

## Nineteenth International Linguistics Olympiad

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

Individual Contest Problems

## Rules for writing out the solutions

Do not copy the problems. Write down your solution to each problem on a separate sheet or sheets. On each sheet indicate the number of the problem and your surname. If you do not do this, your work may be mislaid or misattributed.

Unless stated differently, you should describe any patterns or rules that you identified in the data. Otherwise your solution will not be awarded full marks.

**Problem 1 (20 points).** Here are some forms of the Ubykh verb *to give* and their English translations:

1. **wəš'tʷən** — *we give you<sub>sg</sub> to him*
2. **sawtʷən** — *you<sub>sg</sub> give me to them*
3. **awəstʷən** — *I give them to you<sub>sg</sub>*
4. **wəsənətʷən** — *they give you<sub>sg</sub> to me*
5. **šʷəstʷən** — *I give you<sub>pl</sub> to him*
6. **š'antʷən** — *he gives us to them*
7. **awəš'tʷən** — *we give him to you<sub>sg</sub>*
8. **səšʷəntʷən** — *he gives me to you<sub>pl</sub>*
9. **ašʷəstʷən** — *I give him to you<sub>pl</sub>*

(a) The last of the nine forms above can actually be translated into English in two ways. What is its other translation?

(b) Translate into English:

10. **aš'əntʷən**
11. **səšʷtʷən**
12. **š'əwənətʷən**

(c) Translate into Ubykh:

13. *they give you<sub>pl</sub> to me*
14. *you<sub>pl</sub> give him to me*
15. *you<sub>sg</sub> give us to him*
16. *we give you<sub>sg</sub> to them*
17. *he gives them to us*

△ Ubykh belongs to the Abkhaz–Adyghe family. Until 1864, several tens of thousands of people spoke it in the area of the present-day city of Sochi, Russia. Tevfik Esenç, who was considered the last fully proficient native speaker of Ubykh, died in Turkey in 1992.

ə is a vowel; š', šʷ, tʷ are consonants.

—Peter Arkadiev

**Problem 2 (20 points).** Here are some words in Alabama and their English translations in arbitrary order:

1. <b>achánnàaka</b>	8. <b>atanayli</b>	15. <b>kawaŋŋi</b>	22. <b>ʎómbafka</b>
2. <b>achanni</b>	9. <b>atánnayka</b>	16. <b>ʎiilka</b>	23. <b>ʎombi</b>
3. <b>ahamatli</b>	10. <b>atanni</b>	17. <b>ʎipka</b>	24. <b>ʎòomka</b>
4. <b>ahámmatka</b>	11. <b>bàalka</b>	18. <b>ʎilaffi</b>	25. <b>sibapli</b>
5. <b>apòotka</b>	12. <b>balàali</b>	19. <b>ʎipli</b>	26. <b>simbi</b>
6. <b>apotòoli</b>	13. <b>balli</b>	20. <b>ʎíppiika</b>	
7. <b>apóttòoka</b>	14. <b>incháffaaka</b>	21. <b>ʎobaffi</b>	

- |   |  |
|---|--|
| A. <i>he breaks it in two</i>                         | N. <i>he leans them against something</i>  |
| B. <i>he lays them down</i>                           | O. <i>he makes holes</i>                   |
| C. <i>he wraps them</i>                               | P. <i>he makes a hole</i>                  |
| D. <i>he puts it next to something</i>                | Q. <i>it is turned upside down</i>         |
| E. <i>he turns them upside down</i>                   | R. <i>he scatters it, he scatters them</i> |
| F. <i>it is torn in several places, they are torn</i> | S. <i>they are next to something</i>       |
| G. <i>it leans against something</i>                  | T. <i>he tears it in two</i>               |
| H. <i>they are turned upside down</i>                 | U. <i>he has one</i>                       |
| I. <i>it is next to something</i>                     | V. <i>he lays it down</i>                  |
| J. <i>it has holes, they have holes</i>               | W. <i>it has a hole</i>                    |
| K. <i>it is wrapped</i>                               | X. <i>he peels the bark off</i>            |
| L. <i>they lie, are lying down</i>                    | Y. <i>he peels a strip off</i>             |
| M. <i>it is scattered, they are scattered</i>         | Z. <i>he wraps it</i>                      |

(a) Determine the correct correspondences.

(b) Translate into English:

- 27. **bállàaka**
- 28. **inchafàali**
- 29. **kawwi**

One of these has two possible translations.  
Give them both.

(c) Translate into Alabama:

- 30. *he tears it in several places*
- 31. *it is torn in two*
- 32. *he turns it upside down*
- 33. *he leans it against something*

(d) One of the Alabama words from the answer to (c) can be translated into English in other ways as well. Which one, and how?

