

# Fourth Asia Pacific Linguistics Olympiad

10 – 24 April 2022

Solutions

## Problem 1.

1. Sentence structure:  $\begin{cases} V_i \text{ (intransitive): } \boxed{S_i V} \\ V_t \text{ (transitive): } \boxed{S_t V O} \end{cases}$

2. Noun structure:

	$S_i$ or O	$S_t$
singular	<b>STEM</b>	<b>STEM</b> hē
dual	<b>STEM</b> -ra	<b>STEM</b> -rā

3. Verb structure:  $\boxed{\text{TENSE}} \text{---} \boxed{\text{SUBJ}} \text{---} (\boxed{\text{OBJ}}) \text{---} \boxed{\text{CLASS}} \text{---} \boxed{\text{STEM}}$

•  $\boxed{\text{TENSE}} = \begin{array}{c|cc} & V_i & V_t \\ \hline \text{Tense I} & \mathbf{ka-} & \\ \text{Tense II} & \mathbf{jy-} & \emptyset \end{array}$       Tense I = future  
 Tense II =  $\begin{cases} \text{present} & (V = \text{stative}) \\ \text{perfect} & (V = \text{dynamic}) \end{cases}$

•  $\boxed{\text{SUBJ}}, \boxed{\text{OBJ}} = \begin{array}{c|cc} & S_i \text{ or O} & S_t \\ \hline \text{1st person} & \mathbf{ra-} & \mathbf{ri-} \\ \text{2nd person} & \mathbf{a-} & \mathbf{ka-} \\ \text{3rd person} & \emptyset & \mathbf{ti-} \end{array}$        $\begin{array}{cc} \text{singular} & \emptyset \\ \text{dual} & \mathbf{mē-} \end{array}$

•  $\boxed{\text{CLASS}} = \begin{array}{c|c} & S_i \text{ or O} \\ \hline \text{grains} & \mathbf{sy-} \\ \text{fruit} & \mathbf{kua-} \\ \text{otherwise} & \emptyset \end{array}$

•  $\boxed{\text{STEM}}$ :

–  $V_i$ :  $\left. \begin{array}{l} \emptyset \text{ 'be ripe' } \\ \mathbf{rāpio} \text{ 'be warm' } \sim \text{'be sick' } \\ \mathbf{rāprā} \text{ 'be painted' } \sim \text{'be red' } \\ \mathbf{piā} \text{ 'grow' } \\ \mathbf{tē} \text{ 'fall' } \end{array} \right\} \text{stative}$

–  $V_t$ :  $\left. \begin{array}{l} \mathbf{tōpy} \text{ 'buy' } \\ \mathbf{kā} \text{ 'cut' } \\ \mathbf{sa} \text{ 'bite' } \end{array} \right\} \text{dynamic}$

- |  |  |
|--|--|
| (1) <i>You two have fallen.</i>          | (5) <b>prī hē tisykâ kiorîpê</b>       |
| (2) <i>The genipap is ripe.</i>          | (6) <b>mōsyra jymēsyprā</b>            |
| (3) <i>You two have bitten the rice.</i> | (7) <b>yôriti hē timēkuasa piutîra</b> |
| (4) <b>mararā timēkuatōpy kwati</b>      | (8) <b>îkjê karapiâ</b>                |

**Problem 2.**

		1st person	2nd person	3rd person
1. Possession:	singular	<b>ta-</b>	<b>pu-</b>	<b>nu-</b>
	plural	<b>wa-</b>	<b>hu-</b>	<b>na-</b>

- **a-** →  $\begin{cases} \text{e} & \text{before P}\{\text{e i}\} \\ \text{o} & \text{before To} \\ \text{e} & \text{before H}\{\text{e i}\} \\ \text{o} & \text{before H}\{\text{o u}\} \end{cases}$
- **u-** →  $\begin{cases} \text{i} & \text{before P}\{\text{e i}\} \\ \text{u} & \text{before Tu} \\ \text{V} & \text{before HV} \end{cases}$
- **V- + V → V:** (e.g. **pu-** + **uli:hana** → **pu:li:hana**)

