

# Fourth International Olympiad in Theoretical, Mathematical and Applied Linguistics

*Estonia, Tartu, 1–6 August 2006*

## Problems for the Individual Contest

### Rules for writing out the solutions

1. Do not copy the statement of the problems. Write the solution of each problem on a separate sheet or sheets. Indicate on each sheet the number of the problem, the number of your seat and your surname. Otherwise your work may be mislaid or misattributed.
  2. Your answers must be well-argued. Even an absolutely correct answer will be given a low rating unless accompanied by an explanation.
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### Problem №1 (20 marks)

Below you see romanised sentences in the Lakhota<sup>1</sup> language and their English translations:

- |  |   |
|--|---|
| 1. lakhota ki wičhakte                         | The Indian killed them.                           |
| 2. matho ki wakte                              | I killed the bear.                                |
| 3. lakhota ki mačo                             | The Indian called me.                             |
| 4. tuwa ničo he                                | Who called you?                                   |
| 5. wičaša ki tuwa kte                          | The person killed someone.                        |
| 6. tuwa hi he                                  | Who came?   |
| 7. matho ki wičačo                             | He called the bears.                              |
| 8. yahi ča hi                                  | You came, and he came.                            |
| 9. matho ki hipi ną lakhota ki čhopi           | The bears came and called the Indian.             |
| 10. yahi ča hokšila ki nikte                   | You came, and the boy killed you.                 |
| 11. lakhota ki wačo ną hokšila ki wakte        | I called the Indian and killed the boy.           |
| 12. hokšila ki wakte ča tuwa lakhota ki wičačo | I killed the boy, and someone called the Indians. |
| 13. lakhota ki hipi ča mayačo                  | The Indians came, and you called me.              |

**Assignment 1.** Translate into English:

1. wahi ča lakhota ki matho ki wičačhopi
2. wičaša ki nikte ną mačo
3. wičaša ki nikte ča mačo
4. nikte

**Assignment 2.** Translate into English in all possible ways:

tuwa kte he

**Assignment 3.** Translate into Lakhota:

1. The Indians killed the boy, and the bear came.
2. You came and killed the Indian.
3. Whom did I call?
4. The people came, and someone killed them.

**Note.** š, č, h, y, w, ą are specific sounds of the Lakhota language.

*Pyotr Arkadiev*

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<sup>1</sup> The Lakhota (Dakota) language is of the Sioux family. It is spoken by 6000 people in the Midwest of the USA.

**Problem №2** (20 marks)

The plural of Catalan<sup>2</sup> nouns is usually formed by adding the ending -s. But if the noun ends in one of the letters s, x or ç, more complex rules apply.

Here are the singular and the plural forms of some Catalan nouns (in simplified spelling) and their English translations. Some forms are missing.

Singular	Plural	Translation
el apèndix	els apèndixs	appendix
el bastaix		carrier
el troleibús		trolleybus
el cactus	els cactus	cactus
la càries	les càries	caries
	les clos	meadow
el contumaç	els contumaços	rebel
la faç	les façs	face
el flux	els fluxos	stream
el gimnàs	els gimnasos	gym
la hèlix	les hèlixs	screw
el índex	els índexs	index
el iris		rainbow
el llaç		loop
el ònix		onyx
el pàncrees	els pàncrees	pancreas
el pedaç	els pedaços	patch
la pelvis		pelvis
el permís	els permisos	permission
el pis		flat, lodgings
el	els sequaços	(male) follower
la	les sequaços	(female) follower
el sufix	els sufixos	suffix
	els tastaolletes	frivolous person
el teix	els teixos	yew
la trencadís	les trencadís	piece of crockery
el vas	els vasos	vase
la xeix		(the letter) x

**Assignment 1.** Fill the gaps. Explain your solution.

**Assignment 2.** The marks ` and ´ indicate the stress in certain Catalan words. Find out when they are used.

**Assignment 3.** Which syllable is stressed in those words where there is no ` or ´ mark?

*Boris Iomdin*

<sup>2</sup> Catalan is one of the Romance languages. It is spoken by approx. 8 mln people, mostly living in Spain, but also in France and Andorra.