△ Alabama belongs to the Muskogean family. It is spoken by approx. 360 people on the Alabama–Coushatta Reservation, Texas, USA.

**ch** = *ch* in *church*. **ʎ** is an unvoiced *l*. A doubled letter denotes length. The mark ´ indicates high tone. The mark ` indicates falling tone.

—Ivan Derzhanski

**Problem 3 (20 points).** Here are some sentences in N|uuki and their English translations:

- |  |  |
|--|--|
| 1. †oo ɲ i ɲ                                   | — Does the man see me?   |
| 2. ɲ a !aukea ɲ ɲ ɲ                            | — Are you <sub>sg</sub> afraid of me?                          |
| 3. cuu xae a †ʔii ɲ  a                         | — Whom do you <sub>sg</sub> think about?                       |
| 4. u   āu ke   u  qhōʔo                        | — Your <sub>pl</sub> brother does not dance.                   |
| 5. janasa xae †qheeke                          | — Is it the thief who sings?                                   |
| 6. ɲ ɲ si s̄isen ɲ  haeke                      | — Will I work tomorrow?  |
| 7. †hun ke !aukea ɲ ɲ i                        | — The dog is afraid of us.                                     |
| 8. na   u †ʔii ɲ ɲ a xaŋki                     | — I do not think about your <sub>sg</sub> mother.              |
| 9. ɲ i aŋki si  qhōʔo ɲ ɲ ari                  | — Will our father dance in Upington?                           |
| 10. kija xae †oo s̄isen ɲ  a                   | — Where does the man work?                                     |
| 11. ɲ a ɲ i a ɲ  ɲ                             | — Do you <sub>sg</sub> see your <sub>sg</sub> house?           |
| 12. ɲ ɲ xae a !ʔai                             | — Is it me whom you <sub>sg</sub> call?                        |
| 13. u kee  eeki †ʔii ɲ  a                      | — It is you <sub>pl</sub> whom the woman thinks about.         |
| 14. a xaŋki ke kacuuʔi ɲ ɲ a ts'aaʔa ɲ         | — Your <sub>sg</sub> mother asks if you <sub>sg</sub> like me. |
| 15. kama ja xae ɲ si ɲ i u ɲ  a                | — When will I see you <sub>pl</sub> ?                          |
| 16. ɲ !uu ke kacuuʔi ɲ ɲ ɲ si †qheeke ɲ !haeke | — My grandfather asks if I will sing tomorrow.                 |

(a) Translate into English:

17. na kacuuʔi ɲ ɲ|u xae ɲ !uu !ʔai
18. na ||u si s̄isen ɲ ɲ|ari
19. |eeki ke !aukea ɲ ɲ|ɲ †hun
20. ɲ kee si !ʔai a
21. cuu xae u ɲ|i
22. cuu xae ts'aaʔa ɲ

(b) Translate into N|uuki:

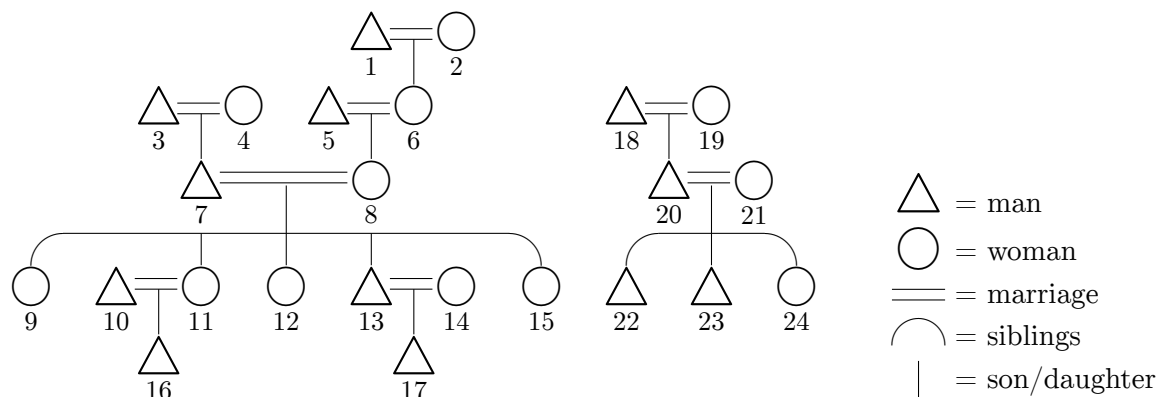
23. Our mother will not call your<sub>sg</sub> brother.
24. It is you<sub>sg</sub> whom my dog is afraid of.
25. Where will you<sub>pl</sub> sing?
26. I ask if it is our grandfather whom you<sub>sg</sub> think about.
27. Who will dance tomorrow?
28. Do you<sub>pl</sub> see us?

