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Communication vs. Information, an Axiomatic Neutrosophic Solution

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Abstract. Study represents an application of the neutrosophic method, for solving the contradiction between communication and information. In addition, it recourse to an appropriate method of approaching the contradictions: Extensics, as the method and the science of solving the contradictions.

The research core is the reality that the scientific research of communication-information relationship has reached a dead end. The bivalent relationship communication-information, information-communication has come to be contradictory, and the two concepts to block each other.

After the critical examination of conflicting positions expressed by many experts in the field, the extensic and inclusive hypothesis is issued that information is a form of communication. The object of communication is the sending of a message. The message may consist of thoughts, ideas, opinions, feelings, beliefs, facts, information, intelligence or other signification elements. When the message content is primarily informational, communication will become information or intelligence.

The arguments of supporting the hypothesis are:

a) linguistic (the most important being that there is "communication of information" but not "information of

communication"; also, it is clarified and reinforced the over situated referent, that of the communication as a process),

b) systemic-procedural (in the communication system is developing an information system; the informing actant is a type of communicator, the information process is a communication process),

c) practical (the delimitation eliminates the efforts of disparate and inconsistent understanding of the two concepts),

d) epistemological arguments (the possibility of inter-subjective thinking of reality is created), linguistic arguments,

e) logical and realistic arguments (it is noted the situation that allows to think coherently in a system of concepts - derivative series or integrative groups)

f) and arguments from historical experience (the concept of communication has temporal priority, it appears 13 times in Julius Caesar's writings).

In an axiomatic conclusion, the main arguments are summarized in four axioms: three are based on the pertinent observations of specialists, and the fourth is a relevant application of Florentin Smarandache's neutrosophic theory.

Keywords: neutrosophy, communication, information, message, extensics

1. Clarification on the used methodological tool

With the Extensics as a science of solving the conflicting issues, "extensical procedures" will be used to solve the contradiction. In this respect, considering that the matter-elements are defined, their properties will be explored ("The key to solve contradictory problems, Wen Cai argues, the founder of Extensics (Cai, 1999, p. 1540), is the study of properties about matter-elements"). According to „The basic method of Extensics is called extension methodology” (...), and "the application of the extension methodology in every field is the extension engineering methods" (Weihai Li & Chunyan Yang, 2008, p. 34).

With neutrosophic, linguistic, systemic, and hermeneutical methods, grafted on "extension methodology" a) are "open up the things", b) is marked "divergent nature of matter-element", c) "extensibility of matter-element" takes place and c) "extension communication" allows a new inclusion perspective to

open, a sequential ranging of things to emphasize at a higher level and the contradictory elements to be solved. "Extension" is, as postulated by Wen Cai (Cai, 1999, p. 1538) "opening up carried out".

2. The subject of communication: the message. The subject of informing: the information. The information thesis as species of message

In order to finish our basic thesis that of the information as a form of communication, new arguments may be revealed which corroborate with those previously mentioned. As phenomena, processes, the communication and information occur in a unique communication system. In communication, information has acquired a specialized profile. In the information field, the intelligence, in his turn, strengthened a specific, detectable, identifiable and discriminative profile. It is therefore acceptable under the pressure of practical argument that one may speak of a general communication system which in relation to the

message sent and configured in the communication process could be imagined as information system or intelligence system. Under the influence of the systemic assumption that a (unitary) communicator transmits or customize transactionally with another (receiving) communicator a message, one may understand the communicational system as the interactional unit of the factors that exerts and fulfill the function of communicating a message.

In his books "Messages: building interpersonal communication skills" (attained in 1993 its fourth edition and in 2010 its twelfth) and "Human Communication" (2000), Joseph De Vito (the renowned specialist who has proposed the name "Communicology" for the sciences of communication - 1978), develops a concept of a simple and productive message. The message is, as content, what is communicated. As a systemic factor, it is emerging as what is communicated. To remember in this context is that the German Otto Kade insisted that what it is communicated to receive the title of "release". According to Joseph De Vito, through communication meanings are transmitted. "The communicated message" is only a part of the meanings (De Vito, 1993, p. 116). Among the shared meanings feelings and perceptions are found (De Vito J., 1993, p. 298). Likewise, information can be communicated (De Vito, 1990, p. 42), (De Vito, 2000, p. 347) (also, Fârte, 2004; Ciupercă, 2009; Cojocaru, Bragaru & Ciuchi, 2012; Cobley & Schulz, 2013).

