# Sixth Hong Kong Linguistics Olympiad
## March $10^{th}$, 2024
### Solutions

**Problem 1.**

1. The "extended" form serves different purposes in Tiene:
   - <u>Applicative</u> (APPL): *do something for*;
   - <u>Reversive</u> (REV): creates a verb with reversed meaning;
   - <u>Stative</u> (STAT): equivalent with the passive form of the verb (*be done*);
   - <u>Causative</u> (CAUS): *make someone / something do*;

2. Notations used:
   - $C_{nc}$ = non-coronal consonants (**b**, **m**, **k**, **ŋ**)
   - $C_c$ = coronal consonants (**t**, **n**, **l**, **s**)
   - $N$ = nasal consonants (**m**, **n**, **ŋ**)

3. Verb forms and vowel structure:

|  | Basic | Extended |
|---|---|---|
| 2 syllables | $CV_1CV_2$ | $CV_1CV_3$ |
| 3 syllables |  | $CV_1CV_4CV_3$ |

|  | $V_1$ | $V_2$ | $V_3$ | $V_4$ |
|---|---|---|---|---|
|  | **i**, **e**, **o**, **u** | **a** | **ɛ** | **e** |
|  | **a**, **ɛ**, **ɔ** |  | $V_1$ |  |

4. Choice of consonants:

|  |  | Basic form | Extended |  |  |
|---|---|---|---|---|---|
|  |  |  | APPL/REV | STAT | CAUS |
| $C_2 = C_c$ | $C_2 = N$ | $C_1VC_2V$ | $C_1VC_2V$ | $C_1VC_2V\mathbf{ŋ}V$ | $C_1V\mathbf{s}V$ |
|  | $C_2 \neq N$ |  |  | $C_1VC_2V\mathbf{k}V$ |  |
| $C_2 = C_{nc}$ | $C_2 = N$ |  | $C_1V\mathbf{n}VC_2V$ |  | $C_1V\mathbf{s}V\mathbf{b}V$ |
|  | $C_2 \neq N$ |  | $C_1V\mathbf{l}VC_2V$ |  | $C_1V\mathbf{s}VC_2V$ |

**(a)**  1. **yonemɛ**  2. **pinɛ**  3. **susebɛ**  4. **kosɛ**

**(b)** **kasa** = *fight for* (APPL), *defend* (REV), *make fight* (CAUS)

   **tinemɛ** = *dig for* (APPL), *fill in* (REV), *be dug* (STAT)

**(c)**  5. **ɲalaka**   7. **bosɛ**   9. **kasaba**   11. **tonemɛ**

   6. **bola**, **boka**   8. **tima**   10. **sosekɛ**   12. **sɔnɔ**

## Problem 2.

| Digit | $X_A$ | $X_B$ |
|---|---|---|
| 1 | **qei⁴³** | **i¹³** |
| 2 | | **au³³** |
| 3 | | **pei³³** |
| 4 | | **sau³³** |
| 5 | | **tsi³³** |
| 6 | | **tʲu⁵⁵** |
| 7 | | **ɕoŋ⁵²** |
| 8 | | **i¹³** |
| 9 | | **tʲou³¹** |

- $X = X_B$      $X = 1,9$
- $10\ (+\ X) = $ **tʲʰu¹³** $(X_A)$      $X = 1,9$
- $10X\ (+\ Y) = X_A$ **tʲʰu¹³** $(Y_A)$      $X = 2,9;\ Y = 1,9$
- $100X\ (+\ Y) = X_B$ **pai⁵⁵** $($**ljɛn³¹** $Y_A)$      $X,Y = 1,9$
- $100X + 10Y\ (+\ Z) = X_B$ **pai⁵⁵** $Y_A$ $($**tʲʰu¹³** $Z_A)$      $X,Y,Z = 1,9$