△ N|uuki (or N||ng) belongs to the Tuu family. It is spoken in and around Upington (**ɲ|ari**) in the Northern Cape province of South Africa. As of 2021, it has only one remaining native speaker.

ā, īi and ōʔo are vowels. j, ɲ, ts' and ʔ are consonants. |, !, ||, † and the combinations ɲ|, ɲ!, ɲ||, ɲ|h, !h, ||h, †h, |qh, †qh, !ʔ and †ʔ denote click consonants (in particular, ɲ| and ɲ|| are nasal clicks).

—Liam McKnight, Samuel Ahmed

**Problem 4 (20 points).** Here are the family trees of two families of Arabana speakers. In these trees, siblings are arranged from oldest to youngest going from left to right:



Now here are utterances from 22 of these people describing their relationships to some of their relatives:

- |  |  |  |
|--|--|--|
| <p><b>A:</b> “D anthunha wardu.<br/>F anthunha .....(i).”</p> <p><b>B:</b> “C anthunha nhuthi.<br/>D anthunha apityi.<br/>E anthunha nhuthi.<br/>G anthunha lhuka.”</p> <p><b>C:</b> “B anthunha kupaka.<br/>D anthunha apityi.<br/>E anthunha kupaka.<br/>G anthunha lhuka.”</p> <p><b>D:</b> “A anthunha lhuka.<br/>B anthunha piyaka.<br/>E anthunha .....(ii).<br/>G anthunha nhupa.”</p> <p><b>E:</b> “B anthunha kupaka.<br/>C anthunha nhuthi.<br/>G anthunha lhuka.”</p> <p><b>F:</b> “A anthunha nhupa.”</p> <p><b>G:</b> “C anthunha wardu.<br/>E anthunha wardu.”</p> | <p><b>H:</b> “N anthunha piyaka.<br/>O anthunha .....(iii).<br/>W anthunha .....(iv).”</p> <p><b>I:</b> “V anthunha piyaka.”</p> <p><b>J:</b> “H anthunha apityi.<br/>L anthunha .....(v).”</p> <p><b>K:</b> “P anthunha .....(vi).”</p> <p><b>L:</b> “K anthunha piyaka.<br/>U anthunha kaku.<br/>V anthunha kadnhini.<br/>W anthunha kadnhini.”</p> <p><b>M:</b> “K anthunha wardu.<br/>L anthunha nhupa.”</p> <p><b>O:</b> “H anthunha wardu.<br/>T anthunha amanyi.<br/>W anthunha nhupa.”</p> <p><b>P:</b> “H anthunha nhupa.<br/>I anthunha .....(vii).<br/>V anthunha lhuka.”</p> <p><b>R:</b> “H anthunha thanti.”</p> | <p><b>S:</b> “J anthunha thanti.<br/>L anthunha thanti.<br/>V anthunha nhupa.”</p> <p><b>T:</b> “J anthunha kaku.<br/>L anthunha nhuthi.<br/>N anthunha kaku.<br/>S anthunha thanti.”</p> <p><b>U:</b> “J anthunha kupaka.<br/>R anthunha .....(viii).<br/>V anthunha kadnhini.”</p> <p><b>V:</b> “N anthunha kadnhini.<br/>P anthunha wardu.<br/>Q anthunha .....(ix).<br/>T anthunha kadnhini.”</p> <p><b>W:</b> “N anthunha kadnhini.”</p> <p><b>X:</b> “U anthunha nhupa.”</p> |
|--|--|--|

(a) Match the family members **A–X** with their positions (1–24) on the family trees.

(b) Fill in the blanks (i–ix).

△ Arabana belongs to the Pama–Nyungan family. It is spoken by approx. 15 people in the state of South Australia.

In this problem, each person is referred to with a single letter for convenience, but examples of Arabana names include **Wanga-mirri** ‘many mornings’, **Palku-nguyu-thangkayiwanha** ‘one bank of cloud sitting down temporarily’ and **Kutha-kiRanangkarda** ‘water ever flowing’.

**dnh, lh, ng, nh, ny, R, rd, rr, th, ty, w** and **y** are consonants.

—Tom McCoy

**Problem 5 (20 points).** Proto-Chamic is the theorized common ancestor of all the languages in the Chamic group within the Austronesian family. It was reconstructed by linguists by comparing its many present-day descendants, among which are Phan Rang Cham and Tsat.

