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Information as the basis for representation

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niekoniecznie jest przeciwnikiem wolnej i niepodległej Rzeczypospolitej.

Wszystko to razem sprawia, że recepcja osoby i poglądów Giordana Bruna w polskiej kulturze i historii jest w sumie dość rozległa oraz różnorodna i to do tego stopnia, że wymaga odrębnej książki bądź rozprawy doktorskiej, do której niniejszy artykuł może być tylko skromnym wprowadzeniem.

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INFORMATION AS THE BASIS FOR REPRESENTATION

INTRODUCTION

The issue of sign, its nature, function and role in cognition has been repeatedly discussed by philosophy. The objective of this paper is to place the issue of sign within the context of information theory. It seems that exciting consequences concerning understanding of the nature and function of the sign can follow from such approach.

Semiotics and information theory are two separate and independently developing areas of knowledge. However, there emerge certain issues common for those two disciplines. In information theory, conditioning of information by semantic aspects has been repeatedly indicated. On the other hand the sign, or such sign system as language, serves the function of communication or information transfer. Relationship between information and sign is easy to notice but hard to define accurately. Given the situation of a significant but also unclear dependence between sign and information, there appears the necessity to explain the nature of the relation between sign and information. In order to make such attempt, one needs to identify those elements of sign theory and information theory which would allow us to determine their relationship.

SOME ELEMENTS OF SIGN THEORY

The basic property of the sign is that sign points to something different than itself, transcendent to it. The sign is a sign because of the function it performs in cognition or in communication; it is the func-

tion of representation. Representation is a complex function and consists in mediating the object represented and not in substituting it; however, this mediation maintains certain aspects of the mediated object. Meaning is an important element of representation. Sign represents something different than itself due to the meaning. Therefore, defining basic properties of the meaning is important for the description of representation structure although on the other hand a complete explanation of these properties can be done within the framework of a holistic understanding of the function of representation. Theories of meaning put forward as a basic one either the relation between a sign and object to which the sign points (denotation theories) or the relation between a sign and contents associated with it (connotation theories). Differentiation between those two aspects – object and content related – is not easy but necessary if we are not to confuse the meaning of the name with its bearer. Those aspects seems to be of complementary character and neither of them can be reduced to the other. Description of sign-related phenomena based on a relation consisting only of the vehicle and the meaning of the sign does not give the possibility of giving full consideration to both objective and content aspects of representation.

The most complete analysis of representation is included in the sign theory of C.S. Peirce (4) developed currently by M. Bense (1, 2). A sign is understood as a relation consisting of three elements: Vehicle, Object of the sign and Meaning. Relation of those three elements which are differentiated trichotomically, reflects the structure of representation rich enough to take into account both relation of sign to object domain (through object of the sign) and to the sign system (through meaning being an interpretant, that is another sign). In this concept both the object of sign and the meaning are not self-contained elements but ingredients of the relation and are given fully only through references to other components of representation. In Peirce's concept an essential role in sign relation is played by the meaning of sign. It relates the sign to the object of the sign, combining certain content with this relation. This content is given in the sign system as interpretation chain. Object of the sign is however understood as an internal object of the sign; it is as the sign draws it up. Thus the domain of objects is reduced to domain of internal objects of signs. This rich representation structure does not allow one to explain the relationship between external and internal object of the sign. Thus understood sign can virtually represent nothing more but signs. This concept does not

explain also what content to object of sign relation is based upon; that is, it does not explain the foundations of representation itself. One can assume that it is an intentional reference but then the sign system would be utterly useless as a tool of cognition of the external world.

Although explanation of representative properties of sign is not possible solely on the basis of the description of structure as proposed by Pierce, this concept encourages one to trace the possibility of pointing the element that is primary in relation to the sign and the one that creates the sign relation. Information can be such element.

WHAT IS INFORMATION?

Which features of information allow one to undertake analysis of this type? Although there is not one commonly accepted definition of information, some of its properties have already been identified. Information is encountered in communication processes, in cognitive processes, in biology as well as in physical structures at all levels of organisation of being. Information is commonly met in all nature and is associated with order, variety, structure, influence, although it cannot be identified with any of them. A proposal was made by C.F. Weizsäcker that information is a separate and universal – in relation to matter and consciousness – component of reality. Considering information processes in biology and physics one can say that development of any structure is linked with investing some amount of information. Hence there is a relationship between structure and information. Information, however, is not identical with structure; it rather is a structurogenic factor in certain formal aspect. (It is this element which determines the form of signs in a wireless or of sounds in spoken expression and their mutual correspondence if they convey the same information). As a structurogenic factor information can be identified with the principle according to which structures are created. It determines the elements of structure and their relations. For example information contained in DNA is a principle and instruction for development of protein structures. Weizsäcker points to a significant feature of information namely that it is a dynamic element and hence information produces information. This common, dynamic, structurogenic element of reality that is called information is a factor that also creates sign structures.

