en(A)

Nineteenth International Linguistics Olympiad

Castletown (Isle of Man), July 25–29, 2022

Individual Contest Solutions

Problem 1. Sb — $\boxed{\mathsf{Ob_{dir}}}$ → $\mathsf{Ob_{obl}}$:

	$\mathsf{Ob_{dir}}$	$\mathsf{Ob_{obl}}$	Sb
1st person sg	***s-***		
1st person pl	***š'-***		
2nd person sg	***w-***		
2nd person pl	***ŝʷ-***		
3rd person sg	***a-***	***∅-***	***n-***
3rd person pl	***a-***		***na-***

$+ \boldsymbol{t^w} + \left\{ \begin{array}{ll} \left[\begin{array}{l} \mathsf{Ob_{dir}} = \text{pl} \\ \text{2nd person pl} \in \{\mathsf{Ob_{dir}}, \mathsf{Ob_{obl}}, \mathsf{Sb}\} \end{array} \right] : & \boldsymbol{a} \\ \text{otherwise} & \boldsymbol{ə} \end{array} \right\} + \boldsymbol{n}$

$\mathsf{C_1C_2} \rightarrow \mathsf{C_1}\boldsymbol{ə}\,\mathsf{C_2}$ ($\mathsf{C_1}$ and $\mathsf{C_2}$ are consonants)

(a) ***aŝʷəstʷan*** — *I give them to you*$_{pl}$.

(b)
1. ***aš'əntʷən*** — *he gives him to us*
2. ***səŝʷtʷan*** — *you*$_{pl}$ *give me to him*
3. ***š'əwənatʷan*** — *they give us to you*$_{sg}$

(c)
4. *they give you*$_{pl}$ *to me* — ***ŝʷəsənatʷan***
5. *you*$_{pl}$ *give him to me* — ***asəŝʷtʷan***
6. *you*$_{sg}$ *give us to him* — ***š'əwtʷan***
7. *we give you*$_{sg}$ *to them* — ***waš'tʷən***
8. *he gives them to us* — ***aš'əntʷan***

Problem 2.

-

	1	many
state	**xéxx‹ex|èe›-ka**	**xèex-ka**
action	**xex‹ex|èe›-li**	**xex-li**

- **l** → C | C __ (C ∈ {**b**, **f**, **ɬ**, **n**})
- **b** → **m** | __ C (C denotes any consonant)

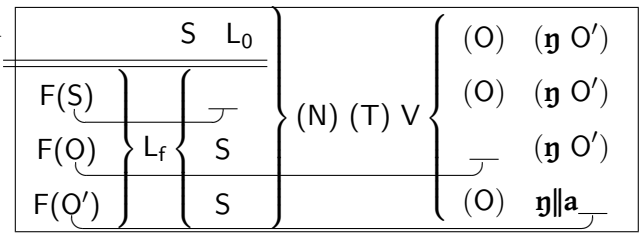
(a)
1. **achánnàaka** — G. *it leans against something*
2. **achanni** — N. *he leans them against something*
3. **ahamatli** — R. *he scatters it, he scatters them*
4. **ahámmatka** — M. *it is scattered, they are scattered*
5. **apòotka** — S. *they are next to something*
6. **apotòoli** — D. *he puts it next to something*
7. **apóttòoka** — I. *it is next to something*
8. **atanayli** — Z. *he wraps it*
9. **atánnayka** — K. *it is wrapped*
10. **atanni** — C. *he wraps them*
11. **bàalka** — L. *they lie, are lying down*
12. **balàali** — V. *he lays it down*
13. **balli** — B. *he lays them down*
14. **incháffàaka** — U. *he has one*
15. **kawaɬɬi** — A. *he breaks it in two*
16. **ɬìilka** — F. *it is torn in several places, they are torn*
17. **ɬìipka** — H. *they are turned upside down*
18. **ɬilaffi** — T. *he tears it in two*
19. **ɬipli** — E. *he turns them upside down*
20. **ɬíppìika** — Q. *it is turned upside down*
21. **ɬobaffi** — P. *he makes a hole*
22. **ɬómbafka** — W. *it has a hole*
23. **ɬombi** — O. *he makes holes*
24. **ɬòomka** — J. *it has holes, they have holes*
25. **sibapli** — Y. *he peels a strip off*
26. **simbi** — X. *he peels the bark off*

