

Nineteenth International Linguistics Olympiad

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

Individual Contest Solutions

Problem 1. Sb — Ob_{dir} → Ob_{obl}:

	Ob _{dir}	Ob _{obl}	Sb
1st person sg	s-		
1st person pl	š'-		
2nd person sg	w-		
2nd person pl	š^w-		
3rd person sg	a-	∅-	n-
3rd person pl	a-		na-

$$+ \mathbf{t^w} + \left\{ \begin{array}{l} \left[\begin{array}{l} \text{Ob}_{\text{dir}} = \text{pl} \\ \text{2nd person pl} \in \{\text{Ob}_{\text{dir}}, \text{Ob}_{\text{obl}}, \text{Sb}\} \end{array} \right] : \mathbf{a} \\ \text{otherwise} \quad \mathbf{\text{ə}} \end{array} \right\} + \mathbf{n}$$

$C_1 C_2 \rightarrow C_1 \text{ə} C_2$ (C_1 and C_2 are consonants)

- (a) **aš^wəst^wan** — *I give them to you_{pl}.*
- (b) 1. **aš'ənt^wən** — *he gives him to us*
 2. **səš^wt^wan** — *you_{pl} give me to him*
 3. **š'əwənat^wan** — *they give us to you_{sg}*
- (c) 4. *they give you_{pl} to me* — **š^wəsənat^wan**
 5. *you_{pl} give him to me* — **asəš^wt^wan**
 6. *you_{sg} give us to him* — **š'əwt^wan**
 7. *we give you_{sg} to them* — **was^tt^wən**
 8. *he gives them to us* — **aš'ənt^wan**

Problem 2.

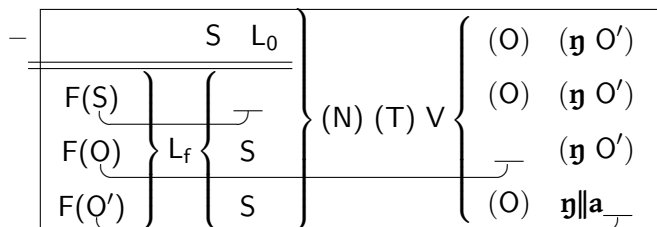
- | | | |
|--------|-----------------------------|----------------|
| | 1 | many |
| state | xéxx<ex èe>-ka | xèex-ka |
| action | xex<ex èe>-li | xex-li |

- $l \rightarrow C \mid C _ (C \in \{\mathbf{b}, \mathbf{f}, \mathbf{ɸ}, \mathbf{n}\})$
- $\mathbf{b} \rightarrow \mathbf{m} \mid _ C (C \text{ denotes any consonant})$

- (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. **incháffaaka** — U. *he has one*
 15. **kawafɸi** — A. *he breaks it in two*
 16. **ɸilka** — F. *it is torn in several places, they are torn*
 17. **ɸiipka** — H. *they are turned upside down*
 18. **ɸilaffi** — T. *he tears it in two*
 19. **ɸipli** — E. *he turns them upside down*
 20. **ɸippìika** — Q. *it is turned upside down*
 21. **ɸobaffi** — P. *he makes a hole*
 22. **ɸómbafka** — W. *it has a hole*
 23. **ɸombi** — O. *he makes holes*
 24. **ɸòomka** — 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. **inchafaali** — *he gets one*
 29. **kawwi** — *he breaks it in several places, he breaks them*
- (c)
30. *he tears it in several places* — **ɸilli**
 31. *it is torn in two* — **ɸillafka**
 32. *he turns it upside down* — **ɸipìili**
 33. *he leans it against something* — **achanàali**
- (d) **ɸilli** — *he tears them.*

Problem 3.

- Word order:



*

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 kacuu?i ŋ X S** asks if X.

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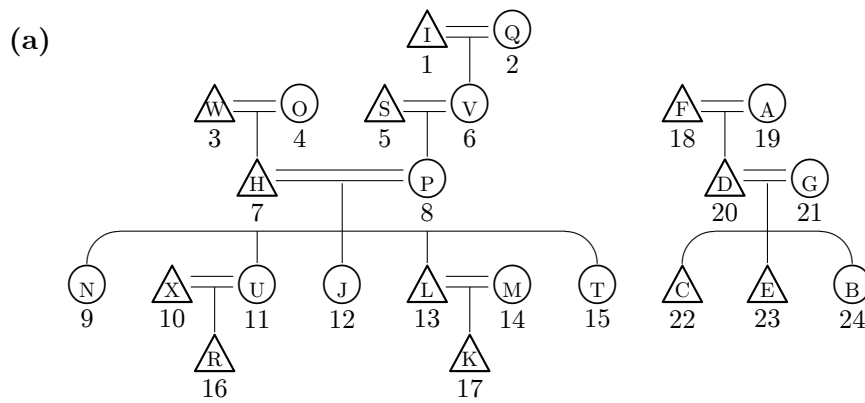
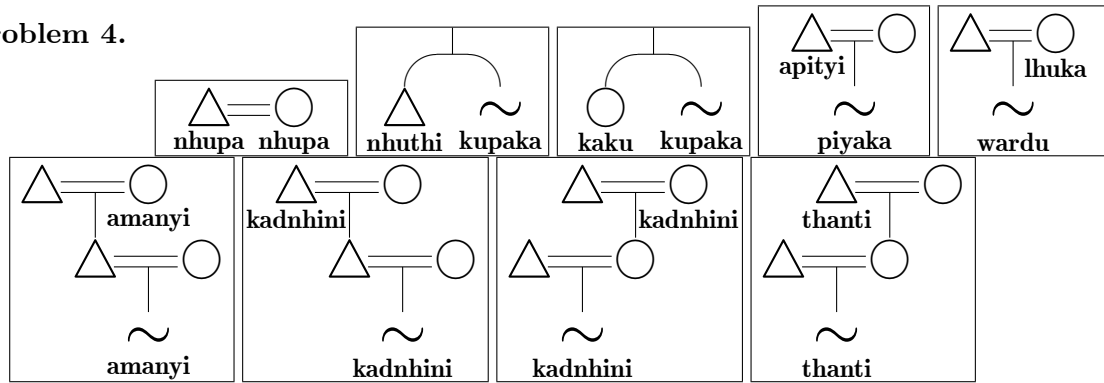
possessor		possessed
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		at the beginning of a question; after the preposition ŋ	
1st person sg	ŋ*	ŋ ŋ	* ŋ + ke → na
2nd person sg	a	g a	
1st person pl	i	g i	
2nd person pl	u	g u	

