

LOGICAL ANALYSIS OF RIDDLES

N.V. BARABANOVA

Moscow, USSR

Almost all investigators of riddles agree that a riddle represents a special logical task for it contains - either in an open or a hidden form - a question that has to be answered. And according to the findings such tasks are built on certain logical models.

We have investigated D.N. Sadovnikov's collection "Russian Riddles" and satisfied ourselves that its riddles can be divided into several groups on the basis of their logical models. Let us turn to some examples.

I. Some riddles from group I.

No. 1617 It is little, it is white,  
Through the forest jump-jump!  
Through the snow poke-poke!

(A hare)

No. 819 Green from above,  
Thick in the middle,  
Thin at the end.

(A turnip)

No. 794 Between beds

It lies smooth.

(A cucumber)

No. 101 It is little,

A bit pot-bellied

And guards the whole house.

(A lock)

No. 1002 One is walking,

Dragging four behind him,

But the fifth is just sitting

And watching with his both eyes.

(A horse, a cart and a man)

No. 959 All over hairy,

With four pads,

Itself being whiskered.

(A cat)

It is clear that all of these riddles are constructed according to one and the same pattern, that is they are variants of a logico-structural invariant. The object of the riddle is chosen first, then it is provided with a description which is not a full one. The omission of some significant elements of description creates an enigmatic or mysterious situation. After this a certain comparison follows, a comparison between the possible answer (in the last riddle it is a "cat")



No. 1576 An old man sits on the water  
Shaking his beard.

(Reed)

No. 344 I was in a pit,  
I was hit,  
I was at a fire,  
I was at a bazaar,  
Was young -  
Fed people,  
Became old -  
Became swaddled,  
Died -  
My worthless bones  
Were thrown in a pit,  
Even the dogs do not gnaw them.

(An earthenware pot)

No. 1834 Two little eggs in moss,  
Plus a carrot up above.

(A nose and eyes)

No. 256 Two bellies,  
Four hamlets.

(A pillow)

No. 433 New vessel,  
Full of holes.

(A basket)

No. 812 A young girl sitting in a dungeon,  
With her plait out on the street.  
(A carrot)

The logical relation can be shown as follows (see the last riddle):

Answer: object P	Object to be compared: Q
("carrot")	("young girl")
$x_1$ - grows (in the field)	$y_1$ - sits
$x_2$ - its root is in the earth	$y_2$ - in a hut ("in a dungeon")
$x_3$ - has tops	$y_3$ - has a plait
$x_4$ - tops are above the earth	$y_4$ - plait is not in the hut ("on the street")

Comparison of these two objects can be expressed by the relation of categories P and Q and their corresponding elements:

$$\frac{P}{Q} = \frac{x_1}{y_1} = \frac{x_2}{y_2} = \frac{x_3}{y_3} = \frac{x_4}{y_4} \neq 1$$

Accordingly riddles in the second group show variants of another logico-structural invariant. The second invariant differs from first one in that it has the relation  $\frac{P}{Q} \neq 1$ .

The fantastic picture appearing in the riddle is due to the fact that a certain extra category of P is construed,

which contains elements from both categories:  $y_1; x_2; y_3; x_4$ .

This group of riddles is the most extensive. It has the most subtypes in relation to the remaining two structural planes (the first plane being the logico-semiotic), viz., the linguistic and the thematical plane or realia plane. (On the three basic planes of paremias see G.L. Permyakov's studies: "From Proverb to Folk-Tale", Moscow, 1970; "On the Structure of Paremiological Fund" in: "Studies in Folklore Typology", Moscow, 1975; "Grammar of Proverbs" in: "Oriental Proverbs", Moscow, 1979.)

III. Now let us turn to another group of riddles:

No. 2143 What is sweeter than honey

And stronger than a lion?

(A sleep)

No. 2485 What is nicer than

One hundred roubles?

(Two hundred)

No. 2148 What flies faster than a bullet?

(Thought)

No. 2461 What is the easiest thing?

(To see someone else's defects)

No. 1939 What is thicker than a forest?

(Stars)

No. 2156 What is more precious than money?

(Health)

In this group of riddles both objects to be compared have the same peculiarity, but in one of them this peculiarity is expressed more intensive (!). There are two categories in the last riddle:

Answer: object P

("health")

x! - has a very high value

Object to be compared: Q

("money")

x - has a value

Comparison of the two objects can be shown in the form of the relation:

$$\frac{P}{Q} = \frac{x!}{x}$$

IV. Here we have examples from the fourth group of riddles:

No. 1643 What is born without a skin?

(A farrow)

No. 1981 What construction was built a long time ago

And does not tumble down

And does not need repairing?

(The World)

No. 932 What never goes blunt in the world?

(A pig's snout)

Answer( object P ("a pig's snout")	Object to be compared: Q ("a certain object")
$x_1$ - nuzzles (digs) the earth	$y_1$ - nuzzles (digs) the earth
$x_2$ - never grows blunt	$y_2$ - would grow blunt

The correlation between the features of objects P and Q can be formulated in the following way: "If a pig's snout nuzzles the earth, then it never grows blunt." and "If a certain object nuzzles (digs) the earth, it will inevitably grow blunt."

$$\frac{P}{Q} = \frac{x_1:x_2}{y_1:y_2}$$

It means that the relation of the interdependent elements  $x_1$  and  $x_2$  of category P to the interdependent elements  $y_1$  and  $y_2$  of category Q corresponds to the relation between these very categories.

