Third Asia Pacific Linguistics Olympiad

March 28 – April 11, 2021

Solutions

Problem 1.

1. Sentence structure:
$$\begin{cases} \text{S (B)} \quad\ \ \text{V} \ \ — \ \ \text{'S V-s/-ed (for B)'} \\ \text{A (B) O V} \ \ — \ \ \text{'A V-s/-ed O (for B)'} \\ \text{S \ B} \quad\ \ \ \text{V} \ \ — \ \ \text{'S likes / liked B'} \end{cases}$$

2. Possession: | Poss   N | (Poss: possessor; N: possessee)

3. Noun/pronoun suffixes:

	A	S	O	B / Poss
common noun	**-ŋŋu**	∅		**-ku**
proper noun	**-lu**	**-ɲa**		
pronoun	∅		**-ɲa**	**-mma**

4. Verb endings:

		see *give* *come*	*eat* *kill* *run*
past	**-ŋu**		**-nu**
present	**-ŋaɲi**	**-ɲi**	**-naɲi**

(a) 16. *Emanuel comes.*

17. *Our* (PL) *child likes Naomi's egg.*

(b) 18. *They* (DU) *saw your* (SG) *father's dog;*
  They (DU) *saw the father's dog for you* (SG);
  They (DU) *saw the dog for your* (SG) *father.*

(c) 19. **naomiɲa emanuelku pica-ɲi**

20. **ɲura ŋanaɲamma paka-nu**

21. **ɲuntu ŋalimma mukuri-ŋaɲi**

22. **papa emanuelku mukuri-ŋu**

23. **papaku maʟuŋŋu ɲuraɲa ɲa-ɲi**

24. **marialu papaku ɲuntumma ŋammu u-ŋu**

Problem 2.

1. Word structure:

	P N
$\boxed{\text{P}}\!-\!\boxed{\text{N}}$	P N
$\boxed{\text{N}_1}\!-\!\boxed{\text{N}_2}$	$\text{N}_1\text{'s N}_2$
$\boxed{\text{P}}\!-\!\boxed{\text{N}_1}\!-\!\boxed{\text{N}_2}$	$\text{P N}_1\text{'s N}_2$

$$\boxed{\text{P}} = \begin{array}{rl} my & \begin{cases} \mathbf{t\!\int\!o^1} & (\text{before } \mathbf{(\text{?})C_{lab}}) \\ \mathbf{t\!\int\!au^1} & (\text{otherwise}) \end{cases} \\ your & \mathbf{ku^{43}} \\ other\ one\text{'s} & \mathbf{to^1} \end{array}$$

	$\mathsf{X} = \varnothing$	$\mathsf{X} = \mathbf{?i^5\,t\!\int\!i^1}$	$\mathsf{X} = \mathbf{?i^1\,ra^1}$
$\boxed{\text{N}}\!-\!\boxed{\text{X}}$	N	*really* N	—
$\boxed{\mathbf{na^4}}\!-\!\boxed{\text{A}}\!-\!\boxed{\text{X}}$	*it is* A	*it is really* A	*it is sort of* A
$\boxed{\mathbf{na^4}}\!-\!\boxed{\text{A}}\!-\!\boxed{\text{N}}\!-\!\boxed{\text{X}}$	*its* N *is* A	*its* N *is really* A	*its* N *is sort of* A

2.

$$\text{Stress}$$
$$\downarrow$$
$$(\mathbf{na^4})\ \underbrace{\boxed{{}'\sigma}\ \ \sigma}\ (\sigma \cdots)$$
$$\Downarrow$$

after $\mathbf{{}'o(?)}$:	$\mathbf{a}$	$\to\ \mathbf{o}$
after $\mathbf{{}'V(?)}$:	$\mathbf{\dot{\imath}}$	$\to\ \mathbf{V}$
before $\mathbf{(C)V^1}$:	$\mathbf{{}'\underline{V}^1}$	$\to\ \mathbf{{}'V^5}$

Abbreviations	
A	adjective
N	noun
σ	syllable
V	vowel
C	consonant
$\mathbf{C_{lab}}$	labials $\mathbf{\{p, b, m\}}$

(a) $\mathbf{\eta o^3\,?\underset{\circ}{o}^1}$ *('s) garden*

(b)   1. $\mathbf{k\underset{\circ}{a}^1}$ *tree trunk*

       2. *its leaves are white*

       3. *really a* $\mathbf{\eta o^3\,?\underset{\circ}{o}^1}$

       4. *other one's garden*

       5. *owl monkey's entire body*

       6. *my tree trunk*

(c)   7. $\mathbf{na^4\ {}'t\!\int\!i^5\ ?i^1\,ra^1}$

       8. $\mathbf{na^4\ {}'t\!\int\!\underset{\circ}{o}^1\ ?t\!\int\!i^5\,ru^1\,?i^5\,t\!\int\!i^1}$

       9. $\mathbf{{}'t\!\int\!au^1\ te^4\,?i^4\,ne^1}$

     10. $\mathbf{{}'t\!\int\!o^1\ b\dot{\imath}^2}$

Problem 3.