In a "message theory" called "Angelitics", Rafael Capurro argues that the message and information are concepts that designate similar but not identical phenomena. In Greek "Angelia" meant message; from here, "Angelitics" or theory of the message (Angelitics is different from Angeologia dealing, in the field of religion and theology, with the study of angels). R. Capurro set four criteria for assessing the relationship between message and information. The similarity of the two extends over three of them. The message, as well as the information, is characterized as follows: „is supposed to bring something new and/or relevant to the receiver; can be coded and transmitted through different media or messengers; is an utterance that gives rise to the receiver's selection through a release mechanism of interpretation". "The difference between these two is the next: „a message is sender-dependent, i.e. it is based on a heteronomic or assymetric structure. This is not the case of information: we receive a message but we ask for information" (http://www.capurro.de/angeletics_zkm.html) (see also, Capurro, 2011; Holgate, 2011). To request information is to send a message of requesting information. Therefore, the message is similar to the information in this respect too. In our opinion, the difference between them is from genus to species: information is a species of message. The message depends on the transmitter and the information, as well. Information is still a specification of the message, is an informative message. C. Shannon asserts that the

message is the defining subject of the communication. He is the stake of the communication because „the fundamental problem of communication is that of reproducing at one point either exactly or approximately a message selected at another point" (Shannon, 1948, p. 31).

The communication process is in fact the "communication" of a complex and multilayered message. "Thoughts, interests, talents, experiences"(Duck & McMahan, 2011, p. 222), "information, ideas, beliefs, feelings "(Wood, 2009, p. 19 and p. 260) can be found in a message. G. A. Miller, T. M. Newcomb and Brent R. Ruben consider that the subject of communication is information: "Communication - Miller shows – means that information is passed from one place to another" (Miller, 1951, p. 6). In his turn, T. M. Newcomb asserts: „very communication act is viewed as a transmission of information" (Newcomb, 1966, p. 66) and Brent R. Ruben argues: „Human communication is the process through which individuals in relationships, groups, organizations and societies create, transmit and use information to relate to the environment and one another" (Ruben, 1992, p. 18).

Professor Nicolae Drăgulănescu, member of the American Society of Information Science and Technology, is the most important of Romanian specialists in the Science of information. According to him, "communicating information" is the third of the four processes that form the "informational cycle", along with generating the information, processing/storing the information and the use of information. The process of communication, Nicolae Drăgulănescu argues, is one of the processes whose object is the information (<http://ndragulanesescu.ro/publicatii/CP54.pdf>, p. 8) (also, Drăgulănescu, 2002; Drăgulănescu, 2005). The same line is followed by Gabriel Zamfir too; he sees the information as "what is communicated in one or other of the available languages" (Zamfir, 1998, p. 7), as well as teacher Sultana Craia: communication is a "process of transmitting a piece of information, a message" (Craia, 2008, p. 53). In general, it is accepted that information means transmitting or receiving information. However, when speaking of transmitting information, the process is considered not to be information but communication. Therefore, it is created the appearance that the information is the product and communication would only be the transmitting process. Teodoru Ștefan, Ion Ivan și Cristian Popa assert: "Communication is the process of transmitting information, so the ratio of the two categories is from the basic product to its transmission" (Popa, Teodoru & Ivan I., 2008, p. 22). The professors Vasile Tran and Irina Stănciugelu see communication as an "exchange of information with symbolic content" (Tran & Stănciugelu, 2003, p. 109). The communication is an over-ranged concept and an ontological category more extended than informing or information. On the other hand, information is generated even in the global communication process. From this point of view, information (whose subject-

message is information) is a regional, sectorial communication. Information is that communication whose message consists of new, relevant, pertinent and useful significances, i.e. of information. This position is shared by Doru Enache too (Enache, 2010, p. 26).

The position set by Norbert Wiener, consolidated by L. Brillouin and endorsed by many others makes from the information the only content of the message. N. Wiener argues that the message "contains information" (Wiener N., 1965, p. 16), L. Brillouin talks about "information contained in the message" (Brillouin, 2004, p. 94 and p. 28).

