help them</i>	babadzababazda	<i>they got spoiled</i>
dadamu	<i>we fall</i>	dfifaghadifa	<i>it hid you (SG)</i>
katakata	<i>it helped it</i>	kakatamukakata	<i>it helped us</i>
dfidifaka	<i>you (SG) hide them</i>	yiyaxən	<i>they gave birth to me</i>
sana	<i>they know</i>	kasakuni	<i>you (PL) catch them</i>
ghali	<i>I steal it</i>	yaya	<i>it gives birth to them</i> <i>/ it gave birth to it</i>

(a) Translate into English:

1. ksaghaksi
2. kakataghunikakatamu
3. katakataxən
4. ɓadza

(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. ɓ, df, 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. !'inéyংু kòngkórisà xé?éwáá
A hunter(F) brought roosters.
2. thíméyংু kókósà ll'èésú
A cook(F) skinned a hen.
3. muk'ùmè kókó xé?éwáátshú
A cow didn't bring hens.
4. kòngkóri muk'ùmè?à khàású
Roosters hit [=did hit] a cow.
5. !'inéyংো k'ámbà khàáyétshóngé
 - Apparantly, hunters didn't hit a bull.
6. thíméy !'inéy xéeyétshéégé
 - Apparantly, a cook(M) didn't bring a hunter(M).
7. !'inéyংো kókogé?à ll'èésú
 - Apparantly, hunters skinned a hen.
8. !'inéyংো kókó?à khă?áwáá
 - Hunters hit [=did hit] hens.
9. kòngkóri !'inéyং xéeyé
 - A rooster brought a hunter(M).
10. thíméyংু kókó khă?áwáátshúgé
 - Apparantly, a cook(F) didn't hit hens.
11. !'inéy thíméyংোgéà khàá?íñ
 - Apparantly, a hunter(M) hit [=did hit] cooks.
12. !'inéyংো thíméyংো ll'èé?íntshó
 - Hunters didn't skin cooks.
13. kòngkóri !'inéyং xéé?íntshó
 - Roosters didn't bring hunters.
14. thíméy kòngkóri khă?áwáátshéé
 - A cook(M) didn't hit roosters.

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

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

(continued on next page)

(a) Translate into English:

15. thíméy kòŋkórigéà ll'èéyé
16. ɳ!àméysù thíméysùsà xéésú
17. k'ámbà théká khàásútshóngé
18. múk'ùmè !'inéysòsà báloó?íŋ

(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.*

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

x, th, tsh, kh, k', ɳ, ɳ!, ɿ, l' and ll' are consonants. The marks ˘, ˊ, ˇ indicate low, high, and rising (low ↗ high) tone, respectively. A circle under a vowel (e.g. ɑ) 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!