REPRESENTATION AS A COMMUNICATION PROCESS

Primariness of information in relation to sign is manifested in the fact that information is found at all levels of organisation or structuring of being, whereas sign appears only in cognitive or communication processes. This primariness should be manifested in ability to arrange any sign relation according to the communication scheme. One should expect that an appropriate subordination of elements of both processes exists. The basic single information flow happens in accordance with a three-element scheme of communication: information sender, information vehicle and information recipient (Fig. 1)

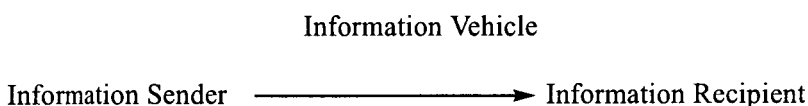


Fig. 1

Not each single information flow creates relation of representation. For the sake of an analysis of signogenic situation it seems convenient to choose the process of information flow between the observer and a physical system watched through a measuring system. This kind of information flow happens also in any perception of the outside world. The simplest sign situation going on at the boundary between the world of signs and signless world. (If, of course, one assumes that when speaking of signs we mean cognitive or communication activities of humans or animals). In the considered situation the sender of information is the physical system, the vehicle is the physical interaction and the recipient is the observer. If an information flow happens then the structure of the recipient will undergo a proportional change. This change is doubly conditioned; firstly because of the information received and secondly because of already existing elements and relations of the recipient's structure.

A single information flow is not, however, a sufficient model for observation of a physical system with the use of any measuring system as well as it is not a proper representation model. Representation structure for which mediation moment is appropriate can be reconstructed on the basis of complex information process. The simplest

of those information processes is one consisting of two elementary processes (Fig. 2).

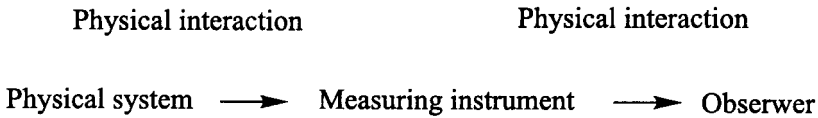


Fig 2a

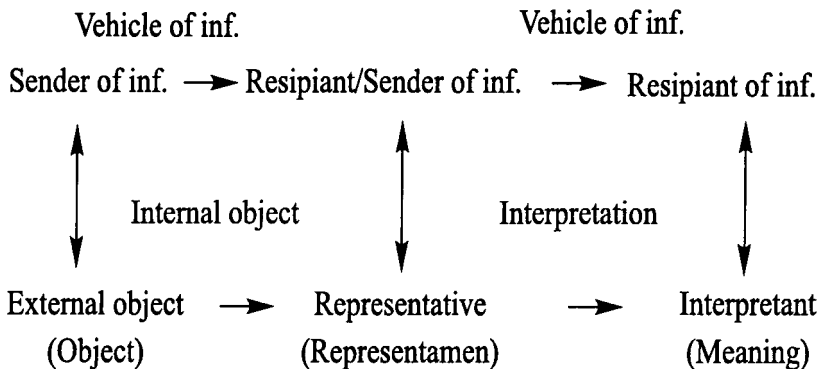


Fig 2b

According to this pattern there are many information flow processes going on between external world and observer. Those include each observation done with the help of measuring equipment, drawing conclusions from evidence, as well as every perception of the external world notionally interpreted .

There is a possibility of interpretation of this information process as representation. Fig 2 shows the described process interpreted as observation (Fig 2a) and interpreted as information flow pattern and corresponding relation of representation (Fig 2b). The mediating element called representative has the properties of vehicle or representamen as indicated by Peirce. It has got the existence of its own, it is a certain material or energetic structure of the world of processes or events, capable of accepting and transferring certain amount of information. Because of the first process, representative is information recipient and because of the other one it is information sender. It

plays the role of representative only in relation to both information flows. Function of representation is based on relations of representative to the recipient and sender of information. These relations are the basis for interpretation of the whole process as a representation and of its individual elements as elements of sign relationship.

Belonging of the representative to the first part of the information flow process defines its relation to the external object based on causal relationship which is information flow between its sender and representative as a recipient. Status of the representative because of the first process (the so-called input status) is changed under the influence of information flow; however, it is not identical with the state of information sender. To make things simpler let us imagine a system consisting of an electric circuit (information sender), ammeter (representative) and observer (information recipient). Inclination of the index of the ammeter is not the same as current but the position of the index changes accordingly to current intensity changes. Representative in relation to information sender fulfils the conditions of being object of the sign in the sense of internal object of the sign. Object of the sign is not the same as external object. Object of the sign is such as represented by the mediating structure, contains only as much information as was transferred in the given process. The state is, however, determined by properties of the external object being the information sender in the first process. Thus there is a strict let us call it formal and causative, relation between external object and internal object of the sign.