Through communication "information, concepts, emotions, beliefs are conveyed" and communication "means (and subsumes) information" (Rotaru, 2007, p.10). Well-known teachers Marius Petrescu and Neculae Năbârjoiu consider that the distinction between communication and information must be achieved depending on the message. A communication with an informational message becomes information. As a form of communication, information is characterized by an informative message and a "message is informative as long as it contains something unknown yet" (Petrescu & Năbârjoiu, 2006, p. 25). One of the possible significant elements that could form the message content is thus the information as well. Other components could be thoughts, ideas, beliefs, knowledge, feelings, emotions, experiences, news facts. Communication is "communicating" a message regardless of its significant content.

3. The information thesis as a form of communication

The question of the relationship between communication and information as fields of existence is the fingerprint axis of communication and information ontology. The ontological format allows two formulas: the existence in the act and the virtual existence. The ontological component of the concepts integrates a presence or a potency and an existential fact or at a potential of existence (Zins, 2007; Allo, 2007; Stan, 2009; Burgin, 2010; Case, 2013).

In addition to the categorial-ontological element, in the nuclear ratio of communication-information concepts it shows comparative specificities and regarding attributes and characteristics, on three components, epistemological, methodological and hermeneutical.

In a science which would have firmly taken a strong subject, a methodology and a specific set of concepts, this ontological founding decision would be taken in an axiom. It is known that, in principle, axioms solve within the limits of that type of argument called evidence (clear and distinct situation), the relations between the systemic, structural, basic concepts. Specifically, in Extensics, scientists with an advanced vision, substantiated by professor Wen Cai, axioms govern the relationship between two matter-elements with divergent profiles. For

the communication and information issues that have occurred relatively recently (about three quarters of a century) in subjects of study or areas of scientific concern not a scientific authority to settle the issue was found. The weaknesses of these sciences of soft type are visible even today when after non accredited proposals of science ("comunicology" - comunicology Joseph De Vito, "communicatics," - "comunicatiue" of Metayer G., informatology - Klaus Otten and Anthony Debons, 1970) it was resorted to the remaining in the ambiguity of validating the subject "The sciences of communication and information" or "The sciences of information and communication", enjoying the support of some courses, books, studies and dictionaries (Toma, 1999; Tudor, 2001; Strehie, 2009; Țenescu, 2009).

This generic vision of unity and cohesion wrongs both the communication and information (Vlăduțescu, 2004; Vlăduțescu, 2006). In practice, the apparent unjust overall, integrative, altogether treatment has not an entirely and covering confirmation. In almost all humanist universities of the world the faculties and the communication courses are prevailing, including those of Romania and China. Professor Nicolae Drăgulănescu ascertained in what Romania is concerned, that in 20 colleagues communication (with various denominations) is taught and in only two the informing-information is taught.

The main perspectives from which the contradictory relationship of communication-information was approached are the ontological, the epistemological and the systemic. In most cases, opinions were incidental. When it was about the dedicated studies, the most common comparative approach was not programmatically made on one or more criteria and neither directly and applied.

In his study "Communication and Information" (19 March 9, pp. 3-31), J. R. Schement starts from the observation that "in the rhetoric of the Information Age, the communication and information converge in synonymous meanings." On the other hand, he retains that there are specialists who declare in favor of stating a firming distinction of their meanings. To clarify exactly the relationship between the two phenomena, i.e. concepts, he examines the definitions of information and communication that have marked the evolution of the "information studies" and the "communication studies". For informing (information) three fundamental themes result: information-as-thing (M. K. Buckland), information-as-process (N. J. Belkin - 1978, R. M. Hayes, Machlup & Mansfield, Elstner - 2010 etc.), Information-as-product-of - manipulation (C. J. Fox, R. M. Hayes). It is also noted that these three subjects involve the assessing of their issuers, a "connection to the phenomenon of communication". In parallel, from examining the definitions of communication it is revealed that the specialists "implicitly or explicitly introduce the notion of information in defining communication". There are also three

