

**Problem 5 (20 points).** Proto-Chamic is the theorised 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 Rang Cham	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	phia <sup>11</sup>	<i>new</i>
*bulow	pilòw	phia <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>
*bāsey	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>
*ʔidunʔ	itùng	thun <sup>11</sup>	<i>nose</i>
*batuk	patuʔ	tuʔ <sup>42</sup>	<i>to cough</i>
*maray	miray	za:iʔ <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	kali?	.....(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. **a** = *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

---

**Editors:** Samuel Ahmed (editor-in-chief), David Avellan-Hultman, Ivan Derzhanski (technical editor), Hugh Dobbs, Dmitry Gerasimov, Shinjini Ghosh, Stanislav Gurevich, Gabrijela Hladnik, Minkyu Kim, Bruno L'Astorina, Liam McKnight, André Nikulin, Tung-Le Pan, Aleksejs Peguševs, Jan Petr, Alexander Piperski, Przemysław Podleśny, Maria Rubinstein, Daniel Rucki, Milena Veneva, Elysia Warner.

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

Good luck!

**en(B)**

# Nineteenth International Linguistics Olympiad

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

## 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?