Social Networks xxx (2015) xxx–xxx

Contents lists available at ScienceDirect

Social Networks

journal homepage: www.elsevier.com/locate/socnet

Embeddedness as a multilevel problem: A case study in economic sociology

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ARTICLE INFO

Keywords:
Multilevel
Embeddedness
Economic network
Social network
ERGM

ABSTRACT

Economic sociology has established the interdependencies between economic and social structures using the notion of embeddedness of the former in the latter. However research usually studies inter-organizational commercial networks and inter-individual informal networks separately. In this article we use a multilevel framework to analyze jointly economic networks between firms and informal networks between their members in order to reframe this embeddedness hypothesis. Based on a network study of a trade fair for television programmes in Eastern Europe we show that while each level has its own specific processes they are partly nested. Beyond this result, we observe that these levels of agency emerge in different contexts and in different temporalities. To conclude, we show that in order to understand performance on a market one needs to look at this dual positioning of individuals and organizations.

Globalized markets require long distance partnerships between companies, "global pipelines" as Bathelt and Schuldt (2008) call them. But what kind of relationships represent these partnerships? Behind each partnership between companies there are always inter-individual ties (Gulati, 1995). If a partnership between two organizations necessitates inter-individual collaboration at the beginning of a contracting process between companies, the more a partnership is repeated between two companies, the more it breaks away from the inter-individual relationship to become an interorganizational tie that does not need specific acquaintances between its members (Lorenz, 1999). In order to understand how international ties are created between companies one should study the coordination and the complex interdependencies between these two kinds of actors and these two levels of actions: individuals and organizations.

Granovetter's (1985) article on embeddedness is famous for asserting at a high level of generality that economic phenomena take place in social structures and are shaped by social networks. Individuals do not act as atoms in social life, their behaviour is not entirely defined by macro-structures, and their actions depend on a relational context. In the area of economic sociology, research has exposed the importance of social networks in markets, indicating the relevance of relational structures for the emergence of economic activities (for state of the art syntheses, see for example Granovetter and Swedberg, 1992; Brass et al., 2004). Many have also questioned the value of such a general notion of embeddedness of economic activities in social structures (for example Burt, 1992; Swedberg, 1997; Lazega, 1996, 2001) in order to go beyond a mechanistic interaction between these kinds of relationships. Depending on the level of analysis, two approaches can be distinguished. One focuses on interorganizational networks, showing, for example, that companies are embedded in a web of commercial relationships but also of alliances and business partnerships that affect their performance, success or chances of survival (Powell, 1996; Powell et al., 2005; Uzzi, 1996, 1997). Another approach studies informal relationships such as friendship, advice, information exchange or collaboration between entrepreneurs at the inter-individual level (Krackhardt, 1994; Ingram and Roberts, 2000; Lazega and Mounier, 2002). Such approaches intend to reveal informal social structures to underline the role of social resources and social capital in economic activities. In most handbooks in economic sociology or social network analysis (for example, Smelser and Swedberg, 2010; Knoke, 2013; Scott and Carrington, 2011), inter-organizational and inter-individual networks are treated separately as if they were focusing on different topics. This separation is due to the fact that much of existing research in that area focuses only on one level of analysis at a time.

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http://dx.doi.org/10.1016/j.socnet.2015.03.005
0378-8733/

Both approaches start with the same question: how do markets and economic activities work in practice? But by separating the two levels of analysis, particularly in a context of globalization of markets in which ties are long distance relationships, they miss the global process of emergence of economic activities and tie formation at each level (deal making for example). From our perspective economic activities and markets are influenced by both levels. A deal between two companies, which is an inter-organizational tie, depends on inter-individual relationships and vice versa. Economic relationships such as deals between two organizations and informal relationships between their members are interdependent. To explore this dual dimension, a multilevel social networks framework has been developed by Lazega et al. (2007, 2008). This approach is based on the study of multi-level networks observing two superposed and partially nested, interdependent levels of agency, an inter-organizational system of action and an inter-individual one.

Supposing that these levels are nested does not imply that they evolve symmetrically and in sync. As emphasized by Lazega (2012, 2013, 2014), the coevolution of two levels is complex, dynamic, and can be partly disconnected if not asynchronous–raising the issue of the costs of synchronization (Lazega and Penalva-Icher, 2011). This is a problem of agency, both individual and collective. Different levels may not evolve and change simultaneously. Structural organization of each level and attributes or context explaining tie formation at each level can be different. We argue that this is why a multilevel approach is an interesting point of view in order to reframe the issue of embeddedness. The challenge is to understand how social systems at both levels co-evolve and how actors at both levels coordinate to generate the socio-economic structure of the market. What specific multilevel social processes construct and explain the structure of an economic milieu?