the central themes of defining communication: communication-as-transmission (C. Shannon, W. Weaver, E. Emery, C. Cherry, B. Berelson, G. Steiner), communication-as-sharing-process (R. S. Gover, W. Schramm), communication-as-interaction (G. Gerbner, L. Thayer). Comparing the six thematic nodes, Schement emphasizes that the link between information and communication is "highly complex" and dynamic "information and communication is ever present and connected" (Schement, 1993, p. 17). In addition, in order that "information exist, the potential for communication must be present". The result at the ontological level of these findings is that the existence of information is (strictly) conditioned by the presence of communication. That is for the information to occur communication must be present. Communication will precede and always condition the existence of information. And more detailed: communication is part of the information ontology. Ontologically, information occurs in communication also as potency of communication (Vlăduțescu, 2002). J. R. Schement is focused on finding a way to census a coherent image leading to a theory of communication and information ("Toward a Theory of Communication and Information" - Schement, 1993, p. 6). He avoids to conclusively asserting the temporal and linguistic priority, the ontological precedence and the amplitude of communication in relation to information. The study concludes that

1. "Information and communication are social structures" ("two words are used as interchangeable, even as synonyms" – it is argued) (Schement, 1993, p. 17),

2. "The study of information and communication share concepts in common" (in both of them communication, information, "symbol, cognition, content, structure, process, interaction, technology and system are to be found" - Schement, 1993, p. 18),

3. "Information and communication form dual aspects of a broader phenomenon" (Schement J.R., 1993, p. 18).

In other words, we understand that: a) linguistically ("words", "terms", "notions", "concepts", "idea of") communication and information are synonyms; b) as area of study the two resort to the same conceptual arsenal. Situation produced by these two elements of the conclusion allows, in our opinion, a hierarchy between communication and information. If it is true that ontologically and temporally the communication precedes information, if this latter phenomenon is an extension smaller than the first, if eventual sciences having communication as object, respectively information, benefit from the one and the same conceptual vocabulary, then the information can be a form of communication. Despite this line followed coherently by the linguistic, categorical-ontological, conceptual and definitional epistemological arguments brought in the reasoning, the third part of the conclusion postulates the existence of a unique phenomenon which would include communication and information (3. "Information and communication form two

aspects of the same phenomenon" - Schement JR, 1993, p. 18). This phenomenon is not named. The conclusive line followed by the arguments and the previous conclusive elements enabled us to articulate information as one of the forms of communication. Confirmatively, the fact that J. R. Schement does not name a phenomenon situated over communication and information, gives us the possibility of attracting the argument in order to strengthen our thesis that information is a form of communication. That is because a category of phenomena encompassing communication and information cannot be found. J. R. Schement tends towards a leveling perspective and of convergence in the communication and information ontology. Instead, M. Norton supports an emphasized differentiation between communication and information. He belongs to those who see communication as one of the processes and one of the methods "for making information available". The two phenomena "are intricately connected and have some aspects that seem similar, but they are not the same" (Norton, 2000, p. 48 and p. 39). Harmut B. Mokros and Brent R. Ruben (1991) lay the foundation of a systemic vision and leveling understanding of the communication-information relationship. Taking into account the context of reporting as a core element of the internal structure of communication and information systems, they mark the information as a criterion for the radiography of relationship. The systemic-theoretical non-linear method of research founded in 1983 by B. R. Ruben is applied to the subject represented by the phenomena of communication and information. Research lays in the "Information Age" and creates an informational reporting image. The main merit of the investigation comes from the relevance given to the non-subordination between communication and information in terms of a unipolar communication that relates to a leveling information. Interesting is the approach of information in three constituent aspects: "information" (potential information - that which exists in a particular context, but never received a significance in the system), "information" (active information in the system) and "information" (information created socially and culturally in the system). The leveling information is related to a unified communication (Hofkirchner, 2010; Floridi, 2011; Fuchs, 2013; Hofkirchner, 2013). On each level of information there is communication. Information and communication is co-present: communication is inherent to information. Information has inherent properties of communication. Research brings a systemic-contextual elucidation to the relationship between communication and information and only subsidiarily a firm ontological positioning. In any case: in information communication never misses.

In the most important studies of the professor Stan Petrescu: "Information, the fourth weapon" (1999) and "About intelligence. Espionage-Counterespionage" (2007), information is understood as "a type of communication" (Petrescu, 1999, p. 143) and situated in the broader context

of "knowledge on the internal and international information environment" (Petrescu, 2007, p. 32).