**Problem №3** (20 marks)

Here are several Khmer<sup>3</sup> words written in a special variety of the traditional Khmer alphabet (the so-called 'Round Script'), their English translations, as well as Roman transcriptions of these words in arbitrary order:

<b>កាម</b>	'passion'	<b>អាច</b>	'be able'
<b>អំ</b>	'suck (a breast)'	<b>ចាំ</b>	'wait'
<b>ពាម</b>	'delta'	<b>ពាំ</b>	'hold in one's teeth'
<b>នាំ</b>	'lead, guide'	<b>អាំង</b>	'roast on a spit'
<b>ចាំ</b>	'inarticulately'	<b>ពាំង</b>	'bar the way'
<b>ចាក</b>	'turn around'	<b>មាន</b>	'have'
<b>ចាំង</b>	'trim, rough-hew'		

poɯm, a:c, poɯm, ɲoɯm, sam, reɯŋ, aŋ, caŋ, am, piɯm, ɲiɯk, ka:m, miɯn

**Assignment 1.** Determine the correct correspondences.

**Assignment 2.** Write in the Roman script:

<b>កាំ</b>	'spoke (in a wheel)'
<b>កាក</b>	'crow'
<b>ចាំង</b>	'bright red'
<b>ចាម</b>	'Cham'
<b>នាម</b>	'name'
<b>មាំ</b>	'robust'

**Notes.** a, eɯ, oɯ are short vowels, a:, iɯ are long vowels, ɲ, c are consonants; Cham is an ethnic group in Southeast Asia.

*Sergey Dmitrenko*

<sup>3</sup> Khmer is the official language of the Kingdom of Cambodia. It is spoken by approx. 9 mln people.

**Problem №4** (20 marks)

Here you see phrases in the Southern (Bikin) dialect of the Udihe<sup>4</sup> language in Roman transcription and their translations:

b'ata zä:ɲini	the boy's money
si bogdoloji	thy shoulder
ja: xabani	the cow's udder
su zä:ɲiu	your money
dili tekpuni	the skin of the head
si ja:ɲi:	thy cow
bi mo:ɲi:	my tree
aziga bugdini	the girl's leg
bi nakta diliɲi:	my boar head
nakta igini	the boar's tail
si b'ataɲi: bogdoloni	thy son's shoulder
teɲku bugdini	the leg of the stool
su ja: wo:ɲiu	your cow thigh
bi wo:i	my thigh

**Assignment 1.** Translate into English:

su b'ataɲiu zä:ɲini  
 si teɲku bugdiɲi:  
 si teɲkuɲi: bugdini

**Assignment 2.** Translate into Udihe:

the boy's thigh  
 our boar  
 my daughter's tree

**Assignment 3.** Do you think the following phrases are possible in Udihe:

bi xabai  
 su b'ataɲiu bugdiɲini  
 si igi

If so, translate them. If not, explain why.

**Assignment 4.** Translate the following phrases into English and explain how their meanings differ:

bi tekpui  
 bi tekpuɲi:

**Note.** ɲ, ' are consonants, ä is a vowel. The colon indicates the length of the preceding vowel.

*Boris Iomdin*

<sup>4</sup> Udihe is a Tungus-Manchu language; it is spoken by no more than 100 people in the south of the Russian Far East.

**Problem №5** (20 marks)

Below you see sentences in English and their translations into the Ngoni<sup>5</sup> language. In fact each English sentence can be translated into Ngoni in more than one way, but only one variant is given here.

- |  |                                |
|--|--------------------------------|
| 1. Kamau bought a farm for the women.              | Kamau aguli vadala mgunda.     |
| 2. The grandmothers bought a hoe for the grandson. | Vabuya vaguli mjukulu ligela.  |
| 3. The grandsons bought beer for the guest.        | Vajukulu vamguli mgeni ugimbi. |
| 4. The grandmother bought a knife for Kamau.       | Mbuya guli Kamau chipula.      |
| 5. The guest bought a goat for the grandsons.      | Mgeni avaguli mene vajukulu.   |
| 6. The grandson bought a farm for Zenda.           | Mjukulu amguli mgunda Zenda.   |
| 7. Zenda bought a house for the grandmother.       | Zenda amguli mbuya nyumba.     |
| 8. The guests bought a knife for the woman.        | Vageni vamguli chipula mdala.  |
| 9. Mwangi bought a hoe for the guests.             | Mwangi avaguli vageni ligela.  |
| 10. The women bought a house for Mwangi.           | Vadala guli Mwangi nyumba.     |

**Assignment.** Each of the Ngoni sentences (11a-c) and (12a-c) contains an error. Translate these sentences into English, explain what the error is in each case, and then correct it, giving for each example four correct sentences in Ngoni that describe the same situation.

11. (a) Mdala guli ugimbi Mwangi.  
(b) Mdala mguli Mwangi ugimbi.  
(c) Mdala aguli ugimbi Mwangi.
12. (a) Kamau vamguli vabuya mene.  
(b) Kamau guli mene vabuya.  
(c) Kamau vaguli vabuya mene.

*Olga Fyodorova*

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**Good luck!**

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<sup>5</sup> Ngoni (Chingoni) is one of the many languages of Tanzania, spoken by approx. 200 thousand people.