**(a)**  (1) $324 \div 18 = 18$           (4) $275 + 410 - 609 = 76$

      (2) $310 - 15 \times 16 = 70$       (5) $20 - 11 = 9$

      (3) $71 + 81 = 152$            (6) $501 \div 3 - 41 = 126$

**(b)** 107

**(c)**  (7) $106 + 1 = 107$           (9) $105 \div 7 + 92 = 107$

           - $106 + 8 = 114$               - $805 \div 7 + 92 = 207$

           - $806 + 1 = 807$       (10) $88 + 19 = 107$

           - $806 + 8 = 814$       (11) $856 \div 8 = 107$

      (8) $149 - 42 = 107$               - $856 \div 1 = 856$

           - $849 - 42 = 807$             - $156 \div 8 = 19.5$

                                                - $156 \div 1 = 856$

**(d)** a. 5          b. 20          c. 910          d. 608

**(e)** $1 = $ **i¹³**                     $102 = $ **i¹³ pai⁵⁵ ljɛn³¹ au³³**

      $17 = $ **tʲʰu¹³ ɕoŋ⁵²**           $540 = $ **tsi³³ pai⁵⁵ sau³³**

      $96 = $ **tʲou³¹ tʲʰu¹³ tʲu⁵⁵**

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## Problem 3.

**(a)** 1-m, 2-a, 3-d, 4-r, 5-k, 6-f, 7-g, 8-h, 9-p, 10-s, 11-b, 12-j, 13-o, 14-l, 15-c, 16-t, 17-n, 18-i, 19-e, 20-q

**(b)** *Lḵ'ayáak'w's footprint*

**(c)**  21. *eyes' saliva*          **(d)**  24. **àani s'aatí**

      22. *person's mouth-print*              25. **Héenká Hít**

      23. *winter trace/print*

## Problem 4.

1. Stress: $\boxed{\sigma\sigma}\,\boxed{\sigma\sigma}\,...\,\boxed{\sigma\sigma}\,\boxed{\sigma'\sigma}\,\sigma(\sigma)$ $\hspace{3cm}$ $\sigma = $ (C)V

2. Structure: S$^\dagger$—V—T—O—[3PL]—[*already*]—[*it is said that...*]

   2.1. S and O

   |      | 1    | 2   |
   |------|------|-----|
   | SG   | **nɨ** | **pi** |
   | PL   | **βi** | **ɛ** |

   3$^{\text{rd}}$ person S:
   – if ∄ 3$^{\text{rd}}$ person O: **ti**
   – if ∃ 3$^{\text{rd}}$ person O: **t͡ʃi**
   3$^{\text{rd}}$ person O: ∅

   2.2. [3PL] = **nuβɛ** (if ∃ 3PL) $\hspace{2cm}$ [*already*] = **tu** $\hspace{2cm}$ [*it is said that...*] = **hi**

   2.3. T:

   - past simple: ∅
   - past continuous: $\sigma_{-1}$**iku** ($\sigma_{-1}$ = last syllable of the verb root)
   - future: **a**$^*$

$^*$Two classes of verbs:

| -u + a > -ua | -u + a > -a |
|--------------|-------------|
| **mu** = *see* | **akat͡ʃu** = *lift* |
| **tiβu** = *sit* | **umu** = *take* |
| **ju** = *cry* | **samu** = *hear* |

$^\dagger$If verb root starts with a vowel, delete the last vowel of S **after** assigning stress.

(a)  15. *I took them.*

  16. *You$_{pl}$ will cry.*

  17. *She will see me.*

  18. *It is said that we were already lifting them.*

(b)  19. *She will hear them. / They will hear her. / They will hear them.*

(c)  20. **ɛsamumuiˈkunɨhi**

  21. **tumumuiˈkupi**

  22. **t͡ʃakaˈt͡ʃanuβɛ**

  23. **βitiβuˈahi**

  24. **nakaˈt͡ʃunuβɛ**

  25. **timuβiˈtuhi**