4. Axiomatic conclusion: four axioms of communication-information ontology

4.1. The message axiom.

We call the ontological segregation axiom on the subject of the Tom D. Wilson - Solomon Marcus' axiom, the thesis that not any communication is information, but any information is communication. Whenever the message contains information, the communicational process will acquire an informational profile. Moreover, the communicational system becomes informational system. Derivatively, the communicator becomes the "informer" and the communicational relationship turns into informational relationship. The interactional basis of society, even in the Information Age, is the communicational interaction. Most social interactions are non-informational. In this respect, T. D. Wilson has noted: „We frequently receive communications of facts, data, news, or whatever which leave us more confused than ever. Under formal definition, these communications contain no information” (Wilson, 1987, p. 410). Academician Solomon Marcus takes into account the undeniable existence of a communication "without a transfer of information" (Marcus, 2011a, p. 220; Marcus, 2011b). For communications that do not contain information we do not have a separate and specific term. Communications containing information or just information are called informing.

Communication involves a kind of information, but as Jean Baudrillard stated (Apud Dăncu, 1999, p. 39), "it is not necessarily based on information". More specifically, any communication contains cognition that can be knowledge, data or information. Therefore, in communication, information may be missing, may be adjacent, incidental or collateral. Communication can be informational in nature or its destination. That communication which by its nature and organization is communication of information is called informing.

The main process ran in Information System is informing. The function of such a system is to inform. The actants can be informants, producers-consumers of information, transmitters of information, etc. The information action takes identity by the cover enabled onto-categorial by the verb "to inform". In his turn, Petros A. Gelepithis considers the two concepts, communication and information to be crucial for "the study of information system" (Gelepithis, 1999, p. 69).

Confirming the information axiom as post reductionist message, as reduced object of communication, Soren Brier substantiates: „communication system actually does not exchange information” (Brier, 1999, p. 96). Sometimes, within the communication system information is no longer exchanged.

However, communication remains; communication system preserves its validity, which indicates and, subsequently, proves that there can be communication that does not involve information (Bates, 2006; Dejica, 2006; Chapman & Ramage, 2013).

On the other hand, then

a) when in the Information System functional principles such as "need to know"/"need to share" are introduced,

b) when running processes for collecting, analyzing and disseminating information,

c) when the beneficiaries are deciders, "decision maker", "ministry", "government", "policymakers" and

d) when the caginess item occurs, this Information System will become Intelligence System (see Gill, Marrin & Phytian, 2009, p. 16, p. 17, p. 112, p. 217), (Sims & Gerber, 2005, p. 46, p. 234; Gill P. & Phytian, 2006, p. 9, p. 236, p. 88; Johnson, 2010, p. 5, p. 6, p. 61, p. 392, p. 279; Maior, 2009; Maior, 2010). Peter Gill shows that "Secrecy is the Key to Understanding the essence of intelligence" (Gill, 2009, p. 18), and Professor George Cristian Maior emphasizes: "in intelligence, collecting and processing information from secret sources remain essential" (Maior, 2010, p. 11).

Sherman Kent, W. Laqueur, M. M. Lowenthal, G.-C. Maior etc. start from a complex and multilayered concept of intelligence, understood as meaning knowledge, activity, organization, product, process and information. Subsequently, the question of ontology, epistemology, hermeneutics and methodology of intelligence occurs. Like Peter Gill, G.-C. Maior does pioneering work to separate the ontological approach of intelligence from the epistemological one and to analyze the "epistemological foundation of intelligence" (Maior, 2010, p. 33 and p. 43).

The intelligence must be also considered in terms of ontological axiom of the object. In this regard, noticeable is that one of its meanings, perhaps the critical one, places it in some way in the information area. In our opinion, the information that has critical significance for accredited operators of the state, economic, financial and political power, and holds or acquires confidential, secret feature is or becomes intelligence. Information from intelligence systems can be by itself intelligence or end up being intelligence after some specialized processing. "Intelligence is not just information that merely exists" (Marinică & Ivan, 2010, p. 108), Mariana Marinică and Ion Ivan assert, it is acquired after a "conscious act of creation, collection, analysis, interpretation and modeling information" (Marinică & Ivan, 2010, p. 105).

