Third International Olympiad in Theoretical, Mathematical and Applied Linguistics

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Solutions to the Problems of the Individual Contest

Problem 1

As we analyse the given material we can see that:

1. Affirmative sentences (declarative and interrogative) contain the word ʻoy 'be, exist'. Declarative sentences begin with this word.

2. General questions begin with mi. Special questions begin with the interrogative words bu 'where' or kʼusi 'what'.

3. General negative sentences begin with chʼabal. Particular negation is formed by the phrases mukʼ bu 'nowhere' or mukʼ kʼusi 'nothing', which also begin the sentence.

4. The present tense is not marked. The past and the future are marked by the word ʻox, which comes after ʻoy, chʼabal, mukʼ bu or mukʼ kʼusi.

5. The person or thing whose (non-)existence or location is stated is named in the sentence after the words described above. People's names are enclosed by li … e (which is in fact a definite article).

6. The place and time of action (in this order) are expressed by words or phrases which close the sentence.

7. The time is expressed by the words junabi 'a year ago', volje 'yesterday', nax 'earlier today', lavie 'now or later today', ʻokʼob 'tomorrow', poʻot 'soon'. The place is marked by phrases with preposition ta (which has other functions as well).

8. Possession by the first, second, and third person is expressed by the prefixes j-, a- and s-, respectively. If the possessed is modified by a preceding adjective, it is the adjective that receives the prefix.

9. The Tzotzil language calls itself batzʼi kʼop, literally 'real talk'.

Assignment 1.

Chʼabal alekil ʻixim.	**You have no good corn.**
Mi ʻoy ʻox vob ta kʼin?	**Was there / will there be music at the party?**
Kʼusi ʻoy ʻox ta Mexico lavie?	**What will there be in Mexico today?**
ʻOy ʻox kʼop ta batzʼi kʼop ta jna volje.	**There was a talk in Tzotzil in my house yesterday**

Assignment 2.

Where is the party today?	**Bu ʻoy kʼin lavie?**
There was nothing in the pot today.	**Mukʼ kʼusi ʻox ta pʼin nax.**
You have a real house.	**ʻOy abatzʼi na.**
Will Juana be in San-Cristobal tomorrow?	**Mi ʻoy ʻox li Xunka e ta Jobel ʻokʼob?**
He will soon have no pot.	**Chʼabal ʻox spʼin poʻot.**

Problem 2

We can see from the statement of the problem that some things named by one English word take a two-word phrase to say in Lango. Let us try to represent the English nouns as phrases, too, or better, as combinations of meanings. Thus the meaning 'house' is contained in the concepts *roof*, *floor* and *restaurant*, 'top' or 'head' in *roof* and *hat*, 'bottom' in *floor* and *sole*; furthermore *hat* contains the meaning of *garment*, and *eyeball*, perhaps, of *grain*.

We also determine the order of the words in the Lango phrases: possessed+possessor (hat = gìn wìc 'garment of the head' but roof = wìc ɔ̀t 'head of the house').

Assignment 1. dyè ɔ̀t – floor ('bottom of house'), dyè tyɛ̀n – sole of foot ('bottom of foot'), gìn – garment, gìn wìc – hat ('garment of head'), ɲíg – grain, ɲíg wàŋ – eyeball ('grain of eye'), ɔ̀t cɛ̀m – restaurant ('house of eating'), wìc ɔ̀t – roof ('head of house').

Assignment 2. cɛ̀m – **eating**, dyè – **bottom**.

Assignment 3. window – wàŋ ɔ̀t (*lit.* 'eye of the house').

Problem 3

The Mansi numerals are formed as follows:

5	at	50	atlow
6	xōt	60	xōtlow
8	ńollow	80	ńolsāt
9	ontъllow	90	ontъlsāt
$10+\alpha$	α-xujplow	100α	α-sāt
$10(\beta-1)+\alpha$	(10β) nopъl α	$100(\beta-1)+\alpha$	(100β)-n α
$90+\alpha$	90 α	$900+\alpha$	900 α

(In fact both the function word nopъl and the ending -n mean 'towards': 49 atlow <u>nopъl</u> ontъllow is literally 'nine (on the way) <u>towards</u> fifty'.)

