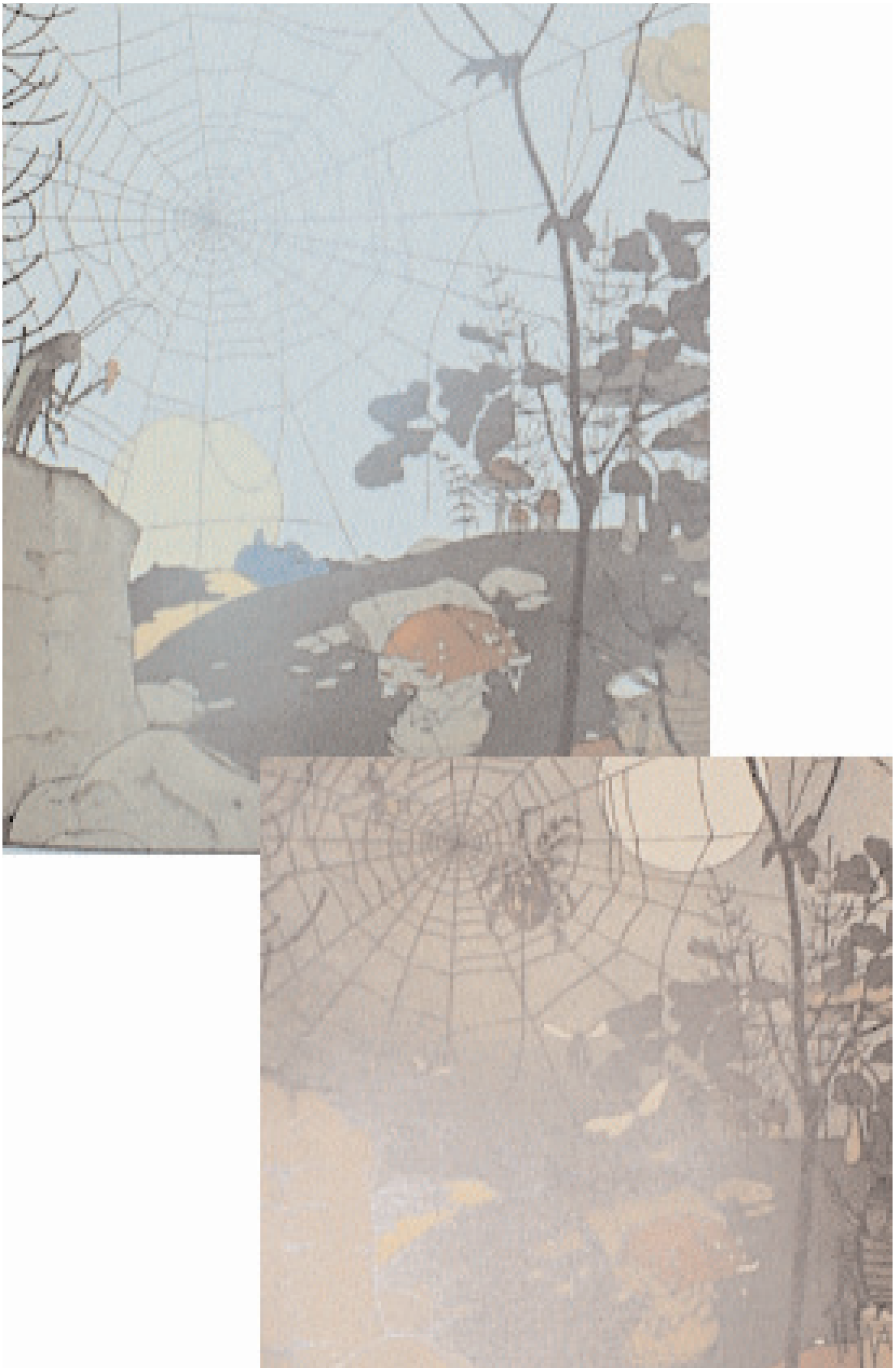


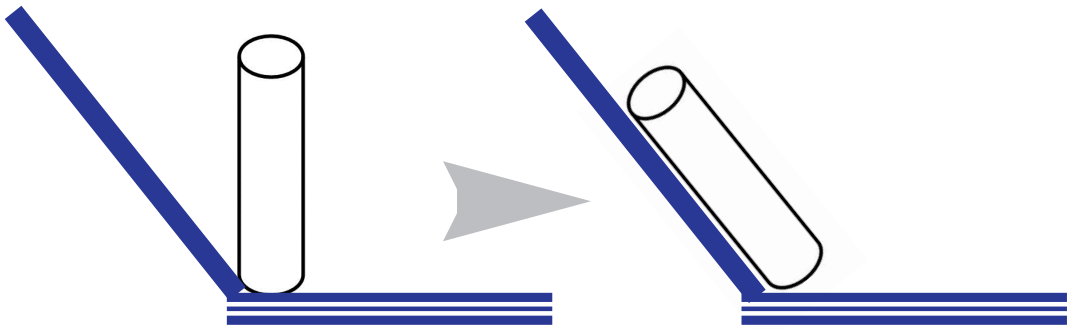
Operator STC

Operator STC (space – time – cost) has grown from the morphological analysis. The main task for this operator – to change usual representation about system.

In most cases the basic attributes (properties, parameters) any system only three. It is the spatial linear size, time of course of processes and cost. Value of each of these attributes precisely can be described some number. For solution of many tasks it is very important to know these numbers. But the paradoxicality, discrepancy of a situation is, that the same exact values very much frequently prevent.

