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# EPISTEMIC AND METHODOLOGICAL ASPECTS OF NETWORK ANALYSIS

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***Abstract:*** *In this article I present a synthesis of some fundamental works in the field of social networks and try to highlight key concepts, propositions and methodological elements that make up the foundation of this approach to social realities. In the first part I present the main propositions of the relational paradigm as a distinct paradigm in sociology. In the second part I show which were the first attempts to study the society in relational terms. The last part of the paper highlights the operational concepts most frequently used in social network analysis. The main reason for writing this article comes from poor use of this approach in the Romanian sociology.*

***Key words:*** *relational paradigm, social network, interaction, structure, social relation.*

## 1. Introduction

"Society today can be understood only if we can think it as a relationship" (Donati, 1991, p.12). This is the main proposition of the *relational paradigm* that attempts to overcome specific polarities of sociological thinking: part - whole, static - dynamic, action - system, understanding – explanation, etc. Instead, the relational paradigm proposes a unified vision on society, with the center concept of *social relation*.

Relationship becomes the primary concept in sociology, an undefined and axiomatic concept, a *sui generis* reality that is not reducible to any particular factor and is not produced or derivative of any other entity. From a philosophical point of view, the relationship is a primary category not to be explained and it is always present as a constituent fact of reality and consciousness.

Relational sociology is an attempt to unite man as object and subject, subjectivity and structure, social system and social action, considering that the relationship is reciprocal action, and the system is a set of relationships. Relational paradigm intends to provide a unified and non-dual vision on the social.

The social is made up of social relationships, and they have a dual nature: on the one hand, they are symbolically mediated, that they are provided with significance by social actors. On the other hand, they have a constant tendency to be structured in *printed forms*, i.e. to become institutionalized. Social relations are at the same time, action and function, inter-subjectivity and organized structure.

Along with the concept of social relationship, *the structure* occupies a central position in the relational approach. Some authors even use the *structural*

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*analysis* as a synonym for network analysis (Wellman, 1995).

The concept of structure is taken from the structural-functionalist approach, but the relational paradigm gave it a different meaning, making abstraction of roles, status and functions. The idea is not to overlook the importance of the concept of *function* in social theory, but to guide the analysis towards relational forms as subject separately.

The meaning of the *structure* in the network analysis was given, in a formal sense, by Simmel and Von Wiese: the whole fabric of human interaction that is mutually interdependent (Chiesi, 1980). Social structure represents models of relations established between different social units. It can be plotted as a network: a set of nodes (individuals, groups, communities) linked through various relationships.

The social structure can be defined as a "persistent pattern of social relations between different social positions" (Lauman and Pappi, 1976 apud Piselli, 1995, p. XLIII). In this perspective, the role of the sociologist is to analyze models of stable relations between different parts of the social system in order to discover the effects of these models on the behavior of individuals. Social behaviors and actions are performed "only in relation to the position of actors in the social structure" (Piselli, 1995, p. XLIV).

Based on these assumptions, two directions have developed in the American sociology: one covering the structure of interpersonal communication (family, friendship, community), and the other one studying the structural models of macro-social processes (relations of power, business, marketing) (Piselli, 1995).

The relational paradigm has a dynamic vision of social relationship. Any relation is seen as a transaction, not as a static link between inert units (Emirbayer, 1997). At *micro* level, individual identities and personal interests are not pre-formed, but only build in transactional process, so in social relations. At *macro* level, world states are not seen as well-defined and autonomous units, with boundaries drawn firmly, but as "many social and spatial networks of power that overlap and intersect each other" (Mann, 1986 apud Emirbayer, 1997, p. 295).

Relationists consider that the approaches that assign qualities to the social entities based of their nature, without regard to the relational context in which these entities are located, are inadequate. The relational paradigm offers an alternative to positivist thinking built on categories and variables, aiming to „assign attributes to entities not under their assumed identities, but defining this identity as a relational reality of an *entity-in-a-context*" (Donati, 1991, p. 14).