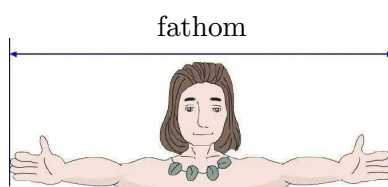
Here are some words in Proto-Chamic, Phan Rang Cham and Tsat, and their meanings:

Proto-Chamic	Phan Cham	Rang	Tsat	meaning
*ʔika:n	ikan		ka:n <sup>33</sup>	<i>fish</i>
*dikiʔ	takiʔ		kiʔ <sup>42</sup>	<i>few</i>
*dilah	talàh		la <sup>55</sup>	<i>tongue</i>
*jala:n	calàn		la:n <sup>11</sup>	<i>road</i>
*lima	limi		ma <sup>33</sup>	<i>5</i>
*lanah	linih		na <sup>55</sup>	<i>pus</i>
*dua lapan	tàlipan		pa:nʔ <sup>42</sup>	<i>8</i>
*laba:t	lipàʔ		pha:ʔ <sup>42</sup>	<i>to walk</i>
*bara	pirà		phia <sup>11</sup>	<i>shoulder</i>
*bahrow	piròw		phiə <sup>11</sup>	<i>new</i>
*bulow	pilòw		phiə <sup>11</sup>	<i>body hair</i>
*paley	paley		piai <sup>33</sup>	<i>village</i>
*masam	mitham		sa:nʔ <sup>42</sup>	<i>vinegar</i>
*basah	pathah		sa <sup>55</sup>	<i>wet</i>
*bəsey	pathey		sai <sup>11</sup>	<i>iron</i>
*mata	mita		ta <sup>33</sup>	<i>eye</i>
*rata:k	rataʔ		ta:ʔ <sup>24</sup>	<i>beans</i>
*hatay	hatay		ta:iʔ <sup>42</sup>	<i>liver</i>
*paday	patày		tha:iʔ <sup>42</sup>	<i>paddy rice</i>
*padam	patàm		tha:nʔ <sup>42</sup>	<i>to extinguish</i>
*ʔiduŋ	itùŋ		thuŋ <sup>11</sup>	<i>nose</i>
*batuk	patuʔ		tuʔ <sup>42</sup>	<i>to cough</i>
*maray	miray		zaiʔ <sup>42</sup>	<i>to come</i>
*ʔurat	uraʔ		zaʔ <sup>24</sup>	<i>tendon</i>
*rək	rəʔ		zəʔ <sup>24</sup>	<i>grass</i>
*bala	pilà		[see (a)]	<i>widowed</i>

- (a) No descendant of the Proto-Chamic word **\*bala** can be found in the present-day Tsat language. However, what would it have become if it had survived?

(b) Fill in the blanks (1–18). The shaded cells do not need to be filled.

Proto-Chamic	Phan Rang Cham	Tsat	meaning
*kulit	kaliʔ	.....(1)	skin
*hitam	hatam	.....(2)	black
*bubah	papàh	.....(3)	mouth
*ʔikat	.....(4)	.....(5)	to tie
*dəpa	.....(6)	.....(7)	fathom
*matay	.....(8)	.....(9)	to die
*dalam	.....(10)	.....(11)	inside
*labuh	.....(12)	.....(13)	to fall down
*bula:n	.....(14)	.....(15)	moon
	pala	.....(16)	to plant
	tapùh	.....(17)	to ransom
	tatà	.....(18)	chest



△ Phan Rang Cham (or Eastern Cham) is spoken by approx. 73,000 people in south-central Vietnam. Tsat is spoken by approx. 4,500 people in the city of Sanya, Hainan Province, China.

All words in Proto-Chamic are marked with an asterisk (\*), indicating that the word is reconstructed and not attested.

**ph** = aspirated *p*; **th** = aspirated *t*. **c** ≈ *ch* in *church*. **j** ≈ *j* in *judge*. **ñ** ≈ *ny* in *canyon*. **ng** (Phan Rang Cham) = **ŋ** (Tsat) = *ng* in *hang*. **y** = *y* in *you*. **ʔ** is a consonant (known as the glottal stop). **i** = *oo* in *goose* but with the lips unrounded. **ə** = *a* in *comma*.

The mark : indicates that the vowel is long. The mark ` indicates low tone (Phan Rang Cham). The marks <sup>55</sup>, <sup>42</sup>, <sup>33</sup>, <sup>24</sup> and <sup>11</sup> indicate high, falling, middle, rising, and low tone, respectively (Tsat).

Knowledge of any Austronesian language not belonging to the Chamic group is not relevant for solving this problem. —Tung-Le Pan

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**English text:** Samuel Ahmed, Peter Arkadiev, Ivan Derzhanski, Tom McCoy, Liam McKnight, Tung-Le Pan.

Good luck!

en(A)

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Questionnaire

Name:

For which problems are you submitting solutions?

Which problem did you like best?

Which problem did you find hardest?

Which problem did you find easiest?