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:

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

2. Pronouns are composed of the character $\dot{\mathrm{I}}$ or $\grave{\Delta}$ (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 $\mathfrak{n}$. The plus sign plays the part of the conjunction 'and'.

4. Verbs: $\leqslant$ 'talk', $\parallel\!\!-$ 'work', t 'hurry', $\diagup$ 'write', $\heartsuit$ 'like, love', $\triangle$ '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 ($\sqrt{\diagup}$ 'be written'); additional activities can be added or subtracted ($\dot{\mathrm{I}}_3^{\parallel- -\mathrm{t}}$ 'he is working and doesn't hurry = he is working without haste');
   - past tense is marked by $-\mathrm{t}$ ($\dot{\mathrm{I}}_3^{\parallel-} - \mathrm{t}$ 'he worked'), future tense by $+\mathrm{t}$;
   - 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. $(\grave{\Delta}_1 + \frac{\grave{\Lambda}\grave{\Delta}}{\grave{\Delta}})^{\leqslant} - \mathrm{t} = -\mathfrak{n}\dot{\mathrm{I}}_3$

14. $(\mathfrak{n}\dot{\mathrm{I}})^{\parallel- -\heartsuit}$

15. $(\frac{\grave{\Delta}(-\grave{\Lambda})}{(-\grave{\Lambda})} + \heartsuit)^{\heartsuit} = (< \dot{\mathrm{I}}) - \parallel\!\!-$

16. $(\mathfrak{n}\dot{\mathrm{I}}_2)^{\sqrt{\leqslant}} + \mathrm{t}$