

**Критерии оценивания и решения заданий заключительного этапа  
по направлению «Лингвистика: теория языка»**

Задания по направлению состояли только из инвариантной части. Для того, чтобы претендовать на статусы медалиста, дипломанта I, II, III степени, участникам необходимо набрать наибольшее число баллов за все задания.

Номер задания	Максимальный балл	Учёт в рейтинге по направлению
1. The problem of the Reading Gaol	40	✓
2. Arch-agreement	60	✓

**Задание 1.**

**Step 1. Transparency principle.**

When any two inmates A and B meet (collide against each other), each of them starts moving in the opposite direction with the same speed. In doing so, A follows the same trajectory that B would follow without the collision, i.e. as if A would not be there or would be transparent to him; similarly, B follows the same trajectory as A would follow if B would be transparent to him. This applies to each collision.

You can think of this as if, at each collision, the inmates would exchange their robes – the robes would follow the path as if traveling on their own. Because each robe is worn by a prisoner, we know that each position of one of the four robes corresponds to the position of one of the four prisoners, and trace robes instead of prisoners.

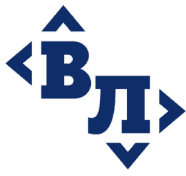
Under such a view, the robe would return to the same position after 200 minutes\* (this makes the full round, because the court is 100 steps long). Therefore, each of the initial positions of the robe/inmate will be taken by the same robe (one of the inmates) after 200 minutes. That means that the initial position of the robes shown on the figure will be repeated after each 200 minutes. Because the total time of 600 minutes (10\*60) is divisible by 200, the final position of the four robes will be the same as their initial position.

**Step 2. Non-transparency principle.**

We also know that the actual inmates are in fact non-transparent, and after collision they start moving in the opposite direction. Therefore, however they move, their relative order from left to right will remain the same.

**Synthesis.**

From Step 1, we know that, after ten hours, each of the four initial positions will be occupied by one of the inmates. From Step 2, we know that their order always remains



the same. We conclude that, after ten hours, the position will be the same as the initial one: each of the inmates will be in the same position as at the beginning.

\* Some of the participants noted a discrepancy between the text (speed is measured in minutes) and the figures (speed is measured in seconds). We apologize for this typo. In either condition, the logic of the solution and the answer are exactly the same; whichever condition was chosen by a participant, we graded the full solution in the same way.

### Criteria

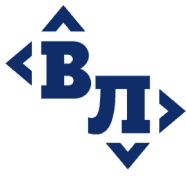
1. Up to 5 points were awarded to participants showing logical thinking without fully solving the task.
2. Identification of loop (up to 15 points, Computational Solution): Points given for recognizing the repetitive nature of prisoner movements, though this approach is considered computational rather than analytical. Errors in loop calculation limit the maximum score to 5 points.
3. Recognition of Transparency Principle (30 points): Given for correctly identifying the Transparency Principle (Step 1), treating collisions as if prisoners were transparent.
4. Recognition of Non-Transparency Principle (15 points): Additional points for acknowledging the Non-Transparency Principle (Step 2), which maintains the relative order of prisoners despite collisions.
5. Clarity of Solution (potential deduction of points): Points may be deducted for unclear explanations or ambiguity.

### Задание 2.

Examples 1-7 are provided simply as illustrations of the basic pattern explained in the assignment and shown in Tables 1 and 2. All other examples are deviations from the expectations.

#### Step 1. Examples 8, 9 and 12.

Many languages use the singular (alternatively, unmarked) form of the noun when the noun is modified by a numeral. See examples 8, 9 and 12 – the noun modified by a numeral is in the singular. In all such cases, the agreement of the numeral is as with a singular noun. In other words, the numeral agrees with its singular form (lo in 8, ans: in 9, došdur in 12) rather than with its plural reference ('young men' in 8, 'bulls' in 9, 'sisters' in 12). The same holds for the agreement on the verb in 8 and 9 – but, remarkably, not in 12 (see the discussion below). → with numerals, nouns not only are in the unmarked (singular) form, but also control singular agreement which is associated with their singular form.



## Step 2. Examples 10, 13, 14.

Another unpredicted pattern is observed in (10), (13) and the second and the third clause of (14) ('you go away', 'mother will not you come'). In these contexts, non-human plural agreement is associated with plural pronominal controllers (remember that the language has ergative alignment, so that the controller is S in (10) and in 'you go away' in (14), but P in (13) and in 'mother will not let you (come near)' in (14)). Let us assume that this special pattern is associated with plural personal pronouns which refer to groups including one of the speech act participants (+SAP feature below) → plural personal pronouns control the same agreement as non-human plurals; the feature that triggers the unexpected pattern is the inclusion of one (or both) of the speech act participants in the reference of the plural personal pronoun.

