en

Fourth Asia Pacific Linguistics Olympiad

10 – 24 April 2022

Solutions

Problem 1.

1. Sentence structure:
   - $\mathsf{V_i}$ (intransitive): $\boxed{\mathsf{S_i\ V}}$
   - $\mathsf{V_t}$ (transitive): $\boxed{\mathsf{S_t\ V\ O}}$

2. Noun structure:

	$\mathsf{S_i}$ or O	$\mathsf{S_t}$
singular	STEM	STEM **hẽ**
dual	STEM **-ra**	STEM **-rã**

3. Verb structure: TENSE — SUBJ — (OBJ) — CLASS — STEM

- TENSE =

	$\mathsf{V_i}$	$\mathsf{V_t}$
Tense I	**ka-**	
Tense II	**jy-**	∅

  Tense I = future
  Tense II = present (V = stative) / perfect (V = dynamic)

- SUBJ, OBJ =

	$\mathsf{S_i}$ or O	$\mathsf{S_t}$
1st person	**ra-**	**ri-**
2nd person	**a-**	**ka-**
3rd person	∅	**ti-**

  — singular ∅ / dual **mẽ-**

- CLASS =

	$\mathsf{S_i}$ or O
grains	**sy-**
fruit	**kua-**
otherwise	∅

- STEM:
  - $\mathsf{V_i}$: ∅ *'be ripe'*; **rãpio** *'be warm' ~ 'be sick'*; **rãprâ** *'be painted' ~ 'be red'* } stative; **piâ** *'grow'*; **tẽ** *'fall'*
  - $\mathsf{V_t}$: **tõpy** *'buy'*; **kâ** *'cut'*; **sa** *'bite'* } dynamic

(1) *You two have fallen.*
(2) *The genipap is ripe.*
(3) *You two have bitten the rice.*
(4) **mararã timẽkuatõpy kwati**
(5) **prĩ hẽ tisykâ kiorĩpê**
(6) **mõsyra jymẽsyrãprâ**
(7) **yôriti hẽ timẽkuasa piutĩra**
(8) **ĩkjẽ karapiâ**

Problem 2.

1. Possession:

	1st person	2nd person	3rd person
singular	**ta-**	**pɯ-**	**nɯ-**
plural	**wa-**	**hɯ-**	**na-**

- **a-** → **e** before **P**{**e** **i**}; **o** before **To**; **e** before **H**{**e** **i**}; **o** before **H**{**o** **u**}
- **ɯ-** → **i** before **P**{**e** **i**}; **u** before **Tu**; **V** before **HV**
- **V-** + **V** → **V:** (e.g. **pɯ-** + **ɯliːhana** → **pɯːliːhana**)

2. Stress:
   - **'CVː** …
   - **'CVV** …
   - **CV** **'C≠ʔV** …
   - **CVʔV** **'CV** …

Abbreviations
V = vowel; **C** = consonant;
P = labials {**p**, **m**};
T = coronals {**t**, **n**, **s**, **ʃ**};
H = dorsals {**h**, **ʔ**} or ∅

(a)

ne **'me** **ʔerainpala**	**wa** **'se** **ʔeruʔu**
to **'so** **so**	**ne** **'pi** **hana**
haʔa **'la** **in**	**'pɯː** **liːhana**
nɯ **'mɯ** **liala**	**hɯ** **'ʃe** **ʔin**
hɯ **'tou** **ta**	**'noː** **ʔui**

(b)

wɯ'satʃiralɯ → **wa'satʃiralɯ**

hehe'rɯ → **he'herɯ**

(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. **'weːʔiraka**
7. **no'touta**
8. **'niːjaːsɯ**
9. **te'peʔe**
10. **'taɯliːhana**
11. **hu'ʃunuː**

Problem 3.