(b)
27. **bállàaka** — *he/it lies, is lying down*
28. **inchafàali** — *he gets one*
29. **kawwi** — *he breaks it in several places, he breaks them*

(c)
30. *he tears it in several places* — **ɬilli**
31. *it is torn in two* — **ɬíllafka**
32. *he turns it upside down* — **ɬipìili**
33. *he leans it against something* — **achanàali**

(d) **ɬilli** — *he tears them.*

Problem 3.

- Word order:
  - 

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L_0	L_f	
ke	**kee**	declarative main clause
∅	**xae**	interrogative sentence; subordinate clause

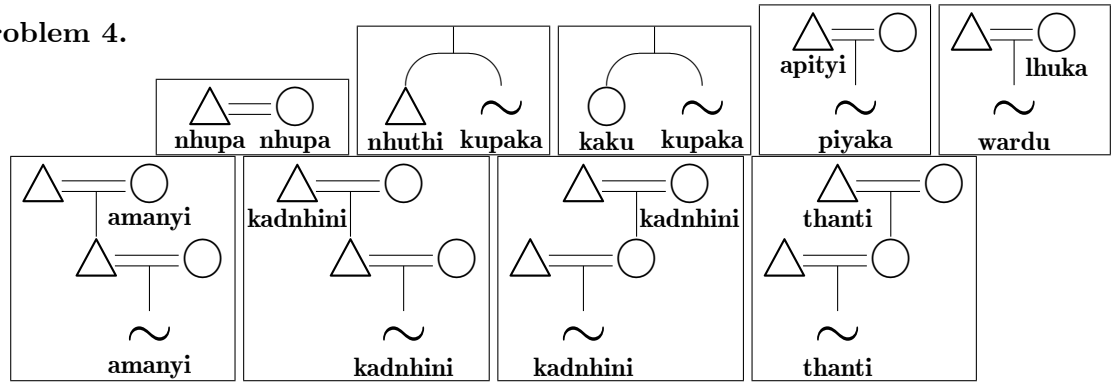
    - S = subject; V = verb; O = object; F = focus
    - N = **‖u** (negation); T = **si** (future)
  - S **ke kacuuʔi ŋ** X *S asks if X.*
  - possessor possessed
-

		at the beginning of a question; after the preposition **ŋ**	
1st person sg	**ŋ***	**ŋ|ŋ**	* **ŋ** + **ke** → **na**
2nd person sg	**a**	**g|a**	
1st person pl	**i**	**g|i**	
2nd person pl	**u**	**g|u**	

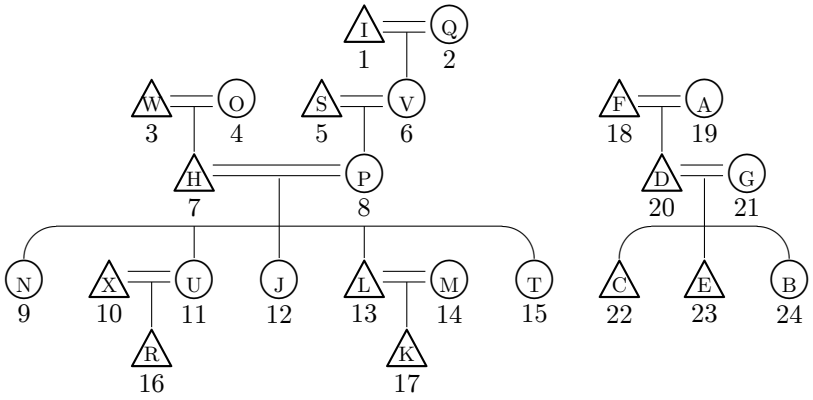
(a)
17. **na kacuuʔi ŋ g|u xae ŋ !uu !ʔai** — *I ask if it is you$_{pl}$ whom my grandfather calls.*
18. **na ‖u si sĩisen ŋ g!ari** — *I will not work in Upington.*
19. **|eeki ke !aukea ŋ ŋ|ŋ ǂhun** — *The woman is afraid of my dog.*
20. **ŋ kee si !ʔai a** — *It is I who will call you$_{sg}$.*
21. **cuu xae u ŋ|ii** — *Whom do you$_{pl}$ see?*
22. **cuu xae ts'aaʔa ŋ** — *Who likes me?*

