Analysis with Regard to the Theory of the Power of Weak Ties in the Field of the Study of Social Networks – between General and Particular

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Abstract:

   People are social beings who need permanent interaction and socialization with those around them. Left alone, individuals are dehumanized. However, it is known that not all people are the same. Actually, they are very different and manifest different behaviour. Individuals are grouped into a series of specific social networks based on the roles that they fulfil in society or the interest that they manifest in various things, people or activities.

   The interest with regard to the subject of social networks has grown, especially with their development in the online environment. The analysis of social networks is very useful taking into consideration the study of the nature and intensity of the relationships between the actors (subjects, nodes) that make up the respective network. A type of tie is that of weak ones, which, despite its name that would suggest the idea of them being "less significant", offer numerous informational benefits and the control in the negotiation of relationships with the rest of the actors.

Key words: Social networks, analysis of social networks, strong ties, weak ties, structural gaps, tropes.

6123

INTRODUCTION

The analysis of data about social networks focuses on the actors (nodes) and the relationships between them (ties, links). The analysis of social networks is the study of social relations (such as friendship, kinship), interactions (work collaboration), proximity (geographic neighbouring) and flows (resource exchange) between a specific set of actors, using a network approach[1].

Thus, when it comes to the approach of the social network, the actors are conceptualized as nodes and the relationships/interactions/proximities/flows as ties (links, lines). The visual description of the social network generates a graph (diagram) – where the nodes are points and the ties between the nodes are lines. There is a series of key indicators for the analysis of networks: the size of the network, its density, level of connectivity, accessibility between each of the actors, distance/time for the transmission of information, distribution of the mutual ties with the transitive ones.

The study of social networks established within social media is a current subject, especially due to the numerous implications that they have in society. These are maintained based on a relationship of information or goods exchange between the actors that belong to a reference population. The number and type of ties that the actors can establish depend on their resources and cognitive abilities. The analysed network can be represented by the family, school, community, social class, organization, neighbourhood, club etc.

As previously mentioned, in the field of social relations, the most emphasis is placed on the relationships established between the subjects (nodes) that it consists in. The classification of social ties consists in: social relationships, interactions, similarities and flows. In addition, we can operate with strong or weak ties between the components of the network. It's very important to know these differences and characteristics for every type of tie in order to gain a correct understanding and explain the phenomena occurring inside the network. An example in this regard is the signalling and exploitation of a weak tie, which can offer a competitive advantage to an entrepreneur.

Within social sciences, a network is usually defined as a set of actors (or agents, nodes, points) that can have relationships (or links, ties) with one another. The networks can contain only a few or numerous actors and one or more type of relationships between the pairs of actors[2].

In the last decade, the analysis of social networks has been used increasingly, mostly because of the fact that it offered valuable research into the coagulation or dismantling characteristics of certain interest groups. Given the fact that the security status of a state is becoming an increasingly complex concept, influenced in today's globalized society by a mixture of social, political, economic and cultural factors, the analysis of the social network can prove to be a valuable instrument for analysts, an instrument that can be used in order to evaluate and, more importantly, estimate the diffusion models of various social phenomena and flows (information, norms, behaviours and even pathogenic factors).

They can also be located in network vulnerability positions since they can influence the flow of information

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[2]Mircea Mitruțiu, „Analiza rețelelor sociale", Timişoara, 2005, available at http://www.asecib.ase.ro/mps/Analiza_retelelor_sociale.pdf, accessed at 21.08.2016

circulating inside the network, meaning that they can disturb it, prevent it or even stop it[3].

A frequent occurrence is that certain groups and subgroups inside a network can intensely communicate with one another in comparison to the way in which they communicate with the rest of the members of the other groups in the network. These groups can form dyads (subdivisions in a social network, consisting in up to two elements that are connected through a line), triads (consisting in three connected elements) – that are the most studied groups – or other subgroups – characterized through a high degree of cohesion.

Thus, those "individuals that can represent bridges between various groups within the network are more important for the network communication than the individuals with multiple ties, but within a single group".

THE THEORY OF THE POWER OF WEAK TIES

Using the criterion of the metaphors for the classification of social theories, *the theory of the power of weak ties* fits into the category of theories that conceptualize social networks from the point of view of the metaphor of "networks as pipe systems that allow the flow of resources"[4].

