OUTLINE OF AN EPISTEMOLOGICAL THEORY OF RELATIONS

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I. From Logical to Epistemological Relations

Due to the fact that knowledge of reality has improved in recent time, the certitude that we only know relations, unions among entities has also increased. Modern symbolic logic studies general structures o language. Its subject matter is logical connectives in addition to other notions which express relations. This orientation, found in the structural method in linguistics is being imposed on psychology, anthropology, economics, and other social sciences. This development corrobo rates the assertion that relations are the very object of human know ledge.

Qualities or properties of things, compositions, shapes, actions, motions, are categories by means of which we characterize diverse enti ties—the explanationor differentiation for which we are looking. Nothin escapes translation in terms of a relation which structures its object nexus among objects, or with respect to an observer. Though this fact is easily perceptible, it misses a more adequate gnoseological organi- zation of results in order to be understood and more usefully employed

A formulation of an ontic theory of discernible relations in the external world to which it were possible to reduce the rest would be a good project to carry out. This effort would offer an alternative to similar works realized in logic and linguistics, though their applica- tion fields would be wider since they include two other aspects. Never- theless, we situate our research in epistemology. At present, we are not interested in characterizing reality, but in defining relational links which can be verified so that they may be correctly interpreted in any place where they act. Moreover, the task would be fragmentary if nexus imposed by the human observer, depending on necessities of a knowledge process were not included. Elsewhere, it is often difficult to know if the researched link is ontological or only a spectator's in- terpretation. We do not believe in a purely objectivistic gnoseology which pretends to be referred to "noumena". This is why our essay en- titled, "Epistemological Theory of Relations" deals only with a presen- tation of some aspects of this study, showing the doubts and limitations we have found, without pretensions of having arrived at definitive con- clusions.

II. Considerations on the System-Relation Dynamic

In order to make a relation theory work in any field of application, it should previously recognize the existence of elementary particles which act as agents able to relate each other thus configurating a struc- tural system of relations or establishing isolated nexus of variable duration.

At least one connection always exists between two objects ("A" and "B") which may be parts of a bigger whole or independent totalities. We call the first ones "integrative elements" and the latter "systems", although these are usually composed by a plurality of components. Let us take as an example, a cell which is an organized complex of molecules integrated by atoms and these atoms are integrated by subatomic particles. Cells, molecules, atoms, electrons, protons, neutrons, etc., can be understood as "systems" or as "elements", according to the standpoint from which they are examined.

When it is a question of two dimensional limits of reality, the only exceptions to this alternating perspective have to be situated in physics and metaphysics. At a minimum level, both disciplines deal with elementary unities which are the simplest parts of all systems. This happens in old theories about atom and soul or about any other philosophical being that plays the same role. At a maximum level, concepts such as "Universe", "Reality", etc., speak about effective or figurative totalities which are interpreted as a "system of systems" which do not appear as "elements" in any other context.

The system-element oscillation, as we have observed, is subordinated to relation perceptions. The degree to which this depends on the standpoint or on the objective situation is an epistemologic-metaphysical problem, affected by a diversity of philosophical positions. Within the limits of this paper, we would only indicate that from a gnoseological point of view, relationships have an absolute priority. Their relative permanence as well as their different manifestations allow us to elaborate criteria in order to see if the studied object may be considered a sort of system or only a conglomerate of minor systems, for example, a stone when it is compared to a pile of sand.

The procedure spontaneously employed during the formation of languages has produced the false impression of a predominance of the category system-element upon the category vincula. Names show structured unities or their parts, so that each new baptism marks the origin of a new system element in the human world. Relations are disguised behind verbs, adjectives, and the great majority of grammatical elements, although they can also acquire the substantive form.

An inquiry of certain kinds of relations can also fulfill an epistemological corrective function. It will help to discover a lot of errors in our language and be useful in distinguishing authentic from inauthentic systems or elements. We will divide them into "objective" and "perspective" relations for the purpose of differentiating vincula which are produced effectively, from those which are a mere result of a human approach (even though these generally originated from the former ones).

An example of "objective" relations would be the cutting produced by a saw in a tree while the comparison between the sizes of two cars illustrates "perceptive" relations.

The following enumeration is an initial attempt of classification which could be rectified later according to the requirements of practice or the demands of theory.

