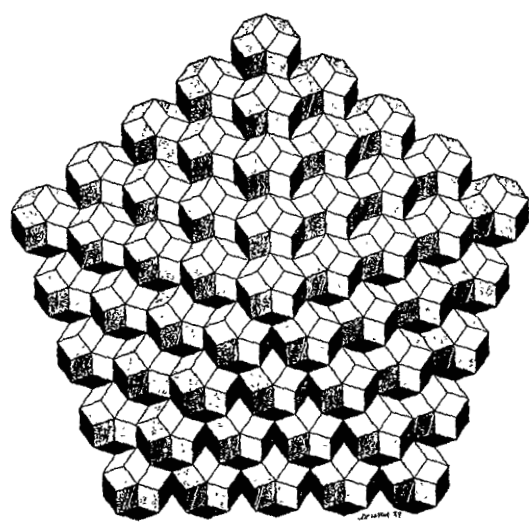# Symmetry
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Abstracts

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SYMMETRY IN EPISTEMOLOGY AND THE SOLUTION OF THE LIAR PARADOX

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Introduction

A basic epistemological observation, fundamental to all science, is the two-fold structure of our world. The world appears to us to be split into two parts, sense percepts and thought concepts. The seeming incongruity of these parts has led to many theories how they are related. In the process of finding the relationship, one or the other part is usually eliminated. The concept of symmetry sheds new light on this philosophical schism. In particular, it turns out that concepts and percepts are *symmetric* in that they are one-sided representations of a unity, a unity which is achieved through cognition.

The long sought-after solution of the Liar paradox demonstrates the effectiveness of this approach to epistemology.

Some remarks on epistemology

In order to demonstrate the symmetric nature of concepts and percepts, we need to distinguish them clearly and then show how they are related. We become aware of percepts without any conscious activity - they just happen. They introduce themselves without explaining their how and why. Concepts, on the other hand, are pure relationships. They are in essence "what connects", i.e. their very nature is connectedness. Concepts are the laws that constitute relationship.

Concepts and percepts are *symmetric* in the sense that they are distinguishable but not separable from each other; they are parts of an underlying unity. Concepts provide what percepts are lacking: they provide relation between isolated facts. It can be shown that this symmetric structure of our world view is not caused by the world itself but rather is brought about by the human being who observes this world. If the world did not appear to us in this symmetric form, then there would be either no need or no possibility for real knowledge. As soon as this situation is realized, cognition becomes a process of restoring the unity which has been split apart by the human being. In terms of the concept of symmetry, through the process of cognition the underlying unity of concepts and percepts is unveiled, unveiled through rational analysis and subsequent synthesis. The result of this process is what is called *reality*. Since this process results in the unity of two parts - concepts and percepts -, it may be called the *law of epistemological symmetry*.

In what follows we apply this idea of symmetry to the analysis of the Liar paradox while characterizing the logic which forms the underlying structure of *any* kind of reasoning.

The Liar paradox

The most common form of the Liar paradox is the following: "Epimenides, a Cretan, says: 'All Cretans are liars.' " The question arises: Is Epimenides lying or not lying ? Both assumptions lead to a logical contradiction. The usual conclusion is that somehow our language cannot express truth consistently. Thus it seems as though the Liar paradox is a purely semantic problem which can be solved only by constructing a consistent truth-concept within a formal language.

In my opinion, the failure of the many attempts to solve the Liar paradox lies in the fact that concentration has been directed toward the logical and semantical rather than the epistemological qualities of the paradox. I wish to show that the paradox cannot be derived, and solved, without referring to the epistemological symmetry referred to above.

To begin with, I shall discuss the Liar paradox in a form which is adopted from P. FINSLER (1925). Let us assume that we are concerned with the number 4 and that we are trying to give a conceptual definition of this number. The following will suffice: 4 is the smallest positive integer unequal to 1, 2, or 3. This definition as a conceptual entity has to be distinguished from "4" or "four", which are *symbolic representations* of the underlying concept, namely the number 4.

However, the above definition can itself be interpreted as a symbolic representation. In order to make this explicit, we write in a box:

1, 2, 3.
x is the smallest positive integer which is not written in this box.