The precursor of this theory is Mark Granovetter, who launched it in 1973. It highlighted its implications in the field of occupational mobility. Moreover, in addition to the implication that it has on social life, the theory of the power of weak ties can be applied in the field of economy, in the context of occupational mobility and the aspects referring to employment and recruiting.

In Granovetter's opinion, any positive and symmetric social tie can be evaluated based on its strength. This intensity

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[3]Ibid

[4] Marian G. Hâncean, *Reţelele sociale. Teorie, metodologie şi aplicaţii,* Iaşi, Editura Polirom, 2014

of a tie represents the result of a linear combination between several factors, such as: time, emotional intensity, mutual trust, that are strongly interconnected. Through the combination of these factors, three large types of ties are formed: strong, weak and absent (inexistent and negligible).

Strong ties are established between very close friends, who interact, have common activities, are emotionally involved, develop a mutual trust and do favours for one another. By means of analogy, *weak ties* occur between entities that do not interact often and are not emotionally involved. In addition, the acquaintances and friends of the friends of an individual are identified as weak ties within a network and the family members, kinsmen and close friends are labelled as strong ties[5]. *Absent ties* refer to the situations in which two or more entities do not develop other successions, even if they interacted once. The social situation brought them together at some point, but only contextually. Once that event is over, they do not see each other again and do not stay in contact. Examples of absent ties are those established between clients and the providers of certain services. They come into contact at one point for a specific period, with a specific purpose, but after its finality, all ties cease.

Amongst the benefits that weak ties bring to the social network that they are a part of, Granovetter highlights individuals' access to information and resources, other than those available in their group. Thus, individuals that are part of a clique[6] and establish weak ties with individuals from other cliques - (in the figure below, the blue ties are weak ties and the cliques are the three groups of nodes coloured in red, yellow and orange) – bring, through weak ties, a considerable information contribution. This can be explained simply through the fact that

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[5]Mircea Mitruțiu, „Analiza rețelelor sociale", Timişoara, 2005, available at *http://www.asecib.ase.ro/mps/Analiza_retelelor_sociale.pdf*, accessed at 21.08.2016
6 The clique is a subset cohesive, very dense with links between its members

the weak tie between two cliques transfers new ideas, practices, information, other than those known inside a closed clique. If they have established ties with the members of other subgroups, the individuals that are a part of them have the chance to familiarize themselves with new things and disseminate them to the other members. This can be due to the fact that persons who know each other very well come to know almost the same things. Moreover, if a group of individuals characterized by a high density, the familiarity of its members, their accessibility and a very low possibility of member destructuring (like the clique within the social network) does not establish ties with other individuals outside the group, it will not be able to assimilate new knowledge from outside the group.

THE APPLICABILITY OF WEAK TIES IN SOCIAL NETWORKS WITHIN ORGANIZATIONS

The members of a social network can realize at one point that the optimization of the network that they are a part of depends a lot on its form, meaning that the networks with the highest performance are those with more free spaces between the members and that establish ties with elements from outside the network. Thus, if the relationships between the members of a network are very dense, it does not mean that they are also useful for its members. This is also the case with the dissemination of information within the workplace where the individuals operate.

Thus, the American sociologist Ronald S. Burt also led his research in this field to the collaborative business environment. Wanting to find an answer to the question "Where do good ideas come from?", Burt showed that, most times, the key to innovation is not the creation of good ideas,

but rather recognizing the opportunity to reuse a normal idea taken from another group[7].

Structural gaps and weak ties are found everywhere. The field of sales and that of engineering are a classic example of two groups the members of which traditionally interact mostly with actors from outside the networks than inside the interior groups[8].

Burt performed a study inside the US electronics company "Raytheon", through which he studied a few hundred managers inside the supply chain of the Raytheon group. During the study, he asked each manager to write a few ideas in order to improve the management of the Raytheon supply chain. He then evaluated the ideas together with two company managers. The results showed that the best suggestions came from the managers that discussed the ideas outside of their normal work group. The American researcher reached the conclusion that the managers from Raytheon contribute good ideas, but have problems with their development and implementation. Burt recommends that the manager discuss these issues with other people that they do not constantly talk to, such as an informal superior or someone with enough power to be an ally, but not a current superior.