2. Stress:  $\begin{cases} \text{'CV:} \dots \\ \text{'CVV} \dots \\ \text{CV 'C}\neq\text{'V} \dots \\ \text{CV?V 'CV} \dots \end{cases}$

Abbreviations	
<b>V</b>	= vowel;
<b>C</b>	= consonant;
<b>P</b>	= labials { <b>p, m</b> };
<b>T</b>	= coronals { <b>t, n, s, ʃ</b> };
<b>H</b>	= dorsals { <b>h, ?</b> } or $\emptyset$

- (a) ne **'me** ?erainpala    wa **'se** ?eru?u  
to **'so** so                    ne **'pi** hana  
ha?a **'la** in                **'pu:** li:hana  
nu **'mu** liala                hu **'ʃe** ?in  
hu **'tu** ta                    **'no:** ?ui

- (b) **wu**'satʃiralu → wa'satʃiralu  
hehe'ru → he'heru

- (c) 1. *your* (SG) *food for the trip*  
2. *your* (PL) *stepfather*  
3. *my grandma*  
4. *his lie* or *their lie*  
5. *their suffering*

- (d) 6. **'we:ʔiraka**  
7. **no'touta**  
8. **'ni:ja:su**  
9. **te'peʔe**  
10. **'tauli:hana**  
11. **hu'funu:**

**Problem 3.**

1. Stress:  $(\sigma) \underbrace{\acute{\sigma}\sigma}_{\times k}$

\* Syllable structure:  $\sigma = (\text{C})\text{V}$

– C: consonant; V: vowel

2. Sentence structure:  $(\text{S}) \text{O V}$

3. Verb structure:

(i)  $\text{SUBJ} - \text{STEM} - \text{TENSE}$

–  $\text{STEM} =$

hijara	‘speak’
kaba	‘eat’
kakatoma	‘look’
karawato	‘wait for’
katoma	‘fight’
kijo	‘chase’
wata	‘grab’

\* S = masculine: ... a → ... e

(ii)  $\text{X} - \text{SUBJ} - \text{STEM} - \text{TENSE}$

–  $\text{STEM} = \text{na}$

\* S = masculine: na → ne

–  $\text{X} = \begin{cases} \text{jaka} & \text{‘walk’} \\ \text{siba} & \text{‘find’} \end{cases}$

feminine	human female pronouns <b>kerewe</b> ‘sloth’
masculine	human male <b>bijo</b> ‘spider monkey’ <b>jomee</b> ‘jaguar’

–  $\text{SUBJ} = \begin{cases} \text{o-} & \text{1st person singular} \\ \text{ti-} & \text{2nd person singular} \\ \emptyset & \text{otherwise} \end{cases}$

	S = masculine	S = feminine
past	– <b>hi</b> – ri	– <b>ha</b> – ro
present	∅	∅
intend to ...	– <b>hi</b> – bona	– <b>ha</b> – bone

\*  $\text{SUBJ} - \text{STEM} = \begin{cases} \sigma \times (2n) & \rightarrow \text{hi} \text{ ha} \\ \sigma \times (2n + 1) & \rightarrow \text{hi} \text{ h\bar{a}} \end{cases}$

- (a) 10. *The man eats the sloth.*  
 11. *The jaguar fought your(sg) son.*  
 12. *The woman speaks to my grandmother.*  
 13. *My son intends to eat the pineapple.*

- (b) 21. **jáka tínaháro**  
 22. **téra ókakátomáro**  
 23. **keréwe ówa watáhabóne**  
 24. **bíjo méra katómebóna**

**Problem 4.**

	$\alpha$		$\beta$		$\gamma$	
aempy	= 1		ptae	= 6	or	= 36 (6 <sup>2</sup> )
ynaoaempy	= 2		tarwmpao	= 12	or	= 216 (6 <sup>3</sup> )
ylla	= 3		ntamnao	= 18	or	= 1296 (6 <sup>4</sup> )
eser	= 4		wramaekr	= 24	⋮	⋮
tamp	= 5		ptae wramaekr	= 30		