III. Space, Time, Motion and Causality in Relation Theory

The preliminary question we have to solve is the motion problem. Any change in either the position or the nature of an object supposes a more or less important modification to the preexistent relation system. But motion concept offers a great many difficulties to be explained. What kind of phenomena do we observe or do we think we are observing when a vehicle moves or when a building is being built?

Any kind of movement consists of a sequence of variations on previous links. The sequence is analyzed by means of time and space categories. Both concepts have very general meanings as expressions of all kinds of relationships. Time is employed to verify a succession of changes in the netting of internal nexus of a system. Space evaluates collaterality of a vincula mesh. Motion combines both optics according to an "X" system which is taken as a model of spacial or temporal measurement of phenomena. By consequence, we could affirm that time, space, and motion request the necessity of establishing a reference schedule to compare similar events and, in this way, to interpret them. This is the reason why they are relative. Physics recognizes this and it has been recently confirmed by other sciences.

The above mentioned questions allow us to exclude all direct reference to a real dynamism from objective relations. Changes can only be explained as intrasystemic modifications either of object structure or of their external relations. We can attribute their origin to another change which arises either in the same system or in a different one with which the system in question interacts.

Causality is also a reference point to appreciate links which combine the categories we have already analyzed. We can consider it a theoretical postulation on a cause-effect universal relation that works conventionally in a temporal series. We are considering here the unobservable nexus which are necessary to integrate our interpretation of reality. Objective and perspective relations integrate because as knowledge subjects, we have to complete deficiencies of sensorial experience with relations produced by our own minds. This is a Gestalt procedure applicable to our Relations Theory.

IV. The "Objective" Relations

In all the bonds of natural links, "attractions" and "repulsion" have the greatest priority because they are present from the simplest level of reality to the most complex forms of the physical and organic world. Attraction or repulsion are apparently ingredients of the procedure that leads either to union or dissociation respectively. It is advantageous, however, to consider them separately, since they preserve a reference to dynamic processes, unlike the other nexus which show static aspects of the studied objects.

Attraction and repulsion have in magnetism their most classic expression. We can describe attraction as a vinculum that draws together two or more systems or elements whereas repulsion is a nexus that ex-

presses a general tendency toward separation between objects. Other meanings are philosophical interpretations which we should avoid so that we can generalize the use of these categories.

As elementary and more concrete data of our knowledge, we find the vincula "union-dissociation". It is sufficient that two things interact in any way to diagnose their union and that they lose any link so that we can speak of dissociation. The latter relation has often a negative existence but we might find some examples of real exclusion vincula in magnetic repulsion and in numerous organic processes.

Continguity is a type of modality we call "ubication"or "position". These are mixed criteria wherein we find a certain natural basis associated with a conventional reference system as, for instance, the concepts "behind", "before", "above", "under", etc. However, it is doubtless that position of elements within a system plays a fundamental role; the case of isomeric molecules is illustrative.

Based on attraction-repulsion and union-dissociation relations to which position modalities are applied it is possible to imagine all the complex variety of combinations which integrate reality. In order to illustrate this dynamic we will refer to donation and suppression vincula. These connections are only exerted in the field of complicated systems that can interchange parts or influence each other, producing in themselves a loss of constituent or preexistent nexus.

V. The "Perspective" Relations

It seems that the simplest perspective relations are "similarity", "difference", "grouping", "separating", and "ordination". All these kinds of nexus are a mere human version of natural links. Through the language they acquire a high degree of independence from reality, making possible an enormous capacity of operativity for man and allowing him to change the order of natural structures.

Similarity and dissimilarity are relations between concepts and things. It is only possible to find a resemblance if we suppress conventionally all those relations of disparity which exist from system to system. It is necessary to point out the vincula which appear only in one of the compared unities.

Grouping and separating are again linguistic processes. It is at a conceptual level that we can first modify the structure of real beings and later transfer these operations to the external world by changing the existent connections.

The most surprising of the unlimited resources of ordination are the diverse measuring systems. Numbers are the quintessence of these perspective relations. Their influence on explanation and organization of knowledge is immeasurable. The scholar's interest in discovering their origin really belongs to past ages. Our only contribution to this debate is to suggest that they must be considered as a combination of pure relations of ordination and, at the same time, as group unities in an increasingly undirectional series. This is dissimilar from the procedure of increasing one entity into each new class by beginning with the unity.

To conclude this paper, we would like to insist on the importance of studying relations in all their aspects in order to advance the field of epistemological inquiries.