The relational paradigm offers an alternative for the phenomenological approach too, considering that it is wrong because it neglects relationships, reducing them to intersubjectivity and considering the social relations as a product of the intersubjectivity.

A social relation is, at the same time, objective (historical-concrete) and subjective (equipped with sense). The analysis of social relations have to capture both the *objective dimensions* of social, which are independent of the subject and represent the system properties and the *subjective dimensions* which are dependent on the social agent, representing the conditions and characteristics of intersubjective communication. Social phenomenon is a relational fact and a mutual involvement of subjects. Because of their interaction, they give rise to social forms of aggregation at different levels of institutionalization.

From this point of view, we should take into account in any research the following sentence: the phenomenon is born in a

relational context, it is conducted in a relational context and it gives rise to a relational system. "It is not fair to say that sociology studies social relations between facts […], but it studies social facts as relations" (Donati, 1991, p. 71).

From an epistemological point of view, the relational paradigm tries not to overlook the subject (vital world, autonomous individual), nor its social context. From the methodological point of view, it proposes to analyze social realities through the network model, and pragmatically speaking it sees social interventions as *management of relations*.

## 2. The Emergence of Network Analysis

Elements of relational thinking can be found in many works of classical or modern philosophers (Plato, Aristotle, St. Augustine, Thomas Aquinas, Hume, Locke, Hegel, etc.), but the relational paradigm, as a distinct sociological approach, was developed only in the twentieth century (Donati, 1991, Bianco, 1996).

The founder of this approach is the German sociologist Georg Simmel. He said for the first time in sociology that social reality is fundamentally relational, in other words, relationship should not be reduced to other entities. For Simmel, a phenomenon is social even if it expresses a particular characteristic: to be interaction, interdependence or reciprocity effect. No social phenomenon is the emanation of a subject or a system *a-priori* constituted. The social is relationship *par excellence*. (Donati, 1991).

Thus, a social unit, or a phenomenon, or an action can be defined only in terms of their relations with other phenomena. Essence of things lies not in the thing itself, but in the relations of interdependence between things. According to Simmel, these relations can be of different types: spatial relationships of neighborhood and removal, teleological relationships, causal relationships such as cause-effect, functional part – whole ones, etc.

Even if Simmel is criticized for having built an abstract sociology, as a „geometry of the social world", where he gave much attention to forms (Chiesi, 1980), his formalism had a great influence on the sociological thinking.

On Simmel's footsteps, Leopold von Wiese tried to build a bridge between formal theoretical system of the simmelian sociology and the American empirical sociology that developed in the early twentieth century (Chiesi, 1980).

In Leopold von Wiese's view, sociology has to study the links or connections between people, measurable by their distance and described as constellations of relationships.

Relations between people „would figure that a constellation seemingly impenetrable of lines starting from points (people) who are at the ends of the field. It is about how to order this fabric and to explain how these numerous links make possible the civilian life... So, the inter-human is nothing but a great deal of mutual ties between people and variables. Events taking place in this sphere, which I call social processes, are events in witch people are more closely related to each other or further from each other." (Von Wiese, 1968, p. 266). Leopold von Wiese declared he was optimistic about the possibilities of measuring the social space, although he was aware that the difficulties of establishing valid units were very serious.

Based on these formalist concepts, the network analysis has developed in the first half of the twentieth century, on the following three directions: 1) the sociometry, 2) the British anthropological school from Manchester and 3) the

American school of sociology and psychology of Harvard.

### 2.1. Sociometry

**Sociometry** was promoted by Jacob Levi Moreno, a Romanian-born American psychosociologist, in the ’30s last century, in his work called ``Who Shall Survive?”. Sociometry proposed the measurement of interpersonal relations inside the small groups. The methodological tools that Moreno has created for this purpose was the sociometric test, designed to identify and measure the relations of attraction and rejection between the members of a group. The sociometric options thus detected were plotted by a chart in which the individuals were „points” and the relations between these points were directed lines (arrows). On each line it was marked the relationship type: „+” (plus) for attraction, „-„ (minus) for rejection and „0”(zero) for indifference.