Since an actor with strong ties in a group knows more or less what the other people in the respective group know, the efficient spreading of information results from weak ties between actors in distinct groups[9]. Weak ties are essential for the flow of information that is integrated inside social groups that are disconnected from a more extended society[10].

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[7] Ronald S. Burt, *Structural Holes: The Social Structure of Competition*, Harvard, Harvard University Press, paper back edition, 1995.

[8] Ibid

[9] Mark S. Granovetter, „The Strength of Weak Ties" in American Journal of Sociology, Vol. 78, No. 6 (May, 1973), The University of Chicago Press, available at https://www.jstor.org/stable/2776392?seq=1#page_scan_tab_contents, accessed at 21.08.2016

[10] Ronald S. Burt, *Structural Holes: The Social Structure of Competition*, Harvard, Harvard University Press, paper back edition, 1995.

Structural gaps describe the same phenomena as weak ties because they both highlight the need for entrepreneurs to fill the gaps between various groups and irrelevant contacts. The creation and maintenance of weak ties over structural gaps improve information benefits and even create networks characterized by efficiency and efficacy.

In practice, aspects of homophilia[11] unite individuals. In general, people are interested in people with a similar social status. This is the reason why persons that are part of the superior classes invest a lot in particular organizations and exclusive associations. These individuals that enjoy a high social status create numerous weak ties from various social environments, unlike people with a precarious financial situation, that are limited to contact with their strong ties. The persons that are part of primary families in which strong ties have formed and that have a lot of members mostly establish strong ties inside their family.

Certain sociologists even consider that, as long as poorer individuals continue not to exit this circle that only consists in people with a low social status, the poverty shall have the tendency to perpetuate itself. In order to fix the detrimental situation with which they are faced, they need to establish weak ties with other media, that people with a better financial status are a part of.

Unlike very close friends, the simple acquaintances of an individual are also in contact with other fields and are a part of different circles, which is how the person connected with this acquaintance benefits from various opportunities in his/her career and access to information. These acquaintances practically represent essential links to other "worlds", an aspect which is not provided by very close friends because close friends tend to frequent the same circles and establish the same

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[11]Because individuals have a tendency to affiliate with those similar to them.

relationships and contacts. Thus, a simple acquaintance, a so called weak tie, becomes more important than a strong tie since it offers, from some points of view, new opportunities. In addition, weak ties also determine the propagation of new ideas.

In order to obtain networks that are rich in information benefits, it's necessary to build a large network, with non-redundant contacts and numerous weak ties over the structural gaps. The benefits of this information consist in:

The introduction of more contacts into the network, which leads to access to a larger volume of information.

The irrelevant contacts ensure that this large quantity of information is diverse and independent.

The creation of a tie with the primary actors in a group implies a tie with the main actor in that group. This ensures that they will be amongst the first people informed once the information becomes available.

Weak ties and structural gaps do not only provide information benefits, but also offer the actors a certain control with regard to the negotiation of their relationship with the other actors. In order to better understand this idea, we propose the discussion of the concept of "tertius gaudens" (Wolff, 1964). This concept is defined as "the third one who wins" and represents the person that profits from the gap/split between two other actors or from the absence of communication between them[12]. Thus, structural gaps are the settings in which tertius gaudens works. An entrepreneur dealing with a structural gap or a weak tie shall, at one point, be in control and have the power to negotiate the relationship between two actors, most often through one's requests against the other. The current and relevant information transmitted between two useful actors offers an immense opportunity to control and negotiate the

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[12]Kurt H. Wolff, *The Sociology of Georg Simmel,* New York, Glencoe, Ilinois, The Free Press, 1950 available at https://archive.org/details/sociologyofgeorg030082mbp, accessed at 21.08.2016

relationship between them. This is the power of structural gaps and also an indication of the relevance of the theory on online social networks.

The various benefits of the theory of the power of weak ties and the theory of structural gaps have an essential role in the creation and development of social capital in organizations. The information and control benefits described by this theory can identify and develop the intrinsic value of the network. The theory of social networks, the theory of social capital and the theory of structural gaps are essential instruments for establishing the valuation of networks.