	1	2	3	4	5
X	koow*	labo	saddex	afar	shan
10 X	toban	labaatan	soddon	afartan	konton
	6	7	8	9	100
X	lix	toddoba	siddeed	sagaal	boqol
10 X	lixdan	toddobaatan	siddeetan	sagaashan	kun

rug $= 0$ $100 \text{ X} = \text{X boqol}$ $1000 \text{ X} = \text{X kun}$ $(2 \leq \text{X} \leq 9)$

$$\begin{cases} 10 \text{ Y} + \text{Z} & = & \text{Z iyo } 10 \text{ Y} & (1 \leq \text{Y} \leq 9, 1 \leq \text{Z} \leq 9) \\ 100 \text{ Y} + \text{Z} & = & 100 \text{ Y iyo Z} & (1 \leq \text{Y} \leq 9, 1 \leq \text{Z} \leq 99) \\ 1000 \text{ Y} + \text{Z} & = & 1000 \text{ Y iyo Z} & (1 \leq \text{Y} \leq 9, 1 \leq \text{Z} \leq 999) \end{cases}$$

* **koow iyo** $\rightarrow$ **koob iyo**

a	e	i	o	u	aa	ee	oo
𝒮	𝓁	𝟫	𝒽	𝒜	𝒢	𝓊	𝓂
b	d	f	g	k	l	n	q
𝒴	𝒪	𝟦	𝓡	𝒽	𝛱	𝟤	ℋ
r	s	sh	t	w	x	y	
𝟩	𝟥	𝟫	𝒹	𝓀	𝑀	𝓮	

0	1	2	3	4
𝒪	𝒮	ℰ	ℏ	𝟪
5	6	7	8	9
𝓮	𝓎	𝒥	𝒞	𝒰

(a)   A. 𝒮ℰℰ (125)   B. 𝒮𝒞 (18)   C. 𝒮𝒰 (19)   D. ℰ𝒪ℰ𝒮 (2021)

(b)   [1] $3 + 7 = 10$
[2] $8 \times 800 = 6400$
[3] $11 \times 11 = 121$
[4] $1 + 99 = 100$
[5] $25 \times 40 = 8 \times 125$
[6] $3 \times 18 = 54$
[7] $485 \times 0 = 0$
[8] $9 \times 19 = 100 + 71$
[9] $860 = 259 + 601$

(c)   E. **afar boqol iyo koow**
F. **siddeed kun iyo saddex iyo afartan**
G. **kun iyo boqol iyo soddon**

(d)   H. 𝒽𝓂𝒴 𝟫ℰℏ 𝒹ℏ𝒪𝒪ℏ𝒴𝒢𝒹𝒮𝟤
I. 𝟥𝒮𝓡𝒢𝛱 ℋ𝒜𝟤 𝟫ℰℏ 𝒬𝒮𝟤 𝒴ℏℋℏ𝛱 𝟫ℰℏ 𝛱𝟫𝑀
J. 𝟥𝒮𝒪𝒪𝓁𝑀 𝟫ℰℏ 𝒮𝓎𝒮𝟩𝒹𝒮𝟤

Problem 4.

1. Verb stems:

   - V_i (intransitive): **ɓadza-** *get spoiled*, **dɗa-** *fall*, **sna-** *know*
   - V_t (transitive): **dɓifa-** *hide*, **kata-** *help*, **ksa-** *catch*, **ghala-** *steal*, **ya-** *give birth to*

2. Verb structure:

	present	past
V_i	[STEM]–[S]	[STEM]–[STEM]–[S]
	'S V_i-*s*'	'S V_i-*ed*'
V_t	[STEM]–[S]	[STEM]–[O]–[STEM]–[S]
	'S V_t-*s it/them*'	'S V_t-*ed* O'

	1st person	2nd person	3rd person
singular	-a̶ → i	**-ka** (S) **-gha** (O)	∅
plural	**-mu**	**-kuni** (S) **-ghuni** (O)	**-xən** (S, V_t) ∅ (otherwise)

$$\begin{bmatrix} V_i,\ S = \text{plural} \\ V_t,\ O = \text{plural} \end{bmatrix}: \quad \boxed{\text{STEM}} \Rightarrow \begin{cases} \mathbf{CV}(\cdots) \to \mathbf{CVCV}(\cdots) \\ \mathbf{C_1 C_2 V}(\cdots) \to \mathbf{C_1 a C_2 V}(\cdots) \end{cases}$$

(**C**: consonant; **V**: vowel.)