Thus, the sociometric test can give information about the individual position in a group in terms of *emotional expansiveness*, *popularity*, *marginalization* and *rejection* of the individual by the group.

Moreno’s goal was therapeutic and constructive at the same time: sociometry could improve and rebuild the broken or dysfunctional interpersonal relations between people.

### 2.2. The British Anthropological School

After the Second World War in British anthropology there has been a change of perspective. Until then, anthropologists gave great attention to cultural systems of rights and obligations that prescribed behaviors of individuals in well-defined groups such as tribes, villages or different work units. Since the 50s of the last century, anthropological research in the British area was oriented to systems of social relations and concrete ties. This happened because the analysis focused on norms, which had been relevant for closed society, faced with serious difficulties once applied to social systems in which links between individuals cut boundaries of groups.

The concept of „social network” was developed precisely to describe and explain these links beyond the social units. Social network was interpreted as set of links that unite the members of a social system and walks across the group boundaries (Wellman, 1995).

J. A. Barnes has used the concept „social network” to analyze social bonds that crossed „conventional” social category such as local and labor relations. He pointed out that there was another field of personal relations based on friendship, family and neighborhood which „interfered” or „cut” the boundaries of the formal groups (Barnes, 1954 apud Mitchell, 1995).

His research was done in Bremnes, a fishing village in Norway. Using the relational approach, Barnes was able to give a good description of the social structure of the village and explain social phenomena such as access to certain jobs or political activity in that community.

In 1957, Elizabeth Both developed the first effective measure of the network structure - knit - or what today we call *density*. She conducted a study on twenty London families. Initially she tried to explain the different patterns of distribution of marital roles according to the social class and the area of residence. But, the two variables had no explanatory value and then Both changed perspective, going to analyze the structure of interpersonal or „social networks” in which families were inserted. Like Barnes, she understood the social network as a *fabric* of relations of friendship, family and

neighborhood and made a distinction between *network* and *organized group*. While an organized group is a larger social unit where members share common goals, perform interdependent roles and have a distinct sub-culture, a network is not itself a social unit and has no well-defined borders.

Both measured the *density* of networks for each studied family. She defined *high density* (close-knit) as the situation when persons known by a certain family know each other and interact each other too. Through *low density* (loose-knit), she understood the circumstances in which friends, neighbors and family relatives are not known and therefore not related to each other (Both, 1957 apud Mitchell, 1995).

The British researcher found that the degree of segregation of conjugal roles is related to network density as follows: the higher the density , the greater the degree of segregation of roles in the family. In other words, how people known by both spouses know each other better and fall in relation to each other, the separation of conjugal roles is more pronounced.

Nevertheless Both did not forget the original variables of her research. She found that the dense networks are specific to rural areas and small communities and the low-density networks can be found in urban areas. She explained that in a small community, relatively closed, family belongs to a small number of groups and each group performs many social functions. In contrast, an urban family is placed in a network of separate institutions that develop many specific functions. In a small community, relatively closed, the local group or the group of relatives mediates between the family and overall society. In an urban industrial society there is not only one group or institution that mediates between the family and overall society (Both, 1957 apud Mitchell, 1995).

In the rural areas, a family network is one that preserves the traditional model of distribution of marital roles, whereas the urban areas, with much less dense network, is more flexible to changing patterns. Thus, social network appears as a decisive factor in the socialization process, in defining identities and in developing cultural models of societies.

Several years later, in 1969, Barnes has expanded the meaning of social network concept. In his paper published in 1954, he talked about the *overall network (total network),* composed of all social ties that exist in a community. Now he defines *partial network* as an extract of total network based on certain criteria, such as, for example, brother-in-law network or networks of politicals, religious, etc. (Barnes, 1969). Furthermore, Barnes made a distinction between social networks without borders and social networks with borders, the latter being centred on one person (call *set* or what today we call *ego-network*).

