The Mapping in Action

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To understand how re-establishing the consistency of a system can be equivalent to stabilization, how a given problem can be translated into the boundary conditions of the black box, let us take a simple example: Let's assume that we have the following two postulates:

1. X-1=0.

2. X is an output variable of the black box.

Although we are dealing here with the simplest equation, the generalization of the following argumentation into more complicated equations or sets of equations is straightforward.

It can be said that the black box starts to generate processes when some initial inputs are inserted, and further, that the closure of some loops perpetuate the generation of these processes. We said that the main attribute of the black box is its aspiration to achieve stabilization. In general, stabilization means repetition of a certain pattern. For instance, the same numerical value at each step is the definition of a fixed point. If the mapping of some parameters returns to the same numerical value after a given number of steps, then this is the definition of a periodic process. Let us denote one of the input parameters by g. This parameter is not closed in a loop yet, i.e., it is not the function of any of the output parameters, but rather, a constant, or to simplify things, let's assume that this constant is zero, g=0. X is one of the output parameters, which is not yet utilized to close a loop. When the system is initialized in the above manner, the process dissipates until it settles into a recurrent pattern. To simplify things further, let's assume that eventually X settles into a fixed point. (In the real mapping, the dynamic parameters - when stabilized - behave more like periodic patterns than fixed points. But then, we can always use the fact that a periodic pattern is a fixed point if viewed in step with its periodicity. In our most simple example, however, we will look for a solution that is a fixed point. And since our description is schematic anyway, we will ignore these technical details.) There is no reason why the fixed point to which X settled will be equal to 1. Remember, the principle of the black box only says that it will stabilize into a fixed point - it says nothing about its value. If X is not equal to 1, then this implies that X-1 is different from zero, which is in contradiction with the first postulate, which implies inconsistency. This is an inconsistency from our point of view. We know that there is contradiction between the postulates and the output of the black box. Does the black box "know"? Not yet. So, let's see how we can bring this to its "attention."

Let us now close the loop between the output X, and the input g in a way that, on the one hand, will "indicate" to the black box the existence of the inconsistency, and on the other, will initiate a process that will re-establish consistency. One way to generate consistency is by redefining the value of the input parameter g in each step (by continuously adding the value of X-1). Initiating this procedure destabilizes the overall process. Remember, the black box was stabilized for g=0, and now g is being continuously changed, which generates change in the output X, which changes g, etc. g will cease to change only when X gets the numerical value 1, because the addition to g (which is X-1) becomes zero. Because of the aspiration to achieve stability, X eventually settles into the fixed point 1, which is the only fixed value that can stabilize the system within a closed loop within the above-mentioned boundary conditions, and thereby, re-establish consistency. Figure A3 shows how a profile of the mapping is going through destabilization and how re-stabilizing the process includes the process that solves the equation X-1=0 as a sub-process. Figure A4 shows a less simple example: the solution of the differential equation of the harmonic oscillator. Differential equations are mathematical objects used in physics to model the dynamic of phenomena. Harmonic oscillations are the dynamic oscillations of a spring. The mathematical function that represents the oscillations of a spring as a function of time is a sine function, which is actually the solution of the differential equation of the harmonic oscillator. Figure A5 illustrates two important issues: The first one shows that any point on a profile of the mapping can acquire any numerical value according to the boundary conditions imposed on the mapping. The second shows that the mapping can generate segments of non-periodic processes; however, it does so by creating the same segment time after time in a periodic manner.

Now it becomes clear why stabilization is consistency and destabilization is inconsistency within this kind of realization of the logical structure, and why the aspiration to achieve consistency is a much more powerful tool than consistency itself. This simple example also explains why something new to the system is inconsistent with the system (destabilizing the system) at first, and then it is integrated into the system to be an integral part of its own structure by stabilization and re-establishment of a new level of consistency (as was shown in several chapters to be the rationale in the case of human experience).

Consistency has meaning only within a given framework. Objects having consistent relations within a given set of postulates will become inconsistent when these sets of postulates are replaced by others. If the relation X-1=0, which we used in the above example, is replaced by X-2=0, the previous consistency will disintegrate, the system will destabilize and then re-stabilize on a new fixed point with a value of X=2, establishing consistency with the new postulate X-2=0 (See Figure A3). In more general cases, the postulates themselves are not necessarily determined in advance, but can be defined dynamically through the process of stabilization. In such cases, the notion of postulates loses its validity. The linearity and hierarchy of conventional logic, wherein any theorem is implied by the postulates and not vice versa, falls apart. It is no longer clear what defines what, what implies what, who is the definer and who is being defined. In that sense, SHET is not axiomatic. In that sense, the process of definition defines both the perceiver and the perceived.

An equation is a kind of relation (i.e., a relation between a number and a variable). Not every problem can be formulated in terms of equations. However, most problems can be reformulated in terms of relations, which - in principle - can be imposed upon the black box so it will stabilize on the fields that fulfill those relations. More complex problems will stabilize on periodic processes or other types of recurring patterns.

We assumed the existence of logical mechanisms that we called "black boxes." The entire purpose for a black box is to stabilize whatever it interacts with. We have shown how mechanisms with this attribute can be utilized as logical gates that tend to establish consistency with any external relation (the equation in our example) that was imposed upon them. However, so far our description did not reveal the full richness of the black box. Mechanisms claimed capable to describe the basic structure of any existence are supposed to have infinite richness, supposedly incorporating the indefinite as an integral part of their fabric, and apparently classifying all possible dimensionalities and topologies, and much more. In a sense, everything would be a black box if we only knew how to look. It is like finding the whole world in a grain of sand or all eternity in a moment. Then how can we find the whole structure in a stabilized object? Where can it be found in the phenomenological world?