(a)   1. *I caught you* (SG)

   2. *we helped you* (PL)

   3. *they helped it*

   4. *it gets spoiled*

(b)   5. **kasaghunikasa**

   6. **dɓifamu**

   7. **dadɗadadɗa**

   8. **yayayayaxən**

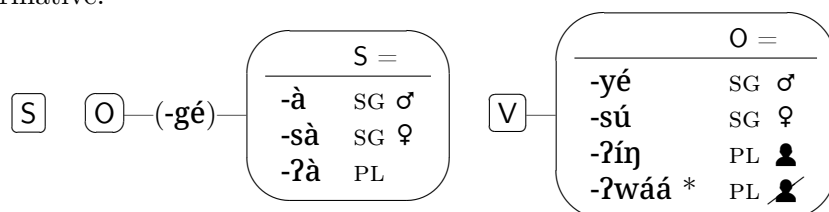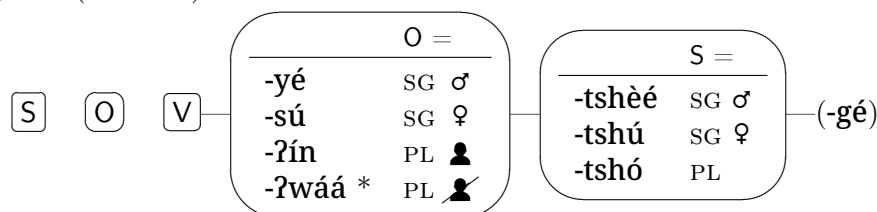   9. **ghaghalaghaghalaka**

   10. **snasni**

Problem 5.

1. Nouns:

$$\text{👤}: \begin{cases} \text{-}\varnothing & \text{SG } \male \\ \text{-sù} & \text{SG } \female \\ \text{-sò} & \text{PL} \end{cases}$$

🐄	🐓🐓	🐆
$\male$	k'ámbà	kòŋkórì	
$\female$	múk'ùmè	kókó	théká

2. Sentence structure:

- Affirmative:

⬜S ⬜O—(-gé)

S =	
-à	SG $\male$
-sà	SG $\female$
-ʔà	PL

⬜V

O =	
-yé	SG $\male$
-sú	SG $\female$
-ʔíŋ	PL 👤
-ʔwáá *	PL 🦁

- Negative ('*not* ...'):

⬜S ⬜O ⬜V

O =	
-yé	SG $\male$
-sú	SG $\female$
-ʔín	PL 👤
-ʔwáá *	PL 🦁

S =	
-tshèé	SG $\male$
-tshú	SG $\female$
-tshó	PL

(-gé)

$$* \ \overset{\boxed{1}}{V}\acute{V} + \text{-ʔwáá} \rightarrow \overset{\boxed{2}}{V}ʔ\mathring{V}wáá \qquad \boxed{2} = \begin{cases} \text{high,} & \boxed{1} = \text{high} \\ \text{rising,} & \boxed{1} = \text{low} \end{cases}$$

Abbreviations		
👤	human nouns	
🦁	animals	
$\male$	male	SG singular
$\female$	female	PL plural

3. **-gé** — '*Apparently,* ...'

(a)
15. *Apparently, a cook* (M) *skinned a rooster.*
16. *A blacksmith* (F) *brought a cook* (F).
17. *Apparently, bulls didn't hit a leopard* (F).
18. *A cow herded hunters.*

(b)
19. thíméỳsò kókóʔà bálóʔ $\mathring{\text{o}}$ wáá
20. ŋ!àméỳsù théká ‖'ě ʔ $\mathring{\text{ę}}$ wáátshúgé
21. théká kòŋkórì bálóóyétshú
22. k'ámbà thíméỳsò xééʔíntshèégé
23. !'ìnéỳ ŋ!àméỳsògéà xééʔíŋ