\* Note that only plural personal pronouns, including the first person (exclusive), inclusive and second person plural, work this way. Singular personal pronouns have the singular agreement expected for the humans in the singular, e.g. Gender 2 (feminine) in example (6) with 'I' as S or Gender 1 (masculine) in example (7) with 'you.sg' as P.

## Step 3. Examples 11, 12, 14.

This hypothesis is further supported by examples where the same agreement pattern is associated with noun phrases that function as address (apparent NPL in (11) on the possessive pronoun; in (12) on the verb; and in the 'go away children!' clause in (14) also on the verb\*). The same also applies to NPs that function as self-reference (e.g. '(us) old people let's sit down!'), though no examples of this are provided. Hence → not only personal pronouns, but also plural NPs whose reference is similar to that of plural personal pronouns – i.e. includes either the speaker or the addressee or both – trigger the same unexpected NPI pattern.

\*For 12 and 14, where NPI marking appears on the verb, the alternative hypothesis could be that NPI is controlled by omitted personal plural pronouns, to which the NPs then serve as appositions (e.g. literally '(you) my four sisters, sit close to your sister' in 12, '(you) children go away!' in 14). This hypothesis is however incompatible with 'my dear masters' in (11). Indeed, here the NPI agreement is observed on the attribute within the NP; we know that the controller of the attribute is the head noun. We have to admit that NPI agreement may be associated with the noun in the function similar to that of plural personal pronouns (or NP, see Step 4).

## Step 4. Back to example 12.

The example in (12) remains problematic in that the agreement within the NP on the possessive pronoun ('my four sisters') is not NPI but Gender 2 (feminine)\*. In other words, the agreement within the NP modified by a numeral follows the formal (as in the singular), not the referential (as with the addressive / self-referential NPs) pattern. Why is that the formal agreement rule discussed in Step 1 overrides the referential agreement



rule discussed in Step 3, and why this happens within the NP but not within the clausal domain?

Reference is the property of discourse rather than lexical units. It is natural to assume that it is a feature of NPs, not nouns. In other words, plural nouns with human reference (and probably also plural personal pronouns) are lexically HPI; and so are, under normal circumstances, NPs these nouns head. It is in discourse that plural NPs with special referential properties (+SAP) are assigned a special agreement pattern (identical to NPI). For the purposes of the agreement in the clause, only the NP is visible in the clausal domain. This is why agreement with such nouns in the clausal domain (in our examples, agreement on the verbs in examples 10 – 14 and additionally on the adverb in example 13) is consistently referentially based (NPI). The agreement within the NP, on the other hand, is governed by its head, the noun.

In 11 ('(you), my dear masters'), the agreement pattern is inherited from the NP. In 13 ('(you), my four sisters'), this inherited agreement is blocked by the singular form of the noun. We have no explanations for the existence of this blocking rule.

\*The plural agreement in the suffixal position - presented here in *jem-ib* in (5) and *χ:ara-t:-ib* in (11) - is irrelevant for the analysis, because this agreement pattern does not distinguish between human and non-human controllers (see Table 2).

### **Step 5. Functional explanation.**

But why is the agreement with +SAP-referential plural NPs identical to NPL? This is an open question without a fully convincing solution. All interesting suggestions here were graded.

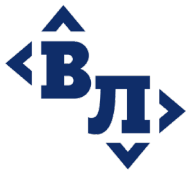
### **Criteria**

#### **Problematic singular agreement**

Participants who identified unexpected singular agreement observed in examples (8), (9), and (12) as problematic were awarded 5 points. Those who offered a feasible analysis for these agreement patterns (i.e. the patterns observed in constructions involving numerals) earned 5 to 10 points based on the depth and clarity of their analysis.

#### **Problematic non-human plural agreement**

Participants who identified unexpected non-human plural agreement found in examples (10) to (14) as problematic were awarded 5 points. Those who suggested that NPI agreement was triggered by 2PL and 1PL personal pronouns earned 5 points for each correctly identified pronoun.



### **Generalization of speech act participants properties**

Participants who suggest a generalization for first and second person plural pronouns and the inclusive in terms of reference to groups including speech act participants (i.e. a generalization over plural personal pronouns) were awarded additional 5 points.

### **Extension of speech act participants properties to nouns**

Participants who extended their concept of speech act participants properties to nouns and accurately described the agreement within the noun phrase in example (11) were awarded 10 additional points.

### **Correct ordering of the two rules**

Five points were awarded to participants who correctly ordered the rule about numeral NPs and the rule about speech act participants, necessary for an accurate description of example (12) and the agreement patterns observed in it.

### **Reasonable functional explanation**

Participants who provided feasible functional explanations based on markedness, politeness, or other relevant factors were eligible to 5 to 10 points based on the quality and coherence of their explanation.