4.2. Linguistic axiom.

A second axiom of communication-information ontological segregation can be drawn in relation to the linguistic argument of the acceptable grammatical context. Richard Varey considers that understanding "the difference between communication and information is the

central factor" and finds in the linguistic context the criterion to validate the difference: „we speak of giving information **to** while communicate **with** other" (Varey, 1997, p. 220). The transmission of information takes place "to" or to someone, and communication takes place "with". Along with this variant of grammatical context it might also emerge the situation of acceptability of some statements in relation to the object of the communication process, respectively the object of the information process.

The statement "to communicate a message, information" is acceptable. Instead, the statement "to inform communication" is not. The phrase "communication of messages-information" is valid, but the phrase "informing of communication", is not. Therefore, language bears knowledge and "lead us" (Martin Heidegger states) to note that, linguistically, communication is more ontological extensive and that information ontology is subsumed to it (Henno, 2013; Gifu & Cristea, 2013; Gorun & Gorun, 2011).

The ontical and ontological nature of language allows it to express the existence and to achieve a functional-grammatical specification. Language allows only grammatical existences. As message, the information can be "communicated" or "communicable". There is also the case in which a piece of information cannot be "communicated" or "communicable". Related, communication cannot be "informed". The semantic field of communication is therefore larger, richer and more versatile (Ștefan Buzărnescu, 2006). Communication allows the "incommunicable".

4.3. Teleological axiom.

In addition to the axiom of segregating communication, of informing in relation to the object (message), it may be stated as an axiom a Magoroh Maruyama's contribution to the demythologization of information. In the article "Information and Communication in Poly Epistemological System" in "The Myths of Information", he states: „The transmission of information is not the purpose of communication. In Danish culture, for example, the purpose of communication is frequently to perpetuate the familiar, rather than to introduce new information" (Maruyama, 1980, p. 29).

The ontological axiom of segregation in relation to the purpose determines information as that type of communication with low emergence in which the purpose of the interaction is transmitting information.

4.4. The neutrosophic communication axiom.

Understanding the frame set by the three axioms, we find that some communicational elements are heterogeneous and neutral in relation to the criterion of informativity. In a speech some elements can be suppressed without the message suffering informational alterations. This means that some message-discursive

meanings are redundant; others are not essential in relation to the orexis-the practical course or of practical touch in the order of reasoning. Redundancies and non-nuclear significational components can be elided and informational and the message remains informationally unchanged. This proves the existence of cores with neutral, neutrosophic meanings. (In the epistemological foundations of the concept of neutrosophy we refer to Florentin Smarandache's work, *A Unifying Field in Logics, Neutrosophic Logic, Neutrosophy, Neutrosophic Set, Neutrosophic Probability and Statistics*, 1998) (Smarandache, 1998; Smarandache, 1999; Smarandache, 2002; Smarandache, 2005; Smarandache, 2010a; Smarandache, 2010b; Smarandache & Păroiu, 2012).

On the operation of this phenomenon are based the procedures of textual contraction, of grouping, of serial registration, of associating, summarizing, synthesizing, integrating.

We propose to understand by neutrosophic communication that type of communication in which the message consists of and it is based on neutrosophic significational elements: non-informational, redundant, elidable, contradictory, incomplete, vague, imprecise, contemplative, non-practical, of relational cultivation. Informational communication is that type of communication whose purpose is sharing an informational message. The issuer's fundamental approach is, in informational communication, to inform. To inform is to transmit information or, specifically, in the professor's Ilie Rad words: "to inform, that is just send information" (Moldovan, 2011, p. 70) (also, Rad, 2005; Rad, 2008). In general, any communication contains some or certain neutrosophic elements, suppressible, redundant, elidable, non-nuclear elements. But when neutrosophic elements are prevailing communication is no longer informational, but neutrosophic. Therefore, the neutrosophic axiom allows us to distinguish two types of communication: neutrosophic communication and informational communication. In most of the time our communication is neutrosophic. The neutrosophic communication is the rule. The informational communication is the exception. In the ocean of the neutrosophic communication, diamantine islands of informational communication are distinguished.

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