(b)
23. *Our mother will not call your$_{sg}$ brother.* — **i xaŋki ke ‖u si !ʔai a ‖ãu**
24. *It is you$_{sg}$ whom my dog is afraid of.* — **a kee ŋ ǂhun !aukea ŋ‖a**
25. *Where will you$_{pl}$ sing?* — **kɪ̯a xae u si ǂqheeke ŋ‖a**
26. *I ask if it is our grandfather whom you$_{sg}$ think about.* — **na kacuuʔi ŋ g|i !uu xae a ǂʔii ŋ‖a**
27. *Who will dance tomorrow?* — **cuu xae si |qhõʕo ŋ !haeke**
28. *Do you$_{pl}$ see us?* — **g|u ŋ|ii i**

Problem 4.



(a)



(b)

(i) **nhupa**
(ii) **piyaka**
(iii) **lhuka**
(iv) **apityi**
(v) **kupaka**
(vi) **amanyi**
(vii) **thanti**
(viii) **wardu**
(ix) **lhuka**

Problem 5.

Phan Rang Cham:

(...) D (V L)	V	(C)
	V̈	

- both syllables
  - {***b**, ***d**, ***g**, ***j**} > {**p**, **t**, **k**, **c**}
  - NV > N**ɨ**
  - V**ː** > V
- penultimate syllable
  - ***ʔ**V > V
  - ***l**V > **li**
  - ***b**V(**h**)L > **pi**L
  - otherwise CV(V) > C**a**
  - **-h** > ∅
- final syllable
  - ***s** > **th**
  - {***p**, ***t**, ***k**} > **ʔ**

Tsat:

... **h**	... **ay**	... **a**N
∅^{55} ;	**aːiʔ**^{42} ;	**aːnʔ**^{42}

Proto-Chamic	... T	...({N, **w**, **y**})
+D	**ʔ**^{42}	**11**
−D	**ʔ**^{24}	**33**

- {***b**, ***p**, ***g**} (V) {***l**, ***r**} > {**ph**, **p**, **kh**}**i**
- otherwise the penultimate syllable is lost
- final syllable
  - {***b**, ***d**, ***g**}- > {**ph**, **th**, **kh**}-
  - ***r**- > **z**-
  - {***ow**, ***ey**} > {**ə**, **ai**}

V is a vowel. C is a consonant. D is a voiced consonant (**b**, **d**, **j**). T is a voiceless consonant (**k**, **t**, **ʔ**). N is a nasal consonant (**m**, **n**, **ŋ**). L ∈ {**l**, **r**}.

(a) ***phia**^{11}.

(b)

Proto-Chamic	Phan Rang Cham	Tsat	**meaning**
***kulit**	**kaliʔ**	(1) **liʔ**^{24}	*skin*
***hitam**	**hatam**	(2) **taːnʔ**^{42}	*black*
***bubah**	**papàh**	(3) **pha**^{55}	*mouth*
***ʔikat**	(4) **ikaʔ**	(5) **kaʔ**^{24}	*to tie*
***dəpa**	(6) **tapa**	(7) **pa**^{11}	*fathom*
***matay**	(8) **mɨtay**	(9) **taːiʔ**^{42}	*to die*
***dalam**	(10) **talàm**	(11) **laːnʔ**^{42}	*inside*
***labuh**	(12) **lipùh**	(13) **phu**^{55}	*to fall down*
***bulaːn**	(14) **pilàn**	(15) **phiaːn**^{11}	*moon*
	pala	(16) **pia**^{33}	*to plant*
	tapùh	(17) **phu**^{55}	*to ransom*
	tatà	(18) **tha**^{11}	*chest*