One such example is represented by networking platforms such as "My Space" or "Facebook", where the large number of friends in the network does not matter as much as the diversity of the people in the respective network. If there are only ties with the closest friends and colleagues, it will be difficult to obtain new information, since most of them know the same things. However, the persons with which weak ties are established can offer new information and more benefits than other strong ties can.

An individual and his more distant acquaintances form a network with a low density, with fewer ties compared to the network of close friends. However, the persons with which we have established weak ties are strongly connected to their own friends. Thus, a weak tie with an entity inside a network can represent an extremely strong tie inside another network. Like Mircea Mitruțiu, we can say that "weak ties between distant acquaintances become strong as bridges connecting two or more networks of strong ties that would not communicate otherwise. The tie between different interest groups and the social cohesion is based on weak ties. Individuals without weak ties only depend on the limited information provided by the limited

circle of friends and family with similar views"[13]. This deprives them of opportunities on the job market and different sources of information.

In addition, „from the point of view of socialization and integration into society, weak ties are the ones that support individuals in the process of integration inside a modern society, that is characterized by dynamics and heterogeneity. With regard to individuals' workplaces, the specialization of the workforce resulting from the social division of labour does not allow the complete social construction of the individual in the absence of their exposure to a diversity of points of view and activities"[14]. The society that we are currently living in requires individuals to be as independent as possible and to be able to face a multitude of complex situations in which they must adopt different roles in order to correspond to expectations.

COMPARATIVE SEMANTIC ANALYSIS OF THE MATERIALS NAMED "THE POWER OF WEAK TIES" FROM THE POINT OF VIEW OF AMERICAN AUTHORS NICHOLAS CHRISTAKIS AND N. FAWLER[15] ON ONE SIDE AND FROM THE PERSPECTIVE OF ROMANIAN AUTHOR MARIAN–GABRIEL HÂNCEAN ON THE OTHER SIDE

This research stage consisted in the implementation into the "Tropes" semantic analysis program of databases extracted from the subchapters of specialized publications with the main object of "Social networks".

The main objective was to perform a comparison between two texts with the same theme, i.e. "The power of weak

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[13] Mircea Mitruţiu, „Analiza reţelelor sociale", Timişoara, 2005, available at http://www.asecib.ase.ro/mps/Analiza_retelelor_sociale.pdf, accessed at 21.08.2016
[14] Marian G. Hâncean, *Reţelele sociale. Teorie, metodologie şi aplicaţii,* Iaşi, Editura Polirom, 2014
[15] In Nicholas Christakis; James Fowler, *Connected. Puterea surprinzătoare a reţelelor sociale şi felul în care ne modelează viaţa,* Bucureşti, Editura Curtea Veche, 2015, pp. 162-165

ties", a very important subject within the analysis of social networks. The comparison was made between texts by American authors and a Romanian author. Thus, one can observe the differences in approach between the American authors and the Romanian one, relatively at the same time. The first text, found in Annex 2, is by American authors Nicholas Christakis and James Fowler and was published in the book "Connected. The surprising power of our social networks and how they shape our lives", in 2009 and translated into Romanian in 2015. The second analysed text is extracted from the book „Rețelele sociale. Teorie, metodologie şi aplicaţii" (Social networks. Theory, methodology and applications), Romanian author Marian-Gabriel Hâncean, published in 2014.

The reason why we chose comparative analysis, approaches with regard to the "power of weak ties" from the perspective of foreign authors and from the perspective of a Romanian author is to observe whether there are similarities and differences between them, thus identifying the level of knowledge in the two spaces.

The theme has awakened great interest both in sociologists and analysts from most fields who are preoccupied with aspects associated with the analysis of social networks. Using the criterion of social theory classification metaphors, the theory on the power of weak ties is one of the theories that conceptualize social networks from the perspective of the metaphor of "networks as pipe systems that allow the flow of resources"[16].

The precursor of this theory is Mark Granovetter – intensely quoted by the authors whose texts have been analysed below in this research -, who launched it in 1973. Through this theory, its implications in the field of occupational mobility were highlighted. In addition to the implications that

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[16] Marian G. Hâncean, *Rețelele sociale. Teorie, metodologie şi aplicaţii,* Iaşi, Editura Polirom, 2014.

it has on social life, the theory on the power of weak ties is also applicable in the field of economy, in the context of occupational mobility and aspects associated with employment and recruiting.

