Available online at www.sserr.ro

Social Sciences and Education Research Review

(2) 1 3-10 (2015) ISSN 2392-9683

Neutrosophic social structures specificities

Florentin Smarandache
University of New Mexico, 200 College Road, Gallup, NM 87301, U.S.A.

Abstract

This paper is an extension of "(t, i, f)-Neutrosophic Structures" applicability , where were introduced for the first time a new type of structures, called (t, i, f)-Neutrosophic Structures, presented from a neutrosophic logic perspective.

In any field of knowledge, each structure is composed from two parts: a space, and a set of axioms (or laws) acting (governing) on it. If the space, or at least one of its axioms (laws), has some indeterminacy of the form $(t, i, f) \neq (1, 0, 0)$, that structure is a (t, i, f)-Neutrosophic Structure. If the structure is applied to social environment, we have (t, i, f)- Neutrosophic Social Structures.

The (t, i, f)- Neutrosophic Social Structures [based on the components t = truth, i = numerical indeterminacy, f = falsehood] are exponential remodeled in social space from the perspective of social actor.

The social structure allows an infinite freedom of opinion, that is, everybody believes what he wants. The neutrosophic effervescence of social space is more powerful than of scientific environment for the case of natural sciences.

Keywords: Neutrosophy, neutrosophic structures, neutrosophic social structures, social science

1 Introduction

The specifics of indeterminacy, of the hesitation between truth and false in social space is given by the fact that this uncertainty is not just a status of variables, but a status of the epistemic subject.

Therefore, in the social environment the indeterminacy is raised of two: that we have a first neutrosophic indetermination specific any epistemic object, but we additionally have an indeterminacy induced by the epistemic subject. To natural entropy it is added exponentially an entropy generated by the people's perceptions variability. Man is the most important entropy inductor. The society, the first of all is not the issue of true and false, but it is the issue of opinion and belief compliance. Social structures so, are double and exponential neutrosophic articulated: indeterminacy also introduce the epistemic object, and epistemic subject, in addition the respect of each other's opinion in society makes that the probability of indeterminacy to increase with every opinion.

Any uncertainty is an uncertainty of creativity. The superior minds have uncertainties, the mediocre one have indecision. In fact, the uncertainty involves a decision in terms of unpredictability. As it is known, Immanuel Kant postulated intelligence as the ability to bear the uncertainty: the more ability to bear the uncertainty is greater, the higher the intelligence is. Uncertainty is inextricably bound by a decision: there is not uncertainty without a thinking direction of estimation, prediction, forecasting, alternative future type. When we are talking about neutrosophic social structures, we have to take into account that the social structure is not a homogeneous and uniform construction. Its uni-plan appearance is the result of a correct conjecture on horizontal dimension. However, on the vertical dimension of social structure are identifiable three levels of the social mechanism of interaction-communication presented as network. The first level is the individual one, of the actor and the relationships he has with other actors individually. The second level is that of structure / structures of which the actor belongs (family, group, clique, clan etc.). Finally, the third level is the social network as an integer as a whole. The social structure is configured as a whole what comprises and crosses the individuals relational (Vlăduțescu, 2013).

2 Arguments for Neutrosophical Social Structures

In specialty literature, T. L. Duncan and J. S. Semura emphasize that „the uncertainty about the detailed state of a system cannot decrease over time – uncertainty increases or stay the same". This conducts to enunciate a principle of

"information loss" : "No process can result in a net gain of information" (Duncan & Semura, 2007, p. 1771), and uncertainty reducing: „The construct entails obtaining greater quality, decreases dimensionality, and reduced uncertainty" (Blasch, 2005, p. 5).

In the same context, Tom T. Mitchell, asserts "the information gain would be made on two issues: entropy and uncertainty, reduction of entropy is associated with uncertainty reduction" (Mitchell, 1997). Similarly, E. Blasch correlates uncertainty reduction with entropy: "uncertainty reduction: gain knowledge from entropy" (Blasch, 2005, p. 18). E. Blasch considers that in information fusion, „all the methods are based on the simple idea: uncertainty reduction" (Blasch, 2005, p. 13).

In the structure plan, in fact we deal with two components: the part (actor and micro-social structure of membership) and the whole (the social network). As part, the actor is defined through role and the concrete relationships they develop with other actors. On the systemic- abstract dimension, the actor appears as a way of meeting, arrival, "departure" of some connections, bridges, links. On the other hand, as node are also shaped the sub-structures of the individual actor belonging (organizations, associations, groups, etc.). Depending on the relations between the actors, we have to deal with casual acquaintances, buddies, friends, relatives, business partners, members of the interest groups (cliques, clans, cliques, factions, etc.) (Vlăduțescu, 2012).

