

First International Olympiad in Theoretical, Mathematical and Applied Linguistics

8–12 September 2003, Borovetz, Bulgaria

Solutions to the Problems of the Individual Contest

Solution of Problem 1

1. Nouns:

- $\dot{\Lambda}$ ‘man’, $\dot{\Delta}$ ‘woman’, i ‘boy’, $\dot{\Delta}$ ‘girl’, \boxtimes ‘letter’, \boxminus ‘work’.
 - Combinations: $\dot{\Lambda}\dot{\Delta}$ ‘man + woman = husband + wife’, $i\dot{\Delta}$ ‘boy + girl = brother + sister’, $\dot{\Lambda}\dot{\Delta}i\dot{\Delta}$ ‘man + woman + boy + girl = family’.
 - Family members are singled out by division and cancellation: $\frac{\dot{\Lambda}\dot{\Delta}i\dot{\Delta}}{\dot{\Delta}i\dot{\Delta}}$ ‘family/(woman + kids) = father’, $\frac{i\dot{\Delta}}{\dot{\Delta}}$ ‘kids/girl = brother’, $\frac{\dot{\Lambda}\dot{\Delta}i\dot{\Delta}}{i\dot{\Delta}}$ ‘family/kids = parents’.
 - Missing (deceased) family members are preceded by a minus sign: $\frac{i\dot{\Delta}(-\dot{\Lambda}\dot{\Delta})}{(-\dot{\Lambda}\dot{\Delta})}$ ‘kids (–parents)/(-parents) = orphans’ (apparently orphaned children of one and the same family).
- i ‘person’, ($> i$) ‘giant’.

2. Pronouns are composed of the character i or $\dot{\Delta}$ (for feminine gender) and the subscripts 1 to 3, which indicate the person.
3. The plural of nouns and pronouns is expressed by the coefficient n . The plus sign plays the part of the conjunction ‘and’.
4. Verbs: \ll ‘talk’, \boxminus ‘work’, t ‘hurry’, \swarrow ‘write’, \heartsuit ‘like, love’, \circlearrowright ‘eat’. If what the verb denotes is absent or uncharacteristic, a minus sign expresses that: $-\heartsuit$ ‘not inclined to affection = wicked’. (We can assume that a characteristic property is expressed by a plus sign, hence $+\heartsuit$ ‘good’, a concept we need.)

5. Sentence structure:

- the subject is the base of the power;
- the predicate is the exponent, whereby negation is expressed by a minus sign ($-\heartsuit$ ‘not like’) and passive voice by a radical sign ($\sqrt{\swarrow}$ ‘be written’); additional activities can be added or subtracted ($i_3^{\boxminus-t}$ ‘he is working and doesn’t hurry = he is working without haste’);
- past tense is marked by $-t$ ($i_3^{\boxminus} - t$ ‘he worked’), future tense by $+t$;
- the direct object, if there is one, follows an equals sign.

- Assignment 1.**
9. He loves with an unrequited love (*i. e.* loves without being loved).
 10. The taciturn (*or* mute) daughter will write about the father and the mother.
 11. You (sg. fem.) worked quickly (*or* hastily) and silently.
 12. The letter was eaten by the hungry sister.

- Assignment 2.**
13. $(\dot{\Delta}_1 + \frac{\dot{\Lambda}\dot{\Delta}}{\dot{\Delta}})\ll -t = -ni_3$
 14. $(ni)^{\boxminus -\heartsuit}$
 15. $(\frac{\dot{\Lambda}(-\dot{\Lambda})}{(-\dot{\Lambda})} + \heartsuit)\heartsuit = (< i) - \boxminus$
 16. $(ni_2)^{\vee \ll} + t$