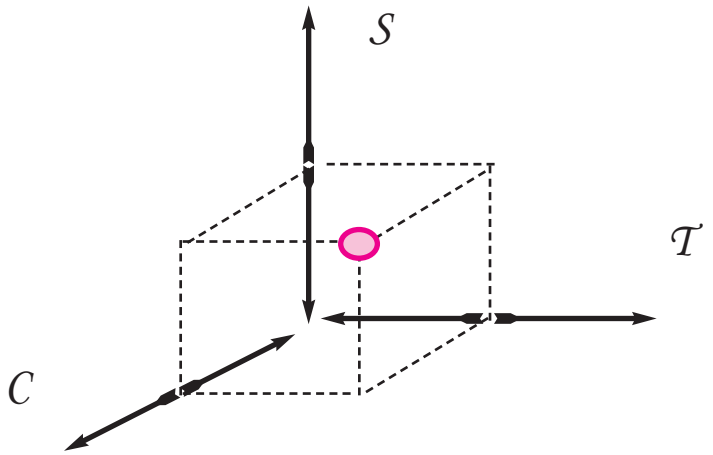
Let's consider such task: (from card file of G.S.Altshuller):

On a slope of mountain accurately it is necessary to put a pipe from concrete. Length of a pipe – 30 meters, diameter – 2 meters. To use complex mechanisms in this case it is impossible. To execute a pipe at once in inclined position too it is impossible. What it is necessary to make?



30 meters is a height of a multi-storey house. Accurately «to put sideways» the whole house – psychologically a complicated problem. Especially, if it is impossible to use special engineering. Therefore – the pipe accurately itself should be lowered on a slope of mountain...

It is necessary to know sizes of two more parameters. The concrete pipe was necessary for hydroelectric power station. On conditions of a real task, on such construction it was allocated two years of time and hundred millions dollars.



The rule of performance of operator STC is the following: we take by turns each of three parameters (space, time, cost) and twice we change its numerical value – from existing size up to zero and from existing size to infinity.

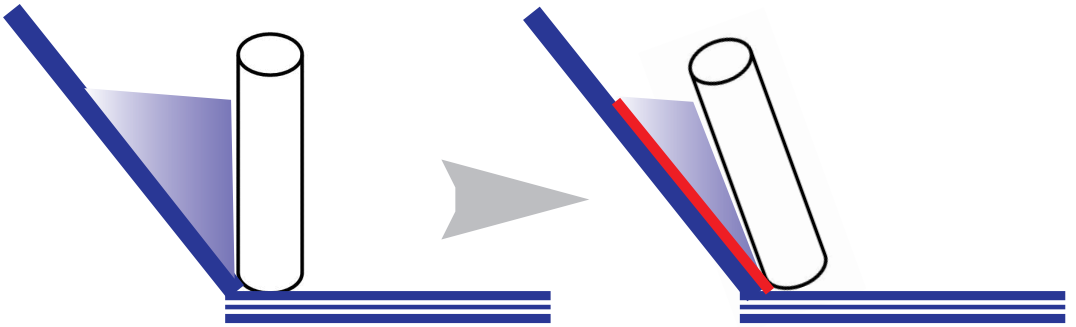
During performance of each of these of six operations it is necessary to check up – as the task has changed. In new conditions its solution can become more difficult and can become easier.

It is very important to not limit itself only to extreme values (zero and infinity). It is necessary to describe a situation for several intermediate values. For example, intervals of time in one day, one month and one year can have essential, qualitative differences. Such differences are connected to occurrence and disappearance of various processes on various «floors» of an axis of time. It concerns all parameters of the operator.

Not less essential requirement is, that all actions with the operator are necessary for writing down in detail. Such records further can be used and during the decision of other tasks, and for updating information funds.

Check up itself – make independently all six records of changes of parameters for a problem(task) about stacking of a pipe. For more exact use of operator STC be guided by such control answer:

The ice place between a pipe and a slope of mountain place ice. This ice «catch» the pipe. Then ice gradually warm up (defreeze) on the part of a slope of mountain. As a result of it ice smoothly falls and simultaneously accurately stacks a pipe on a slope of mountain.



For the better to estimate advantages of operator STC – enter the additional requirement: the decision should be idealer. Ice should appear itself... And then independently to thaw. It is necessary to keep money to construction, but it will be necessary «to pay» for it an expenditure of time and space...

Operator PBC many years was used as a separate step in various versions of Algorithm for Solurion of the Invetion's tasks (switching ARIZ-77). Further such step from ARIZ was removed, but thus the idea of change of values of various parameters of system has appeared in other steps of ARIZ. It not only helps to strengthen the received solution, but also allows to present all system more full. Accumulation of the information on application of operator STC was the important element in creation of the ***Multiscreen Scheme***.

At the same time, operator STC («classical» tool of TRIZ) and its separate elements remain the important part of the general «nonclassical» rate of Development of Creative Imagination.

Originally this rate consist of the most different methods of management of psychological factors. It is a lot of such methods, but their quality not always happens sufficient (even for a «nonclassical» level). Therefore during teaching and application TRIZ these methods were in part eliminated, in part transformed, in part replaced new.

As a rule, new elements of rate STC were based on the information funds received at use of «classical» tools of TRIZ. In particular, change of values of various parameters (including the space, time and cost) can see in many ***receptions of imagination***. Use of operator STC and for ***«floor» designing*** is essential.