Building upon this framework we study network formation at each level of a specific market. We show that inter-individual and inter-organizational networks are partly interdependent but also that different processes emerge at each level. Our empirical case is a trade fair for television programmes in Eastern Europe. In this trade-fair sellers and buyers of TV programmes (distributors and TV channels) meet once a year to discuss contracts, make deals, keep informed about new films, series and game shows, and observe market evolution. We study informal exchange of information between trade-fair attendees and formal deal ties between their companies by examining network formation at each level. We find that these networks are heavily interdependent but that each level has its own specific processes. We emphasize that the contexts of tie formation between two organizations and two individuals are different in terms of temporality. We conclude by showing that, in spite of different temporalities, both levels coevolve nevertheless.

1. Reframing embeddedness as a multilevel issue

1.1. From embeddedness to multilevel hypotheses

Asserting that economic action is embedded in relational structure leads to an explanation of this embeddedness works. According to what can be labelled a "contractualist" approach (Powell, 1996, Powell et al., 2005; Uzzi, 1996, 1997) it is possible to reconstruct a deal network between a set of organizations to reveal the economic social structure of an industry or a market. Ethnographies of social interactions between market participants emphasize, for example, the need for trust to sign a contract (Uzzi, 1997). Such an approach only focuses on one kind of relationship. But, embeddedness assumes the existence of at least two kinds of relationships: economic and social. Following the work of Granovetter (1973, 1985) some researchers have developed multiplex models which include both kinds of relationships (for example Mizruchi and Stearns, 2001). From this perspective, only one kind of actor is examined, either individuals or organizations, in our terminology one level of action. From our perspective, it can be helpful to consider two categories of actors: individuals (with social relationships) and organizations (with economic relationships).

In our proposed reframed embeddedness approach, the organizational level is more than an organizational contextualization of inter-individual action, as in traditional multilevel statistical approaches (Bryk and Raudenbush, 1992; Goldstein, 1995; Snijders and Bosker, 1999) or in social network multilevel analysis of Snijders and Baerveldt, 2003 or de Miguel Luken and Tranmer (2010). It is constituted by actors who act and create a context for their own actions and individual interactions. This conceptual position can help in exploring the emergence and functioning of a market. Indeed, an organization should not be conceived as a unified and homogenous social object, but as a social system built collectively by a heterogeneous set of individuals (Crozier and Friedberg, 1977; Friedberg, 1997). A deal between two companies can be looked at as a set of relationships between individuals. Let us imagine two organizations of significant size in a market, represented respectively by a sales manager and an acquisition manager. These two individuals have the opportunity to meet and agree on the object of a transaction, the main aspects of the contract, and possibly the price. The contract will then be submitted to higher level management of their respective companies for approval. The legal department will define the details of the contract; the technical department will manage the dispatching of the object; the finance department will bill and track the payment; and so on. It will obviously be the same for the buyer's side. In short, once an agreement is reached between a buyer and a seller, organizational machinery is set in motion, and we are no longer able to assign this relationship to the sales and acquisitions managers. The personal relationship between the buyer and the seller does not disappear. These individuals will keep in touch. They initiated the contract and it is often likely that, if it were to be renewed, it would be at the initiative of one of them. However this relationship moves on to a different level and becomes inter-organizational because it involves other actors and their hierarchical organizations. In the meantime, this inter-organizational relationship could become a context for other members of both organizations to create interpersonal relationships – as described by concepts such as extended relational capital and embedded brokerage (Lazega et al., 2013). Therefore, it is necessary to keep and examine this duality between inter-individual and inter-organizational relationships in order to understand these transactions, to look at both levels in the same socio-economic space, without conflating them.

An organizational network cannot be reduced to the basic concatenation of the inter-individual network of its employees, especially when looking at international corporations. Indeed, in such organizations, decision-making processes and information circulation are very long and involve different persons. In addition, it is often difficult to identify who represents the organization for a specific task. One of the contributions of intra-organizational network analysis is precisely to try to reveal the informal structure behind the formal organizational chart (Krackhardt, 1994) and to specify the social processes characterizing this organization as a social *milieu* (Lazega, 2001). Such processes streamline individual action and show that the inter-organizational *milieu* represents a specific level of collective action (Lazega, 2009; Lazega and Penalva-Icher, 2011).