Assignment 1. atsātn at – **405**, ńolsāt nopъl xōt – **76**, ontъllowsātn ontъllowxujplow – **819**.

Assignment 2. 58 – **xōtlow nopъl ńollow**, 80 – **ńolsāt**, 716 – **ńollowsātn xōtxujplow**.

Problem 4

The modifier (the possessor) follows the head (the possessed) in the Yoruba phrases. If the second word begins with i, this sound assimilates to the final vowel of the first word, whatever it is; if the second word does not begin with i but rather with another vowel (a, ɛ, e, o, ɔ), the final vowel of the first word assimilates to this sound. All tones remain intact.

(No word ever begins with u in Standard Yoruba; in those dialects where initial u does occur, however, it behaves exactly as i.)

Assignment 1.

[owá àké]	the money of the axe **(i.e., the price of the axe)**	[ɔkɔ ɔ̀yá]	the mother's husband
[ɛ̀bá àlú]	the vicinity of the city **(i.e., near the city)**	[aɟé elu]	the stranger's dog

Assignment 2.

the head of the tree	[orí igi]	the witch's city	[ìlá àɟɛ́]
the house of love	[ìlé èfɛ́]	the husband's axe	[àkó okɔ]

Задача №5

First of all, for every syllable we must determine to which of the two types it belongs. This is easy to do, since, according to the problem statement, the syllable type always remains the same within the same root or the same ending. Hence, the root has falling intonation in paradigms **1** and **3**, and rising intonation in paradigms **2** and **4.** The endings in Nom.Sg. and Acc.Pl. always have falling intonation, whereas in Gen.Sg. and Nom.Pl. they always have rising intonation (the last one is explicated in the problem).

Let us represent these data in a table (where a designates any vowel, and stressed syllables are set in boldface):

Paradigm	1	2	3	4
Nom.Sg.	*áá*	*ãá*	*áá*	*ãá*
Gen.Sg.	*áã*	*ãã*	*áã*	*ãã*
Nom.Pl.	*áã*	*ãã*	*áã*	*ãã*
Acc.Pl.	*áá*	*ãá*	*áá*	*ãá*

Which paradigms belonged together?

In **1** and **3** the root has falling intonation, but the accent patterns are different. This means that **1** and **3** must have been different from the outset. The same is true for paradigms **2** и **4**. Therefore only two options remain:

A. **1** + **2** and **3** + **4**

   or

B. **1** + **4** and **3** + **2**

Option B would have us explain more differences in the place of the accent than option A (5 versus 3), so we start with option A. Comparing **1** and **2**, we notice that the places of the accent are only different in Nom.Sg. and Acc.Pl., *áá* in **1** corresponding to *ãá* in **2** in both cases. Comparing **3** and **4**, we notice that the places of the accent are only different in Acc.Pl; in this case, too, *áá* in **3** corresponds to *ãá* in **4**. Option B does not yield an acceptable solution. For instance, the different places of the accent in Gen.Sg (*ãã*) and Nom.Pl. (*ãã*) in **4**, the intonation of both syllables being the same, and their coïncidence in **1** cannot be accounted for. We conclude that option A is correct.

Assignment 1. Paradigms **1** and **2**, on the one hand, and paradigms **3** and **4**, on the other hand, originally belonged together.

In order to determine what the two initial paradigms looked like, we have to answer the question why *áá* and *ãá* have different places of accent. Maybe *áá* changed to *áá*? But we can see the sequence *áá* in **3** (Nom.Sg.), and *ãá* does not occur in any of the paradigms **1-4**. Therefore *ãá* always changed to *ãá*, and not the other way around.

Assignment 2. Paradigm **1** + **2** looked as **1** looks now (the root was always accented), and the paradigm **3** + **4** looked as **3** looks now (the endings were accented in the Singular and the root was accented in the Plural).

Assignment 3. Saussure's Law says that in the sequence *syllable with rising intonation – syllable with falling intonation* (*ãá*) the accent shifted from the first syllable to the second one (*ãá*).