The "Tropes" software is an instrument used in semantic analysis, with the help of which one can obtain results with regard to the content of a text, using referential analysis. As a result of the analysis of the text, this instrument can generate a qualitative analysis, the analysis of the discourse and the extraction of key words. The semantic analysis software can identify its own semantic categories based on the interest of the deciding beneficiary. These semantic categories are represented by nouns, adjectives, pronouns, verbs and connectors (opposition, comparison, time).

One of the reference points which must be taken into account in the context of this analysis is represented by the indication by the Tropes software program of the main characteristic parts of the material, as well as its semantic division. Thus, figure no. 1, named „Context identification" identifies that, with regard to the first text, belonging to the two mentioned American authors, the style used is descriptive, with the context being dynamic and action-based, 10 parts characteristic to the text and 7 detected episodes of the analysis. With regard to the text of the Romanian author, 11 parts characteristic to the text and 5 episodes were identified. Unlike in the case of the first text, in the second case, the software could not identify a discourse style.
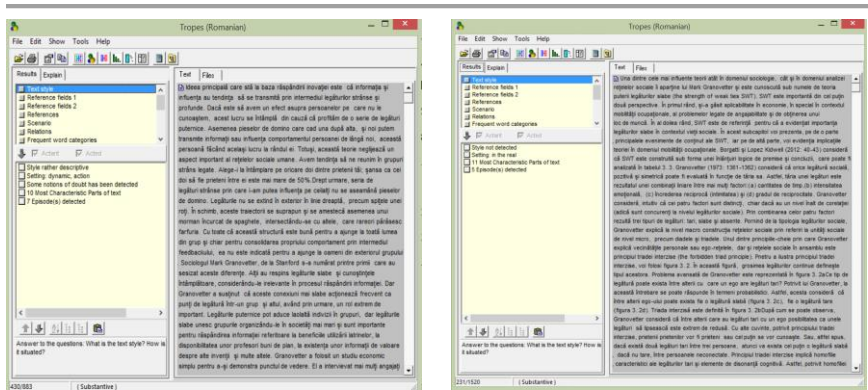
| American approach | Romanian approach |

Figure no. 1: Identifying context [17]

After the implementation of the first text, written by author Nicholas Christakis into the Tropes software program, one can observe the use of the descriptive style throughout the material, which is specific to specialized literature in the field of social networks, through which their characteristic elements are presented. Thus, the idea according to which networks are strong through the ties that they establish inside them is strengthened. In practice, a network cannot exist without ties, since the nodes that it consists in are not connected. In addition, following the natural human tendency, people come together in restricted groups, being attracted to those similar to them. This practically represents homophilia, which refers to the fact that individuals are attracted to those similar to them (a so called "love for similar people").

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[17] Figure obtained using the software "Tropes"
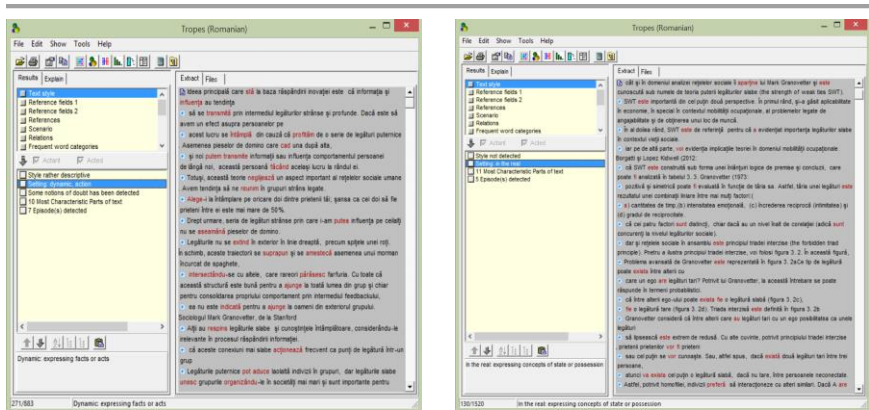
Figure no. 2: Contextual placement[18]

With regard to the contextual placement, one of the representative elements characterizing the first material resides in the use of action phrases, placing the orientation in a dynamic environment. Examples of this could be considered as a result of the use of movement verbs, such as, to come together, to intersect, to organize, to overlap, to do, to reach, to happen, to bring. With regard to the second text, a lot of present tense verbs are used, especially "to be", describing the present situation. The author describes things as they are happening now, even in many cases he quotes another American sociologist, Mark Granovetter. Moreover, one can say that the same sociologist is also quoted in the first material, but much less frequently.