Somewhat surprisingly, this yields a paradox: If we assume x equals 4, then x must be unequal to 4, say 5; conversely, if x is bigger than 4 then it must be equal to 4. Hence *x* is equal to 4 if and only if it is not equal to 4.

Analysis of the paradox

A moment's thought shows that there is no *logical* error in the derivation of the paradox, that is, no violation of any law of logic. However, we produced a contradiction by reflecting on the conceptual content of the definition and its relationship to the symbolic representation within the box. The *result* of this reflection is the classical contradiction in logic. But this contradiction cannot be derived without leaving the conceptual realm. The reflection on the symbolic representation (within the box) is only possible *after* having *perceived* these symbols through our senses. What appears as a logical contradiction is nothing else than a conflict between the intended conceptual content (namely the definition of the number 4) and its symbolic representation written within the box. In itself, neither the definition is contradictory nor is the symbolic representation deficient syntactically. But the latter does not represent the former.

This becomes clear if we do not write the sentence "x is the smallest positive integer which is not written in this box" in the box itself, but, for example, write it somewhere else. Then there is no paradox.

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Methodological reflections

It appears that the analysis of the Liar paradox depends on a proper discrimination of different points of view, namely the *conceptual* point of view and the *perceptual* point of view. The unity of these two points of view is called the *epistemological* point of view.

Without reflecting about the facts given by some kind of perception, the Liar paradox cannot be derived. This means that without changing from a conceptual level to an epistemological one and back, the paradox will not arise. Let us see how this applies to the original version of the Liar paradox mentioned in the *Introduction*. In order to derive the well-known contradiction, we need to ask: What is Epimenides *really* doing ? If he is *really* lying, then he contradicts himself in saying: "I am a liar". But the reflection on what someone is *doing* in *reality* is certainly not a purely conceptual one. Without access to some kind of perception, we could not even talk about what Epimenides is really doing.

This becomes evident if we ask ourself: What am I *really* thinking if I say: "I'm lying"? *Observation* and not speculation is needed to derive and solve the paradox. What needs to be observed (and actually *is* observed) in the latter case is my own thinking process.

We have shown that the Liar paradox is neither conceptual nor semantical but epistemological. Without some kind of perception involved, there would be no paradox. Although the resulting contradiction is purely logical, its derivation is definitely not a purely conceptual matter and hence, strictly speaking, not within the realm of logic (see below).

It should be noted that by its very nature, our method of analysis applies not only to all forms of the Liar paradox but to any paradox which is not based on some kind of violation of the laws of pure logic.

Some remarks on logic

It should be clear by now that logic in our sense is more comprehensive than what is commonly understood by symbolic logic or even formal logic in the classical (Aristotelian) sense. Logic comprizes everything purely conceptual and tells us nothing about the existence of an object. In our terminology, symbolic logic is a representation of some kind of formalized logical rules and objects; by its very nature it cannot encompass accurately the whole realm of logic.

In order to become an object of our thinking process, any object has to be observed in some way. Consequently, reflecting about logic cannot be conceptual in the strict sense. Hence, anything we say about logic cannot be the result of purely conceptual (or, for that matter, logical) speculation but rather involves observation, namely the observation of our own thinking process.

We only mention here that B. RUSSELL's so-called set theoretic paradox can be analyzed in much the same way as the Liar. Given these results, I see no substantial argument against the objectivity of our thought concepts. It should be noted that this is, in essence, a result of an approach to epistemology which recognizes concepts and percepts as symmetrical components of a substantial unity.

Bibliographical and historical remarks

The first attempt to solve the Liar paradox along the lines indicated above stems from PAUL FINSLER (1925). He argues on behalf of common sense and classical absolute (Aristotelian) logic. The system of pure logic proposed by BRUNO VON FREYTAG-LÖRINGHOFF (1955) comes very close to FINSLER's conception of absolute logic. GEORG W. F. HEGEL's *Wissenschaft der Logik* is the most comprehensive attempt to describe the conceptual realm (that is, the content of logic) in its entirety from the point of view of the dialectic structure of concepts. WERNER A. MOSER (1985) pointed out, that a clear distinction between logic and epistemology is indispensable for a systematic analysis of the paradox and its subsequent solution. Such a distinction which does not depend on any kind of previous knowledge or unreflected assumptions was provided by RUDOLF STEINER in his thesis (1892).

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