In a survey conducted in 1973 on thirty-five married couples in Edinburgh, Tessa Cubitt proposed the distinction between the *actual network* of Ego (the nearest ten ties) and the expanded network (other links that Ego has). Comparing the density of the two networks, the author showed that, irrespective of social class variable, in all expanded networks the density tends to be weaker. But Cubitt identified some parts of the extended network with a much higher density than the others: kinship, neighborhood, work situations and voluntary associations. She reiterated the hypothesis of Elisabeth Both considering that „the high density sector where Ego interacts most or is most important to him is responsible for strengthening group norms greater than the entire network" (Cubitt, 1973 apud Piselli, 1995, p. XXII).

### 2.3. The American School of Relational Sociology

Around the same time as changing the shaft of British anthropology, in the United States began to emerge concerns about the analysis of social networks, starting from a critical question for the sociological thinking: does the pattern of social relations in networks affect the ways in which social systems work? (Wellman, 1995, p. 27).

Postwar, after an English translation of Simmel's work, U.S. researchers have become increasingly interested in how the size of social systems and their specific types of relationships determines individual behavior and interpersonal exchanges. A great research effort in this direction was made by the research group at Harvard led by Harrison White, in the 60s and 70s. Convinced that a good theory of social structure may only be based on the concept of *network,* White founded a relational schools in which he had mobilized dozens of students and researchers. The result was a series of works with a „programmatic" character for this sociological perspective.

In White's view, social scientists must explain human behavior by analyzing the social distribution of opportunities: the unequal availability of resources – such as information, wealth and influence – and the structure through which people can get access to them. They have to study the processes by which resources are acquired and managed – through exchange, dependence, competition and coalition – and the social systems developed on the basis of these processes (White, 1988 apud Wellman, 1995).

In the development of network analysis in the American sociology, especially relevant is the 1957 research of Coleman, Katz and Menzel on how doctors in an American city learn about the existence of a new drug. The network is seen, by the three authors, as a set of communication links through which information passes from one person to another, just as the spread of an epidemic. This research has shown that the communication network between doctors rely mostly on personal and informal relationships (Coleman, Katz, Menzel, 1966).

Informal communication networks were also subject to other well-known research in the history of network analysis: N.H.Lee's study published in 1969 and called „The Search for Abortionist". Lee proposed to detect to who American women ask in order to get to a doctor who performs abortions, in circumstances where abortion was illegal. Research results have shown that women get more information through their circle of acquittances than through formal channels. Regarding arrangements for obtaining information, women have turned to people outside their family or relatives groups. The most important information channels were represented by women about the same age, often with experience of abortion. Some people were excluded from channels of information: parents, neighbors and friends who disapproved the abortion. Regarding the path length for obtaining information, Lee said that women contacted on average 5.8 people to find a doctor.

N. H. Lee formulated a fundamental proposition in the theory of social networks: a network is activated depending on the issue that a certain social actor has, so that we can not define a valid network for any purpose or for any problem (Lee, 1969 apud Mitchell, 1995).

The paper „Getting a Job" by Mark Granovetter, published in 1973, contributed to enrich the literature of network analysis with an interesting theory on the power of *weak ties*.

Granovetter aimed to study how people get information about finding employment. He interviewed 282 men with technical and administrative occupations, in a suburb of Boston. It's about people that, in the past five years, have changed the workplace. Research data showed that 56% of respondents used informal channels of job search. This result prompted Granovetter to investigate the specific mechanisms of meeting between supply and demand of jobs through *social contacts* (Granovetter, 1973).

„According to Granovetter, any social action is an interaction inside stable networks of relationships" (Bianco, 1996, p.135). Action is possible „only because of these relationships, as also clearly sensed in Durkheim, developing the concept of *pre-contractual* trust" (Bianco, 1996).

Granovetter's research shows that subjects, appealing to various information sources available to them, very little observe economic principles of rational choice and rational calculation. Best jobs were found when the subjects were not actively seeking work, but when they „gave over" useful information, incidentally.