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[18] Figure obtained using the software "Tropes"
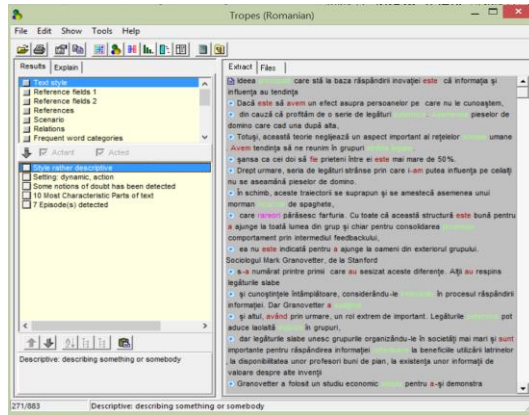
Figure no. 3: Semantic marks from style category[19]

One can observe that, in the first text, notions expressing doubt, such as *probably, possibly* have been observed, which can be explained by the fact that, in the modern period most aspects are considered uncertain. Nowadays, everything is taken into account and one considers a series of scenarios, from the more plausible to the unexpected, as to the possible evolution of a certain problematic.
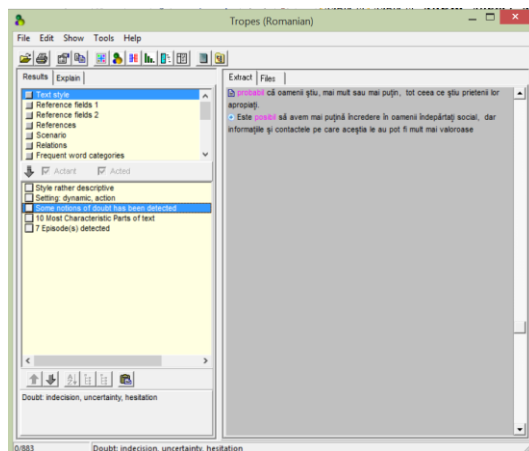

Figure no. 4: Representative notions[20]

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[19] Figure obtained using the software "Tropes"
[20] Figure obtained using the software "Tropes"

With regard to the representative elements of the material, one can observe that the most frequently used phrases were *grouping, information, human being*, and the least frequently used were *effect, means, series, opportunity*, which leads to the idea that people form networks in order to be stronger and establish both weak and strong ties with their members. Even through, apparently, weak ties do not seem important, they are essential for the informational baggage of the network, since they bring new information to the group. The tie is "weak" because the node with which it is realized is not in the close circles of the other members of the network that is analysed. However, it can bring substantial benefits, based on the principle of "rare and sufficient" or "rare, but at the right time".
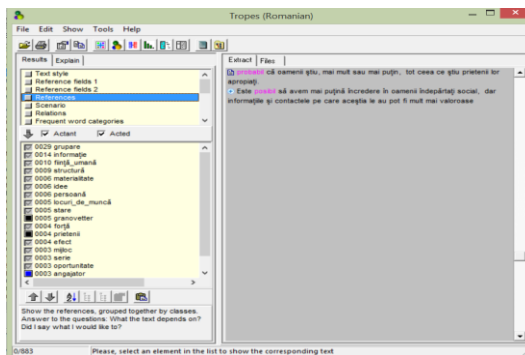

Figure no. 5: Representative elements[21]

In figure no. 5 we can observe the word pairs *human being-group, structure-group,* used in the first text four, respectively 3 times, as well as pairs such as *grouping-uniting* and *means-grouping*, used twice each in the text, which indicates the emphasis on the importance of the group. The need of human beings to organize themselves into groups and form cohesive structures is remarked again. In the second text, the most frequent text groups are formed by the concepts *group-form*

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[21] Figure obtained using the software "Tropes"