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

   * Syllable structure: $\boldsymbol{\sigma} = (\mathbf{C})\mathbf{V}$
     – **C**: consonant; **V**: vowel

2. Sentence structure: [S) O V]

3. Verb structure:

   (*i*) [Subj]—[**Stem**]—[Tense]

   – [**Stem**] =

hijara	*'speak'*
kaba	*'eat'*
kakatoma	*'look'*
karawato	*'wait for'*
katoma	*'fight'*
kijo	*'chase'*
wata	*'grab'*

   * S = masculine: ...**a** → ...**e**

   (*ii*) [X] [Subj]—[**Stem**]—[Tense]

   – [**Stem**] = **na**

   * S = masculine: **na** → **ne**

   – [X] = { **jaka** *'walk'*; **siba** *'find'* }

feminine	human female pronouns **kerewe** *'sloth'*
masculine	human male **bijo** *'spider monkey'* **jomee** *'jaguar'*

   – [Subj] = { **o-** 1st person singular; **ti-** 2nd person singular; ∅ otherwise }

   – [Tense] =

	S = masculine	S = feminine
past	–[**hi**]–**ri**	–[**ha**]–**ro**
present	∅	∅
intend to ...	–[**hi**]–**bona**	–[**ha**]–**bone**

   * [Subj]—[**Stem**] = { $\boldsymbol{\sigma} \times (2n)$ → [**hi**] [**ha**]; $\boldsymbol{\sigma} \times (2n+1)$ → ~~[**hi**]~~ ~~[**ha**]~~ }

(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.

	$\boldsymbol{\alpha}$
aempy	$= 1$
ynaoaempy	$= 2$
ylla	$= 3$
eser	$= 4$
tamp	$= 5$

	$\boldsymbol{\beta}$		$\boldsymbol{\gamma}$	
ptae	$= 6$	*or*	$= 36$	(6^2)
tarwmpao	$= 12$	*or*	$= 216$	(6^3)
ntamnao	$= 18$	*or*	$= 1296$	(6^4)
wramaekr	$= 24$	$\vdots$	$\vdots$	
ptae wramaekr	$= 30$			

- $\boxed{\boldsymbol{\alpha}\ \ \boldsymbol{\beta}} = \boldsymbol{\beta} + \boldsymbol{\alpha}$
- $\boxed{\boldsymbol{\gamma}\ \ \boldsymbol{\alpha}} = \boldsymbol{\alpha} \cdot \boldsymbol{\gamma} \quad (\boldsymbol{\alpha} > 1)$
- $\boldsymbol{\alpha}_4 \cdot 6^4 + \boldsymbol{\alpha}_3 \cdot 6^3 + \boldsymbol{\alpha}_2 \cdot 6^2 + \boldsymbol{\beta} + \boldsymbol{\alpha}_1 =$

  $\boxed{\textbf{[ntamnao } \boldsymbol{\alpha}_4\textbf{]}\ \textbf{[tarwmpao } \boldsymbol{\alpha}_3\textbf{]}\ [\boldsymbol{\alpha}_1]\ [\boldsymbol{\beta}]\ \textbf{[ptae } \boldsymbol{\alpha}_2\textbf{]}}$

(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 $216 \cdot 3 + 36 = 684$

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Problem 5.

1. Sentence structure: [(S) O V]

2. Verb structure:

   – affirmative:

   { [STEM]–[TENSE]–[X_S] — S = SG or PL
   { [STEM]–**i banghw**–[TENSE]–[X_S] — S = PL

   – negative:

   { [STEM]–**ras** ([TENSE]–[X_S]) — S = SG or PL
   { [STEM]–**i banghwras** ([TENSE]–[X_S]) — S = PL

   • [TENSE] =

	present	future
affirmative	**i**	**ai**
negative	∅	**kai**

3. Possession: ([Poss]) [Y_{Poss}]–[N]–[Z_{Poss}] * **…a** + [Z_{Poss}] → **…~~a~~**[Z_{Poss}]

	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.*

15. { *He will see his horse. / He will see their horse.*
    { *We* (1+2) *will see his horse. / They will see his horse.*
    { *His horse will see him. / His horse will see them.*

16. { *We* (1+2) *will not detest the snake. / They will not detest the snake.*

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

18. { **Yang nani kaikras (kaisna).**
    { **Yang nani kaiki banghwras (kaisna).**

19. { **(Yawan) man nani pyutkam kulkaisa.**
    { **(Yawan) man nani pyutkam kulki banghwaisa.**

20. { **(Man nani) yawan wanbatanka prukisma.**
    { **(Man nani) yawan wanbatanka pruki banghwisma.**