

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’, Δ ‘girl’, \boxtimes ‘letter’, \boxminus ‘work’.
 - Combinations: $\dot{\Lambda}\dot{\Delta}$ ‘man + woman = husband + wife’, $i\Delta$ ‘boy + girl = brother + sister’, $\dot{\Lambda}\dot{\Delta}i\Delta$ ‘man + woman + boy + girl = family’.
 - Family members are singled out by division and cancellation: $\frac{\dot{\Lambda}\dot{\Delta}i\Delta}{\Delta i \Delta}$ ‘family/(woman + kids) = father’, $\frac{i\Delta}{\Delta}$ ‘kids/girl = brother’, $\frac{\dot{\Lambda}\dot{\Delta}i\Delta}{i\Delta}$ ‘family/kids = parents’.
 - Missing (deceased) family members are preceded by a minus sign: $\frac{i\Delta(-\dot{\Lambda}\dot{\Delta})}{(-\dot{\Lambda}\dot{\Delta})}$ ‘kids (–parents)/(–parents) = orphans’ (apparently orphaned children of one and the same family).
 - \dot{I} ‘person’, $(> \dot{I})$ ‘giant’.
2. Pronouns are composed of the character \dot{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: \leq ‘talk’, \boxminus ‘work’, t ‘hurry’, \diagup ‘write’, \heartsuit ‘like, love’, \bigodot ‘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 ($\sqrt{\quad}$ ‘be written’); additional activities can be added or subtracted ($\dot{I}_3^{\boxminus - t}$ ‘he is working and doesn’t hurry = he is working without haste’);
 - past tense is marked by $-t$ ($\dot{I}_3^{\boxminus -} - t$ ‘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. $(\dot{\Delta}_1 + \frac{\dot{\Lambda}\dot{\Delta}}{\Delta}) \leq -t = -n\dot{I}_3$
 14. $(n\dot{I})^{\boxminus - \heartsuit}$
 15. $(\frac{\dot{\Delta}(-\dot{\Lambda})}{(-\dot{\Lambda})} + \heartsuit)\heartsuit = (< \dot{I}) - \boxminus$
 16. $(n\dot{I}_2)^{\sqrt{\leq}} + t$