(used nine times), *three -forbidden, form-group, form-bridge* (used six times each), with the emphasis being on the idea of form and grouping of individuals into social groups.
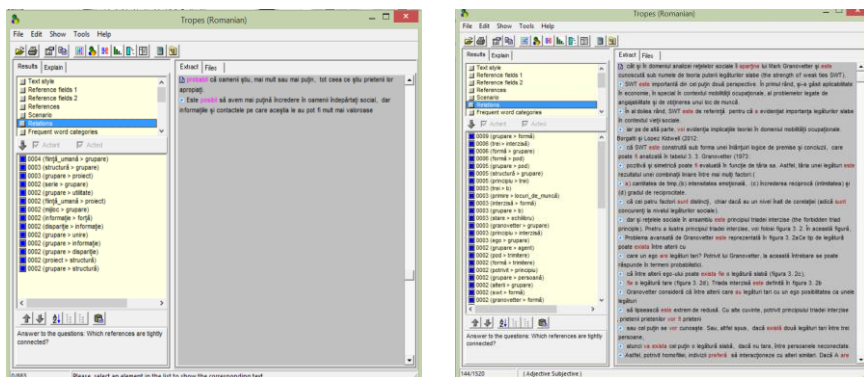

Figure no. 6: Relations between words[22]

In the first text, the main word categories used are factual verbs – *to transmit, to happen, to profit, to fall* (48,8%) and static verbs – *to be, to have* (37,5%), objective adjectives (48,5%), pronouns ("he" – 57,1%, "they" – 25%) and connectors (conditional – 7,8%, causal – 4,2%, disjunction – 15,6%). With regard to the used verb category, one can observe the fact that, in the economy of the analysed text, there is a predominance of the following series: *to have, to be, can, to find,* with a small frequency of the verbs *to know, to act, to transmit.*

Unlike the first text, with regard to the second text, only static verbs were identified (43,8%), and the adjectives were numeral (22,1%). In addition to these categories, the occurrence of connectors (conditional –9,8%, causal – 47,3% and disjunction – 9,8%) and pronouns - 68% ("he"), 12% ("we") and 16% ("they") – was recorded. With regard to the category of the used verbs, one can observe that the economy of the second analysed text shows a predominance of the verb "to be", with the verb "to communicate" being the least used.

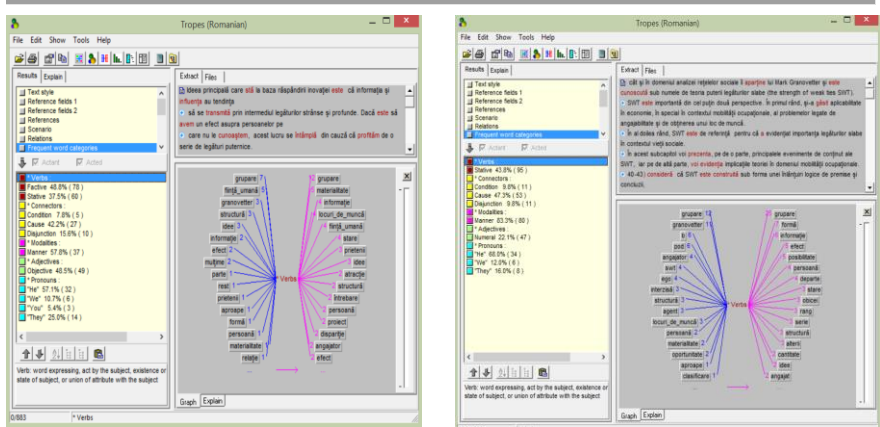[22] Figure obtained using the software "Tropes"
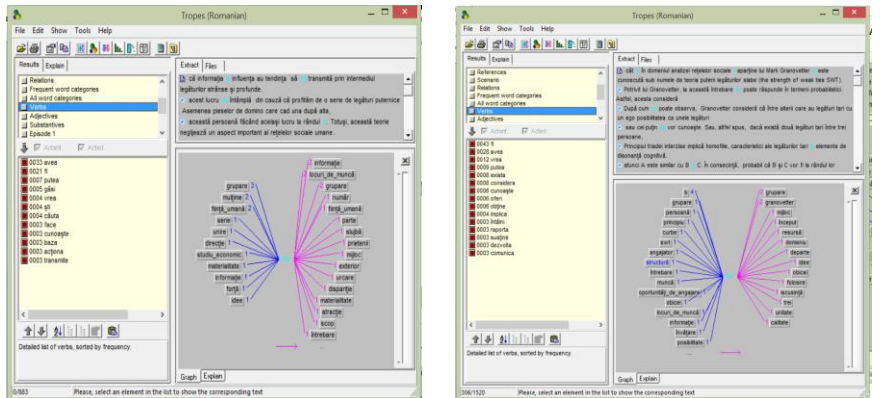
Figure no. 7: Words categories[23]