These relationships are reflected on systemic plan as weak or strong connections. The sub-structures, on the other hand, appear as sub-sets of nodes that are in the strength connection. Within the social structure the actors develop among them interdependencies and constraints subsumed to some ideas, objective values, financial exchanges, specific relations of friendship, enmity, hatred, violence, trade etc. As a whole, the social structure appears as the panel of nodes and connections that represent abstract actors and relevant relations between them. The main elements of a social structure are the actor and his relationships (Vlăduțescu, 2012).

The agent has a decisive role in „structuring of social relations". Anthony Giddens suggests an analysis procedure of social relationships on two dimensions: a) „a syntagmatic dimension, the patterning of social relations in time-space" and b) „a paradigmatic dimension, involving a virtual order of modes of structuring recursively implicated" (Giddens, 1984, p. 17).

From interpersonal interactions result an impersonal structure. About the mode how appears such as structure, John Levi Martin shows: „Structure emerges,

perhaps, out of unstructured interactions quite like the emergence of crystalline structure in a seeming fluid" (Martin, 2009, p. 3). It is nameable in this context that Georg Simmel saw the "systems" and the "super-individual-organizations" as „immediate interactions that occur among men" and „have become crystallized (...) as autonomons phenomena" (Simmel, 1950, p. 10). In his opinion, „society, as its life, is constantly being realized, always signifies that individuals are connected by mutual influence and determination" (Simmel, 1950, p. 10). Therefore, in society the systems-organizations permanently crystallize, being the result of instant interactions of individuals connected by influence and determination relationships.

3 (t, i, f)-Neutrosophic Social Structures

In general, each structure is composed from: a space, endowed with a set of axioms (or laws) acting (governing) on it. If the space, or at least one of its axioms, has some numerical indeterminacy of the form $(t, i, f) \neq (1, 0, 0)$, we consider it as a (t, i, f)-Neutrosophic Social Structure.

Indeterminacy with respect to the space is referred to some elements that partially belong [i.e. with a neutrosophic value $(t, i, f) \neq (1, 0, 0)$] to the space, or their appurtenance to the space is unknown.

An axiom (or law) which deals with numerical indeterminacy is called neutrosophic axiom (or law).

We introduce these structures to social structures because in the real world we do not always know exactly or completely the space we work in; and because the axioms (or laws) are not always well defined on this space, or may have indeterminacies when applying them.

Elements of a group/set/space of a social structure:

Type 1 -individual; Type 2 -group, family, click...; Type 3 -social network;

3.1. Numerical Indeterminacy (or Degree of Indeterminacy), which has the form $(t, i, f) \neq (1, 0, 0)$, where t, i, f are numbers, intervals, or subsets included in the unit interval [0, 1], and it is the base for the (t, i, f)-Neutrosophic Social Structures.

3.2 Indeterminate Space (due to Unknown Element).

Let the set (space) be NH = {4, 6, 7, 9, a}, where the set NH has an

unknown element "a", therefore the whole space has some degree of indeterminacy. Neutrosophically, we write a(0, 1, 0), which means the element a is 100% unknown.

Example

We establish a space structure NS = {e1, e2, e3, z}

The established a relation for elements of the space. According to this releation the neutrosophic social structure looks like: e1(1, 0, 0); e2(1, 0, 0); e3(1, 0, 0); z(0, 1, 0)

The element "z" does not belong to this space, it is unknown, it does not observe the law that decide the appurtenance to group/space, this element is an uncertainty 100%.

3.3 Indeterminate Space (due to Partially Known Element).

Given the set M = {3, 4, 9(0.7, 0.1, 0.3)}, we have two elements 3 and 4 which surely belong to M, and one writes them neutrosophically as 3(1, 0, 0) and 4(1, 0, 0), while the third element 9 belongs only partially (70%) to M, its appurtenance to M is indeterminate (10%), and does not belong to M (in a percentage of 30%).

Example 1

We build the space L = {e1, e2, e3, e4}

We establish the relation/law of the structure, opinion about assertion: "In Bucharest the sky is overcast, it's raining".