- $\boxed{\alpha \beta} = \beta + \alpha$                       •  $\alpha_4 \cdot 6^4 + \alpha_3 \cdot 6^3 + \alpha_2 \cdot 6^2 + \beta + \alpha_1 =$
- $\boxed{\gamma \alpha} = \alpha \cdot \gamma \quad (\alpha > 1)$                        $\boxed{[\text{ntamnao } \alpha_4] [\text{tarwmpao } \alpha_3] [\alpha_1] [\beta] [\text{ptae } \alpha_2]}$

- (a) – ynaoaempy ptae     $\implies 2 + 6 = 8$  or  $2 + 36 = 38$     (ptae = 6 or 36)  
 – [tarwmpao ynaoaempy] [ptae ynaoaempy]                       $\implies 216 \cdot 2 + 36 \cdot 2 = 504$   
     or [tarwmpao] [ynaoaempy] [ptae ynaoaempy]                       $\implies 216 + 2 + 36 \cdot 2 = 290$

- (b) (1)  $215 - 22 = 193$                       A = 193 = aempy tarwmpao ptae tamp  
 (2)  $111 + 105 = 216$                       B = 105 = ylla ptae wramaekr ptae ynaoaempy  
 (3)  $54 \times 28 = 1314 + 198$                       C = 198 = ntamnao ptae tamp

- (c) tarwmpao ylla ptae     $216 + 3 + 6 = 225$   
    or  $216 + 3 + 36 = 255$   
    or  $216 \cdot 3 + 6 = 654$   
    or  $216 \cdot 3 + 36 = 684$

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

**Problem 5.**

1. Sentence structure: (S) O V

2. Verb structure:

– affirmative:

$\left\{ \begin{array}{l} \text{STEM-TENSE-X}_S \\ \text{STEM-i banghw-TENSE-X}_S \end{array} \right. \quad \begin{array}{l} S = \text{SG or PL} \\ S = \text{PL} \end{array}$

– negative:

$\left\{ \begin{array}{l} \text{STEM-ras} \quad \left( \text{TENSE-X}_S \right) \\ \text{STEM-i banghwras} \quad \left( \text{TENSE-X}_S \right) \end{array} \right. \quad \begin{array}{l} S = \text{SG or PL} \\ S = \text{PL} \end{array}$

• TENSE = 

	present	future
affirmative	i	ai
negative	∅	kai

3. Possession: (Poss) Y<sub>Poss</sub>-N-Z<sub>Poss</sub> \* ... a + Z<sub>Poss</sub> → ... a Z<sub>Poss</sub>

	S / Poss	O	X	Y	Z
1 SG	yang	ai	-sna	∅	-ki
1 PL (1+3)	yang nani				
2 SG	man	mai	-sma		-kam
2 PL	man nani				
1 PL (1+2)	yawan	wan	-sa	wan-	-ka
3 SG	witin	∅		ai-	
3 PL	witin nani				

Abbreviations  
 1 = 1st person  
 2 = 2nd person  
 3 = 3rd person  
 SG = singular  
 PL = plural  
 Poss = possessor  
 (...) = optional

(a) 14. You(SG) don't cook our(1+2) horse.

$\left\{ \begin{array}{l} \text{He will see his horse. / He will see their horse.} \\ \text{We(1+2) will see his horse. / They will see his horse.} \\ \text{His horse will see him. / His horse will see them.} \end{array} \right.$

16.  $\left\{ \begin{array}{l} \text{We(1+2) will not detest the snake. / They will not detest the snake.} \end{array} \right.$

(b) 17. Yang mai plikras (sna).

$\left\{ \begin{array}{l} \text{Yang nani kaikras (kaisna).} \\ \text{Yang nani kaiki banghwras (kaisna).} \end{array} \right.$

$\left\{ \begin{array}{l} \text{(Yawan) man nani pyutkam kulkaisa.} \\ \text{(Yawan) man nani pyutkam kulki banghwaisa.} \end{array} \right.$

$\left\{ \begin{array}{l} \text{(Man nani) yawan wanbatanka prukisma.} \\ \text{(Man nani) yawan wanbatanka pruki banghwisma.} \end{array} \right.$