Figure no. 8: Used verbs[24]

With regard to the adjectives used in order to describe the power of weak ties inside networks, the key words in the first material are: *main, profound, strong, weak, social, much, new, important, powerful, frequent.* With regard to the second material, the most frequently used adjective is also ”weak”, except it was used three times more often, followed by the adjective "social", just like in the first text. The least used adjective in the second material is the term "salary", which is

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[23] Figure obtained using the software "Tropes"
[24] Figure obtained using the software "Tropes"

completely missing in the first text, as a result of the fact that the Romanian author also approached the economic aspect and the labour market in his presentation.
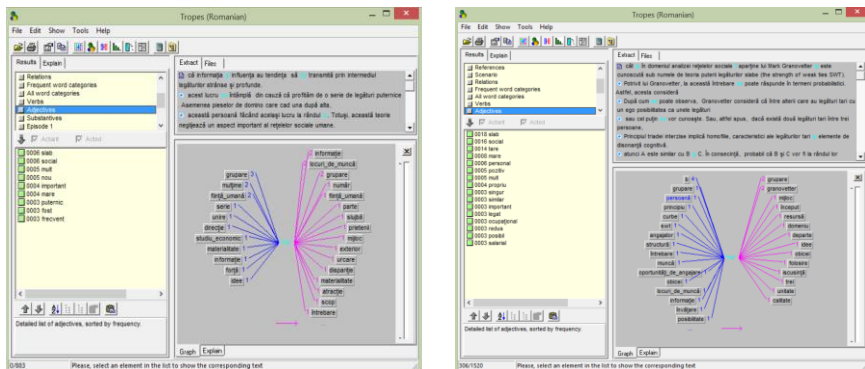

Figure no. 9: Adjectives[25]

With regard to the nouns used in the first analysed text, belonging to the American author, the most frequently used were: *information, tie, person, group, friend, network* and the least frequently used were *means, point of view and spreading.*

In the second text, the most used nouns are: *tie, network, type, jobs* and *triad,* and the least mentioned are *context, reality, probability, factor* and *resource.*
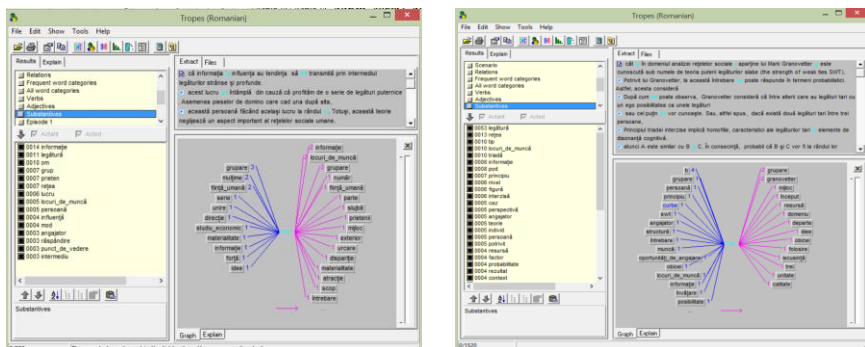

Figure no. 10: Nouns[26]

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[25] Figure obtained using the software "Tropes"
[26] Figure obtained using the software "Tropes"

CONCLUSIONS

The importance of the weak ties inside social networks can be observed especially from the point of view of communication at the level of the entire society. Weak ties ensure the knowledge contributions between individuals belonging to different social circles and interest groups and facilitate a logical and complete communication. The lack of weak ties would also determine various types of subgroups (social, religious, etc.) to enter into conflicts, taking into account that interculturalism is very important for a harmonious coexistence of individuals in society.

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