Regarding the persons from whom information is obtained, the most important links have proved to be former colleagues or people who had another profession/occupation than the subject. Family members and close friends have proved to be less able to help find a good job.

Granovetter developed the diffusion model of information that had been experienced by Coleman, Katz and Menzel in their research on doctors. Just as in the „viral contagion", each subject receiving a piece of information passes it to its close relatives, so information spreads to the outside network. Obtaining information, however, depends on the motivation of those who possess and transmit it and also on the strategic position of individual's contacts in the flow of information.

Based on these data, Granovetter developed the theory of weak ties: weak links, namely those that require less frequent contacts taking place between socially distant individuals, are more useful in the approach for finding a job than strong ties, those involving relationships with family and close friends. People close to (family, circle of friends) have approximately the same set of information. A new and useful information comes from a further circle of knowledge, a more remote area network, where the probability that information is new and different is greater.

In terms of current sociology, relationships with people close to in the Granonetter's theory are called *bonding social capital* and those in more remote areas represent the *bridging social capital*. (Voicu, 2006).

## 3. Network Analysis - Operational Concepts

A social network is a set of social relations that can be represented as a set of points connected by lines, where points represent individuals and lines represent social relationships.

The literature reveals two main ways of approaching social networks: the personal network (ego-network) and the relational structure (socio-graph).

The ego-network refers to social relations that a person has (Ego): all persons with whom Ego is in contact and the interrelationships between them. Each ego-network is unique (Boissevain, 1974).

The relational structure represents all social relations existing within well-defined social unit, for example, in a group of friends, a family or an organization.

Jeremy Boissevain (1974) grouped the operational concepts of network analysis in two categories: concepts relating to the *interaction* between the network's units (points) and those relating to the *structure*. Summarizing the conceptual analysis made by Boissevain, I will present the two classes of concepts below.

### 3.1. Operational Concepts Relating to Interaction

A) The links diversity.

One of the most important characteristics of a network is that it is composed of persons related to each other through multiple and diverse relationships. These relations are derived from different fields of activity involving each member of the network.

Taking the concept of *role* from the functionalist paradigm, Boissevain uses the term "role relationship" in the sense that individuals enter into relationship with each other under certain social roles that they fulfill. Each person performs multiple roles and each of them comes into contact with a particular set of individuals. Thus, an egocentric network consists of a variety of people from different fields of activity and each field can be interpreted as a "partial network" consisting of a set of people who, actually or potentially, have a joint relationship based on their role in that field of activity. The network of interconnected roles in any given field of activity, from Ego's point of view, is "virtually unlimited" (Boissevain, 1974).

Often, these fields overlap. Some individuals in a given field play roles in other fields and thus they develop social relationships here too. Largely overlapping fields are specific for small and relatively isolated communities, where people come into contact with the same people in different roles. In large territorial communities and large cities, every role involves contact with different people, so overlapping fields are very weak.

A social relation that takes place in base of a single role is called *uniplex* or *simple relation* (in some works it is called *simplex* - see, for example, Hanneman, 2001), and a relationship that involves many roles is called *multiplex* or *multiple relation*. Boissevain shows that an uniplex tends to become multiplex if it persists over time and that, in general, a multiplex is stronger than an uniplex because a role can strengthen the other role.

Multiplicity concerns, therefore, the "degree to which there are several types of relationships between the same actors", in the sense that "the same persons can establish several types of relations: affection, exchange of goods, kinship, etc. (Iluț, 1997, p. 114).

B) The relational (transactional) content.

This concept means the actual content of a relationship, i.e. material and non-material elements that are exchanged between actors in a social relationship. A wife-husband relation, for example, has a rich relational content: emotional, material, sexual, etc. (Boissevain, 1974).

The relational content defines therefore the nature of a social relation. Any social relationship is a transaction of some kind, an exchange of different elements amongst individuals (Kapferer, 1969).