Element	Place	neutrosophic structure	status
e1	Bucharest	(1, 0, 0)	is certainty 100%
e2	Bucharest	(1, 0, 0)	is certainty 100%
e3	Brasov	(0.7, 0.3, 0.2)	is partially certainty 70%
e4	Iasi	(0, 0.8, 0.1)	is uncertainty 80%, this element does not belong to this space/set

Any other new element of space can be inducer of uncertainty if he is not from Bucharest, he is entropy generator, increase the uncertainty.

Example 2

We establish relation/law: Observing the Law of Moses

We establish the T, I, F as neutrosophic status

T : Stone throwing sinful woman to respect the Law of Moses, the woman dies, Jesus is not the Savior of the world;

F : Do not throw the stone; it is not observed the Law of Moses, the

woman survives, Jesus breaks the laws;

I : To throw the stone in sinful woman, the first man without sin; the woman is not punished according to the Law of Moses; Jesus is the Savior; But who is without sin?

We define a space M = {a1, a2, a3} composed of three elements a1, a2, a3.

The neutrosophic structure looks like: a1 (0.8, 0, 0); a2(0.2,0.83,0.12); a3 (0.2,0.4,0.85) and the relation/law was mentioned above.

Element a1 partially appurtenances to the space M, 80%.

Elements a2 and a3 do not belong to the defined space because; a2 has 83% indeterminacy comparing 20% true and a3 has 40% indeterminacy and 85% false.

4 Conclusion

Social structures comply essentially with the neutrosophy rules, it is observed the idea of neutrosophy behavior, these structures fall into states (t, i, f) of neutrosophy, they have a multiple spectrum structures, the structure elements are inducing entropy producing uncertainty. A space with an item, it means an opinion, another element induces another opinion, another element in turn induces another opinion, and so on. The opinion of each element of the structure must be respected. In this way it builds a neutrosophic social structure. The result is a very large socio-neutrosophic structure that is intended to be filtered, evaluated, analyzed by scientific algorithms.

References

Ashbacher, C. (1997). Smarandache geometries. *Smarandache Notions Journal*, *8*(1-2), 3.

Blasch, E.(2005), Information Fusion for Decision Making. In E. Shahbazian, G. Rogova, P. Valin, Data Fusion for Situation Monitoring, Incident Detection, Alert and Response Management. Amsterdam: IOSPress.

Bosun, P., Teodorescu, M., & Teodorescu, B. (2014). Corporate Social Responsibility- Collaborating for the Future. *International Journal of Education and Research*, *2*(3).

Buşu, O. V. (2013). Organization's Identity. *European Journal of Business and Social Sciences*, 2(6).

Călin, R. A., & Bunăiaşu, C. (2010). Communication and Mass-media-from Information to Formation. *Petroleum-Gas University of Ploiesti Bulletin, Educational Sciences Series*, *62*.

Duncan, T. L., & Semura, J. S. (2007). Information Loss as a Foundational Principle for the Second Law of Thermodynamics. *Foundations of Physics* 37 (12):1767-

1773.

Florea, Cristina Andreea, & Strungă, Alexandru Constantin (2015). Innovative Training Strategies in Teaching Financial and Monetary Models in the Context of Socio-Economical Cohesion. In C. M. Bunăiașu, E. R. Opran, & D. V. Voinea, *Creativity in social sciences*. Craiova : Editura Sitech.

Giddens, A. (1984). The Constitution of Society: Outline of the Theory of Structuration. University of California Press.

Grabara, J., Kolcun, M., & Kot, S. (2014). The role of information systems in transport logistics. *International Journal of Education and Research*, *2*(2).

Iseri, H. (2001). Partially Paradoxist Smarandache Geometries. *arXiv preprint math/0110085*.

Kandasamy, W. B., & Smarandache, F. (2004). Fuzzy relational equations and neutrosophic relational equations. *arXiv preprint math/0406622*.

Kandasamy, W. V., & Smarandache, F. (2003). *Fuzzy cognitive maps and neutrosophic cognitive maps*. Infinite Study.

Mangra, M. G., Cotoc, E. A., & Traistaru, A. (2013). Sustainable Economic Development Through Environmental Management Systems Implementation. *Journal of Studies in Social Sciences*, *6*(1).

Mao, L. (2007). A generalization of Stokes theorem on combinatorial manifolds. *arXiv preprint math/0703400*.

Mao, L. (2007). Combinatorial speculation and combinatorial conjecture for mathematics. *International J. Math. Combin*, *1*(1), 1-19.

Martin, J. L. (2009). *Social Structures*. Princeton: Princeton University Press.