In relation to the second process representative fulfils the function of information sender. Information transferred in this process contains two components: information transferred by the first sender and information related only to the mediator. The role of information recipient consists in interpretation that is identifying this part of information which comes from the primary sender. Interpretation is in many cases a complex process and requires an additional one, formerly invested into the structure of information recipient. The observer needs to know physical theory and design of the measuring instrument to be able to read correctly the result of the measurement. Similarly the fact that for example on seeing the inscription „a table” recipient associates with it certain objective content determined by language structure to which this word belongs, requires interpretation of this inscription as a word in a given language. In a general case structure of interpreter should

contain specified information that is sufficient for interpretation of the given sign.

Function of representation can be fulfilled only for appropriate recipient capable of reception and interpretation of the given information. Otherwise the complex information process will fall into to unrelated elementary processes. According to Pierce interpretation can happen only in a specified way as another representation process. Thus the structure of sign recipient should be appropriately rich so that interpretation process can go on inside recipient structure creating a chain of subsequent representations.

The meaning of the sign in the sense of semiotic function understood as a relation between object of the sign and interpreter is a relation between the mediated information sender and its recipient. Meaning of the sign and its connection with the object and the sign are determined in the framework of representation being the process of information flow. The notion of object and meaning of sign does not relate to identified structures either physical or of consciousness but is related to the place and function played by the given element in information flow processes of which representation consists. On the whole those can be processes consisting of a larger number of elementary processes.

The discussed representation pattern can be easily applied also to the situation where external world mediated by sensory perception is interpreted in the form of notions. Elements and relations of this process are parallel as in the described processes of representation only having longer interpretation chains. According to such interpretation notional structure of the language would be based on information flow between external world and linguistic structure of the recipient. Language as a structure can act not only as information recipient but also as the representative that is mediator in its further flow. This opens possibility of using the sign structure that is external to consciousness as a representative in external communication process.

Adopting information as a basis for creation of sign relationship leads to another look at the role of sign in cognition and communication. Sign as a relation defined by information flow is not stray or isolated from extrasign reality; on the contrary, it is built over its objective structure. Information is a common element creating and arranging

natural structures, structures of consciousness and language structures. Sign (in the narrow meaning) as an element of representation is an element of a richer system elements of which are also objects represented by it and the sign recipient; it develops as a result of a specific information flow between various areas of this system. Thus it is not a barrier separating the recipient of the sign from extrasign world but it is a conjunction. Pointing in representation to connections bearing the result of information flow on which objective reference and sign meaning are based is also a basis for justification of relationships inside sign relation.

The suggested model allows one to point to the relationship between the object of the sign and its meaning. In Peirce's theory this relationship consists in revealing the object of the sign through its meaning. It is visible now that there is also a reverse relationship; the object of the sign defines to a great extent the related content and mode of interpretation. *Object of the sign is primary in relation to meaning.* It is a certain kind of interpretation potential.

Not lesser is the role played in representation by the function of interpretation. It depends on the specific properties of recipient structure. Ability of this structure to accept and transfer of information that is let another representation come to existence is a condition for development of more complex sign structures.

Being a sign is not linked with a definite object or event, it can be randomly selected from among elements of external world and its objective reference can be purely a matter of agreement; however, its „place” within sign system and the related objective content are determined within this system by a sign-related information and thus are not random.

The suggested approach to the issue of sign and information is open to language-related questions; many language-related problems interlap with questions asked about sign understood in general terms. Those include questions of relationship between language and extralinguistic reality, issue of interpretation as well as empirical components within language. Repeatedly brought forward issue of ability of language to communicate contents concerning extralingual objects, in this context gets down to a holistic treatment of the issue of objective reference and interpretation as elements of information flow process.

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ETYKA JAQUESA LACANA

1. WPROWADZENIE

Jaques Lacan znany jest głównie psychoanalitykom¹. Nie stroni on jednak od problematyki etycznej. Swoją koncepcję etyczną opiera on na podstawowych założeniach psychoanalizy, protestując w ten sposób przeciwko rozwiązaniom przedstawianym przez filozofię świadomości. Jako uczeń Freuda uważa, że człowiek wcale nie jest „panem swego domu”. Jak słusznie bowiem zauważył to M. Neusch, psychoanalitycy mocno podważyli pewność siebie, tak charakterystyczną dla całej filozofii podmiotu. Pokazali, że ludzka świadomość odgrywa jedynie rolę iluzoryczną². Lacan, korzystając z dorobku psychoanalizy, podjął rozważania na temat stosunku dobra do prawa. Uznał bowiem, że niczego nie da się powiedzieć na temat postępowania człowieka, gdy bada się jedynie jego świadomość. Chcąc zrozumieć sens ludzkich zachowaniach moralnych, trzeba się raczej odwołać do analizy ludzkich popędów. Jego zdaniem, pragnienie przyjemności jest czymś tak powszechnym, jak w przekonaniu Kanta powszechnym miał być

¹ J. Lacan (1901- 1981) psychoanalityk i filozof francuski. Zasłynął jako oryginalny interpretator dzieł Z. Freuda. Wpłynął mocno na życie intelektualne Francji, głównie dzięki seminariom, jakie prowadził na Uniwersytecie Paryskim.

² M. Neusch, *Les chrétiens et leur vision de l'homme*, Paris 1985, 34.