In his research on a workplace conflict, Bruce Kapferer has established five content of the relations between the persons involved (Kapferer, 1969): conversation (mutual communication of information and opinions), joke (relations based on exchanged jokes between colleagues), employment assistance (aid for job tasks), personal services (services such as bringing water, provide other cigarettes or food, etc.) and cash assistance (lending money).

Alessandro Lomi (1991) argues that, for analytical purposes, one can distinguish

five types of relational content: *instrumental relationships* (exchange of goods, services, money), *relationships of authority* (hierarchy) - those relationships built on the mechanisms of influence, power, dependency, subordination, etc., *relationship of communication* (exchanging information, exchanging symbolic goods), *emotional relationship* (friendship, love), and *family relations* (derived from direct or indirect family ties).

Lomi notes that in practice, the complexity of the networks analysis derives from the fact that these relationships are multiplex and therefore it is difficult to distinguish exactly which report/transaction occurs in the context of a relationship (Lomi, 1991).

Evaluating the nature of social relations is - or should be - a strong point of the sociological research, because the nature of relations in a network indicates not only the investment that each social actor makes in a relationship, but also the social benefits that the actor expects to have from that relationship (Boissevain, 1974). According to this criterion, individuals evaluate some relationships as more important than others, which will guide the future behavior and actions towards investments (material or symbolic) in relations assessed as significant.

C) The directional flow.

This concept refers to the direction of the exchanged items that represent the content of a social relation. In some cases, relations are unequal or asymmetrical. This means that the transactional elements are unequal, i.e. one actor gives more than the other. For example, subject A says he/she trusts B, but B says that he/she doesn't trust A.

The transactional asymmetry is an indicator of status and power differences between individuals. The transactional symmetry, which implies equal exchange of material or symbolic goods, is specific for relations of equality, the best example being the friendship.

D) Interaction frequency and duration.

The frequency of a social relation refers to the number of interactions in a social relationship in a time unit. Frequency is not a good indicator of the importance of relationships. Boissevain shows that there are relations with high frequency, but with low investment from the actors. For example, the relationship with the seller of milk is more frequent than the relationship with a brother who lives far away, but the former requires a simple economic transaction, while brother relationship is more complex (Boissevain, 1974).

The duration of a relationship is a better indicator of its importance because it represents a measure of the amount of time (a limited resource) that people invest in others (Boissevain, 1974).

### 3.2. Operational Concepts Relating to Structure

A) The network size.

It is the most important measure of a network because all other measures are calculated by reference to it. The size means all actual or possible ties in a network, taking into account both direct and indirect relations.

If we refer to ego-networks, their size is generally very high. When the analysis takes into account both the direct and indirect relations, the network model becomes very complex, almost impossible to describe with current techniques.

Boissevain (1974) states that if one person (Ego) would activate 500 direct relationships, those 500 people would activate to their turn over 875,000 relationships with other people who would represent the indirect links of Ego. Therefore, sociologists prefer to work with partial networks, defined in specific cases.

Setting system boundaries and defining relations are made on the basis of relevant criteria for the research.

B) The network density.

Network density is the degree to which its members are in direct relationship with each other. In other words, density is a measure of actual relations between people from all possible relationships. It is an indicator of intensity of communication or social exchange between network members.

The density of a network is calculated as the ratio between actual and theoretical possible connections:

$D = 100\ Na / [N(N-1)/2]$ where Na = the number of existing (actual) connections;

N = the total number of people in network;

D = the network density.

Analysts should be cautious when comparing different networks density because there is a clear relationship between density and size. In a large-scale network, members must develop more relationships to have the same density as a small network. Moreover, networks with the same density can have various configurations and the configuration is very important in terms of information flows in a network (Boissevain, 1974).

C) The degree of connection.

It is called, briefly, *degree* and it is a measure which can be calculated individually, for each member of the network. The degree of a point in the network represents the total number of actors with which that point is in contact, so the concept is an "operational measure of intensity of communication" for each actor in a network (Lomi, 1991, p. 91).