Mitchell, M. T. (1997). *Machine Learning*. McGraw Hill,

Negrea, X. Had news, news value and fait divers in Romanian press. *Studies on Literature, Discourse and Multicultural Dialogue*, 153.

Niesyto, J., & Lovasova, R. (2015). The EU Funds are a Chance of the Regional Development in Reference to the Sport Infrastructure in Years 2007-2013. *Polish Journal of Management Studies*, 11(1), 100-112.

Perez, M. Scientific Sites. *Journal of Recreational Mathematics*, *31*(1), 86.

Quffa, W. A., & Voinea, D. V. (2013). *Contemporary Readings in Law and Social Justice,* (2), 261-266.

Rabounski, D. (2010). Smarandache spaces as a new extension of the basic space-time of general relativity. *Progress in Physics*, *2*, L1-L2.

Rabounski, D., Rabounski, D., Smarandache, F., & Borissova, L. (2005).*Neutrosophic methods in general relativity* (Vol. 10). Infinite Study.

Salama, A. A. (2015). Basic Structure of Some Classes of Neutrosophic Crisp Nearly Open Sets & Possible Application to GIS Topology. *Neutrosophic Sets and Systems*, *7*.

Salama, A. A., & Broumi, S. (2014). Roughness of neutrosophic sets. *Elixir International Journal*.

Salama, A. A., & Smarandache, F. (2014). Neutrosophic Crisp Set Theory.*Neutrosophic Sets and Systems*, 27.

Salama, A. A., Eisa, M., & Abdelmoghny, M. M. (2014). Neutrosophic Relations

Database. *International Journal of Information Science and Intelligent System*, *3*(1).

Salama, A. A., Eisa, M., ELhafeez, S. A., & Lotfy, M. M. Review of Recommender Systems Algorithms Utilized in Social Networks based e-Learning Systems & Neutrosophic System. *Neutrosophic Sets and Systems*, *3*(C4), 33.

Simmel, G. (1950). The Sociology of Georg Simmel. Frec Press.

Smarandache, F. (2015). (T, I, F) - Neutrosophic and I-Neutrosophic Structures. *Neutrosophic Sets and Systems*, (8), 3-10.

Smarandache, F. (2015). Thesis-Antithesis-Neutrothesis, and Neutrosynthesis. *Neutrosophic Sets and Systems*, (8), 64-67.

Song, Z., & Shan, D. Communication Difficulties and Accommodation Strategies of the Mainland Chinese Students in Hong Kong. *Current Communication Difficulties*, 85.

Stamule, Stere (2015). An analysis about the relations between the human values and the consumer behaviour. In C. M. Bunăiașu, E. R. Opran, & D. V. Voinea, *Creativity in social sciences*. Craiova : Editura Sitech.

Strechie, Mădălina (2015). Political publicity in Ancient Rome. A case study: honorary latin inscriptions. In C. M. Bunăiașu, E. R. Opran, & D. V. Voinea, *Creativity in social sciences*. Craiova : Editura Sitech.

Vlăduțescu, Ş. (2013). Communicative Message as Nuclear Thinking of an Aspirational Desire. *Studies on Literature, Discourse and Multicultural Dialogue*, 212-217.

Vladutescu, Stefan; Cucui, Ion; Popescu, Delia Mioara; et al. (2010). Communication in Negative Journalism. Edited by: Mastorakis, N; Mladenov, V; Zaharim, A; et al. Conference: 8th International Conference on Management, Marketing and Finances Location: Penang, Malaysia Date: Mar 23-25, 2010 Recent Advances in Management, Marketing, Finances: Proceedings of the 8th WSEAS International Conference (MMF 10) Book Series: Recent Advances in Electrical Engineering Pages: 161-165 Published: 2010.

Voinea, D. V. (2011). Extinderea dreptului de vot la 16 ani-responsabilizarea tinerilor sau încurajarea imaturității. *Revista de Stiinte Politice*.

Voinea, D. V., Negrea, X., & Vlăduțescu, Ș. (2014). Interpersonal communicational manipulations. *Postmodern Openings*, (04), 43-56.

Wang, H., Smarandache, F., Sunderraman, R., & Zhang, Y. Q. (2005). Interval Neutrosophic Sets and Logic: Theory and Applications in Computing: Theory and Applications in Computing (Vol. 5). Infinite Study.

Yuhua, F. (2013). Neutrosophic Examples in Physics. *Neutrosophic Sets and Systems*, 26.