Let us examine three more riddles from the fourth group:

No. 518 Borne by water,  
It fears water.

(Salt)

No. 88 Two gossips bow to each other,  
But together they would not agree.<sup>1</sup>

(Two doors of a passage)



No. 1090 It is thin itself,  
But its head weighs a pound.  
(A hammer)

Answer: object P	Object to be compared: Q
("a hammer")	("a certain creature or object")
$x_1$ - has a thin body (the handle)	$y_1$ - thin body
$x_2$ - has a heavy head	$y_2$ - a head is not heavy (does not weigh a pound) since it is usually proportional to the body

The categories to be compared here have the same formula of relation as in the riddle about the pig's snout. The last three riddles differ from the first three only in their syntactic structure. Here we have two linguistic subtypes of one logico-structural type (invariant), and we can easily transform any riddle from one subtype into the other simply by changing its syntactic form:

It is born, But without a skin.	<i>and</i>	What is born Without a skin?
It is thin itself, But its head weighs a pound.	<i>and</i>	What has a thin body and a head that weighs a pound?

V. Let us consider another group of riddles:

No. 2275 A man (*chelovek*) has one of it,  
A crow (*voron*) has two,  
A worm (*chervjak*) and a pig (*svin'ja*)  
Has none.

(The letter *o*)

No. 2274 People (*ljudi*) are standing  
In the middle of the river Volga.  
(The letter *l*, that is referred to  
by its old school name "ljudi")

No. 2273 What stands by the side of the earth  
(*zemli*)?

(The letter *i* which is a genitive  
morpheme here, added to the root  
of *zemlja*, i.e. *zeml'*)

No. 2269 It is present in the sky (*nebo*),  
It is missing from the earth (*zemlja*),  
A woman (*baba*) has got two of it,  
A girl (*devka*) has got none.

(The letter *b*).

The last riddle allows for the following transformations:

A	B	C	D	
sky	earth	woman	girl	- categories
(nebo)	(zemlja)	(baba)	(devka)	
x	$\bar{x}$	2x	$\bar{x}$	underlined
present	missing	two	none	element
A'	B'	C'	D'	
"nebo"	"zemlja"	"baba"	"devka"	- substitution of
				categories: things
				replaced by words
x'	$\bar{x}'$	2x'	$\bar{x}'$	- corresponding substitution
				of elements of categories

The correlation between the categories and their elements is shown below:

$$\frac{A}{A'} = \frac{B}{B'} = \frac{C}{C'} = \frac{D}{D'} = \frac{x}{x'} = \frac{\bar{x}}{\bar{x}'} = \frac{2x}{2x'} = \frac{\bar{x}}{\bar{x}'}$$

VI. Here is another group of riddles:

No. 2412 Why does the goose swim?

(*Otchego* 'why' can mean 'from where',  
so the answer *From the bank* is appropriate)  
(From the bank)

No. 2363 Two little puppies,

But they have eaten out the whole floor.  
(*'have eaten out'* = *iz*'*jeli*, whereas  
*iz jeli* means 'made of fir')  
(The whole floor is made of fir)

No. 2406 What is it that one cannot

Throw over a gate?

(In Russian *s Aljonoj* means 'with Alyona' while *soljonyj*, pronounced in very much the same way means 'pickled'!)

(A cucumber with Alyona)

No. 2338 Where is water precious?

('precious' = *doroga*, pronounced equally with *da roga* = 'and the horns'. Thus the answer below is appropriate.)

(The horns are where the cow is drinking)

Answer: object P

Object to be compared: Q

("place where the cow is drinking")

("any other place")

x - water precious  
and the  
horns

y - water that is not precious  
or water, but with no horns

With the help of element

x the transformation x'

- water and the horns -

can be performed

We can observe the following correlation between categories P and Q:

$$\begin{array}{cc} P & x' \\ - & = \\ Q & y \end{array}$$



In the given group it is essential to take into consideration the differences in sex with regard to the objects. Here it appears to be inevitable to introduce the notion of "the sphere of permissible meanings" (SPM) because if  $x$  is *son*, then  $\bar{x}$  (*not son*) can have the only possible meaning *daughter*. Due regard for SPM is decisive from the point of view of answering riddles of this type. As far as *brother* (or *sister*) is concerned,  $\bar{x}$  can have two meanings: *sister* (*brother*) or *himself* (*herself*).

We have investigated seven groups or seven logico-structural types of riddles. These groups include many riddles from Sadovnikov's collection. We argue that analysis of other Russian riddles in the light of the methodology suggested here (that is, singling out categories and elements and from them deriving logical expressions) helps to set up new logico-structural types. The other two planes of riddles, namely the linguistic and the thematical or realia plane, could serve as a base for the unification of riddles in relevant subtypes within a logico-structural invariant.

(Translated by Károly Fábricz)

#### Notes

- 1 The word "*skhodjatsja*" in Russian means both 'agree' and 'meet'..(The translator)