At the network level, the degree is the average number of relationships that each person has with others in the network. The calculation formula is as follows:

$d = 2\ Na / N$ where d = the degree;

N = the total number of people in network;

Na = the number of existing (actual) connections.

Na is multiplied by two because each relationship involves two people.

The degree of connection is a measure that corrects the density index. Two networks with the same density can have different degrees of connection in the sense that the members of the network with higher degree maintain, on average, more relationships with others than the members of the network with lower degree.

D) The centrality.

Centrality refers to the position that an individual has in the network. In an ego-network, each person is, by definition, the centre of his personal network. But in a network that describes the relationships between people in a certain field of activity or group, each member has a specific objective position in which individuals play certain roles and manage certain resources. The greater the centrality of people the chances of controlling resources are greater (Boissevan, 1974).

Centrality of a person is calculated as the ratio between the smallest distance sum from each person in the network to all other persons and the smallest distance sum from Ego to other people in the network. If the relation between two points is direct, then the distance between the two points is 1. If the relation is mediated by another point, then the distance has the value 2, etc.

The notion of centrality is effective, therefore, to analyze *the influence* of exchange relationships between organizations or individuals (Lomi, 1991). The power of a leader depends on where he monopolizes the flow of information, goods or services in a network. The person with the highest degree of centrality in a communication network receives and transmits the largest number of messages and thus has the greatest influence on the network (Boissevain, 1974).

E) The clusters.

Clusters are part of a network having a high density. Compared with the rest of the network map, people who belong to a cluster have closer relations with each others. In other words, a cluster is a part of a network characterized by a relatively small number of external relations compared to the number of the internal relations.

Clusters, called *cliques* in many papers, are social structures with a very high cohesion (Iluț, 1997). In general, each individual is part of several clusters: family or kinship group, groups of friends, various clubs or associations, etc.

In a relational structure it's very interesting to analyze the links between different clusters. The degree of inter-networking between clusters is not only an index of network density, but also of the multiplicity of connections. Where there is a high degree of networking, there is a pronounced overlap of fields of activity (Boissevain, 1974).

All these concepts are extensively used nowadays in comparative analysis, in many studies on the dynamics of social networks.

"In recent years, social network analysis has shifted more and more to dynamic analysis" (Lubbers et al., 2010).

Using qualitative or quantitative methodological techniques, many researchers are now concerned to identify how social networks change their characteristics over time (see for example Lubbers et al., 2010, Corten and Buskens, 2010).

## 4. Conclusions

The relational paradigm puts the concept of *social relation* in the center of social life analysis. Social relationship is understood in a dynamic sense, as transaction or exchange between social actors. The social actors are seen both as creators of relations (having the ability to manage the multitude of connections that they maintain) and as constrained entities, influenced by the fabric of social relations in which they are integrated.

From the methodological point of view, the relational paradigm proposes the *network analysis* - a variety of techniques to study the specific social relations, all focused on identifying and measuring the existing relations at a time between individuals or groups. The relationists argue that „reading" these relationships in terms of *density*, *frequency*, *multiplicity*, *transactional flows*, *connection*, *cohesion*, *centrality*, or *clusters* (*cliques*), they can offer better sociological explanations than those based on statistical analysis of variables and personal attributes.

The operational concepts of the network analysis propose specific criteria or dimensions with which ties between members of social networks can be defined, analyzed and differentiated. These concepts are able to provide, together, a quantized image of the social reality defined as a network. They help us to identify patterns of the social universe where individuals and organizations live and work. These patterns can inspire interesting hypotheses about the social behaviour of actors in terms of cultural or physical environment constraints.

Boissevain (1974) drew our attention to the fact that both the form and content of social relations are constantly changing. Although the concepts discussed provide a more accurate study of social relations, they cannot be used to predict with certainty what alternative course of action the social actors will follow. But they increase the probability that we can make accurate predictions, adding an extra dimension to our understanding of social life.

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