- (a) 17. **na kacuu?i ŋ g|u xae ŋ !uu !?ai** — I ask if it is you_{pl} whom my grandfather calls.
 18. **na ||u si siisen ŋ g!ari** — I will not work in Upington.
 19. **|eeki ke !aukea ŋ ŋ|ŋ †hun** — The woman is afraid of my dog.
 20. **ŋ kee si !?ai a** — It is I who will call you_{sg}.
 21. **cuu xae u ŋ|i** — Whom do you_{pl} see?
 22. **cuu xae ts'aa?a ŋ** — Who likes me?
- (b) 23. *Our mother will not call your_{sg} brother.* — **i xan̄ki ke ||u si !?ai a ||ãu**
 24. *It is you_{sg} whom my dog is afraid of.* — **a kee ŋ †hun !aukea ŋ|a**
 25. *Where will you_{pl} sing?* — **kija xae u si †qheeke ŋ|a**
 26. *I ask if it is our grandfather whom you_{sg} think about.* — **na kacuu?i ŋ g|i !uu xae a †?ii ŋ|a**
 27. *Who will dance tomorrow?* — **cuu xae si |qhōso ŋ !haeke**
 28. *Do you_{pl} see us?* — **g|u ŋ|i i**

Problem 4.



Problem 5.

Phan Rang Cham:

(...)	D (V L)	V	(C)
		V	

- both syllables
 - $\{*\mathbf{b}, *\mathbf{d}, *\mathbf{g}, *\mathbf{j}\} > \{\mathbf{p}, \mathbf{t}, \mathbf{k}, \mathbf{c}\}$
 - $\text{NV} > \text{Ni}$
 - $\text{V}_i > \text{V}$
- penultimate syllable
 - $*\text{?V} > \text{V}$
 - $*\text{?V} > \text{li}$
 - $*\text{bV}(\mathbf{h})\text{L} > \text{pil}$
 - otherwise $\text{CV}(\text{V}) > \text{Ca}$
 - $-\mathbf{h} > \emptyset$
- final syllable
 - $*\mathbf{s} > \mathbf{th}$
 - $\{*\mathbf{p}, *\mathbf{t}, *\mathbf{k}\} > \text{?}$

Tsat:

... h	... ay	... aN
\emptyset^{55}	ai?^{42}	a:n?^{42}
Proto-Chamic	... T	...({N, w, y})
+D	?^{42}	11
-D	?^{24}	33

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

V is a vowel. C is a consonant. D is a voiced consonant (**b, d, j**). T is a voiceless consonant (**k, t, ?**). N is a nasal consonant (**m, n, ŋ**). $\text{L} \in \{\mathbf{l}, \mathbf{r}\}$.

(a) $*\mathbf{phia}^{11}$.

(b)

Proto-Chamic	Phan Rang Cham	Tsat	meaning
$*\mathbf{kulit}$	kali?	(1) li?^{24}	<i>skin</i>
$*\mathbf{hitam}$	hatam	(2) ta:n?^{42}	<i>black</i>
$*\mathbf{bubah}$	papàh	(3) pha^{55}	<i>mouth</i>
$*\text{?ikat}$	(4) ika?	(5) ka?^{24}	<i>to tie</i>
$*\mathbf{dəpa}$	(6) tapa	(7) pa^{11}	<i>fathom</i>
$*\mathbf{matay}$	(8) mitay	(9) tai?^{42}	<i>to die</i>
$*\mathbf{dalam}$	(10) talàm	(11) la:n?^{42}	<i>inside</i>
$*\mathbf{labuh}$	(12) lipùh	(13) phu^{55}	<i>to fall down</i>
$*\mathbf{bula:n}$	(14) pilàn	(15) phia:n^{11}	<i>moon</i>
	pala	(16) pia^{33}	<i>to plant</i>
	tapùh	(17) phu^{55}	<i>to ransom</i>
	tatà	(18) tha^{11}	<i>chest</i>