By taking into account together or separately different levels of analysis and different kinds of relationships, we can define different levels of complexity of what could be called the "embeddedness hypothesis" that represents each level with its elementary structural unit. Fig. 1 summarizes these different hypotheses. In this

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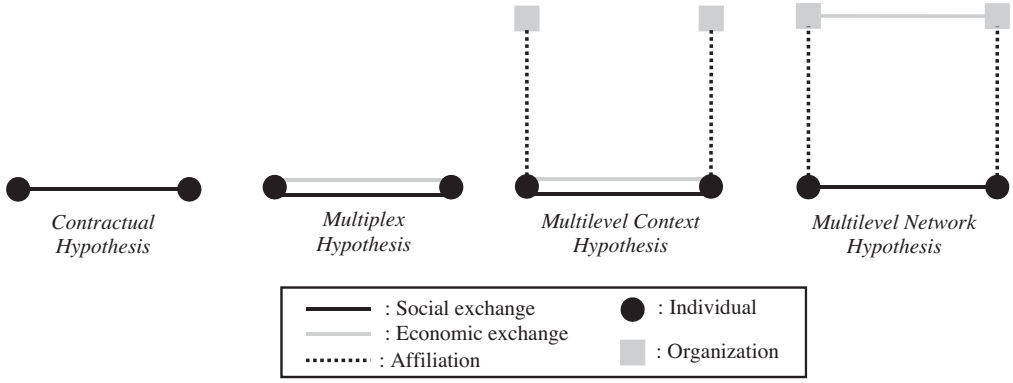

Fig. 1. Increasing complexity of the reframed embeddedness hypothesis.

contribution, we will explore the higher levels of complexity of this "multilevel network hypothesis" as previously defined. As a consequence, we consider a market as a social *meta-system* constituted by two levels of agency. It is created by the superimposition of at least two networks of different levels which are partially nested. That implies two different hypotheses (Brailly and Lazega, 2012). First, as in traditional social network analysis, a *horizontal structural dependency hypothesis* within both levels: actors at each level act in a social context and can meet. Second, a *vertical structural dependency hypothesis* between the levels: the individual network partly depends on the network of his/her company (in addition to homophily effects and social structure at the inter-individual level) and vice versa. These levels of actions are partially nested. Therefore, for each level, specific structural processes emerge and explain the network morphology. But in the meantime, levels are interdependent and influence each other. We can translate these ideas into the following general and descriptive hypotheses to be tested empirically:

Hypothesis 1. Network morphologies are different at each level (Structural Morphology).

Hypothesis 2. The structures of different levels influence each other (Multilevel Embeddedness).

Before we specify hypotheses for higher order effects, we think that it is useful to answer the question of how we could integrate the vertical complexity of the embeddedness process and how we could articulate these two partly nested levels of agency.

1.2. A methodology to test these hypotheses

In order to test these first hypotheses, we use complete networks as defined by Wasserman and Faust (1994). The *horizontal complexity* of a social space requires considering that the social context is not only an exogenous factor influencing actors' behaviour, but an outcome emerging through social processes produced by these actors (Pattison and Robins, 2004). This is the philosophy of the statistical models for social networks that endogenize the effect of relational mechanisms (e.g., cyclic closure) to explain a variable in the same network (e.g., a link between two actors) in order to reveal social processes theorized by the researcher (e.g., solidarity as in Malinowski's *kula*[1]). Rather than decompose the network in a set of dyads, Exponential Random Graph Models (ERGM) contextualize these links in their neighbourhood, for example centrality, dyadic or triadic effects (Wasserman and Pattison, 1996; Robins et al., 2005; Snijders et al., 2006; Robins et al., 2007; Lusher et al., 2013). In addition these models allow for including what the literature calls "exogenous effects", i.e., attributes of ties or actors' attributes. This kind of model helps in showing how specific local relational mechanisms *build up*, generate the global social network and capture this horizontal complexity.[2] Some researchers treat this complexity as a multilevel problem, considering dyads as a first level, triads as a second one, etc. (see for example Van Duijn et al., 1999, or Snijders and Kenny, 1999). This approach could be considered to be a "Multilevel Analysis of Network" perspective (MAN).

For the *vertical complexity*, we need to take into account a feedback between these two levels, for which Breiger's "dual" approach (1974) is usually considered to be the starting point. Using two-mode networks, it is possible to construct two one-mode networks by derivation from the affiliations links: groups are linked together if they share at least one individual and individuals are linked if they belong together in at least one group.

Whereas the dual approach focuses on link between levels, Lazega et al. (2007, 2008) proposed a method that articulates both kinds of complexity. They illustrated this method with the study of multilevel social and organizational networks in the field of cancer research in France. This approach analyzes simultaneously two levels of agency synthesized in partly nested complete networks. The first level is constituted by the *élite* (at the time) of French cancer researchers linked by different relevant relationships. The second level is that of their organizational research units, i.e., laboratories, also linked by relationships that are specific to their level of collective agency. In order to link these levels and to study strategies and performances at both levels they use the *linked design* method developed (not in the context of social network analysis) by Parcel et al. (1991). They articulate these networks with affiliation links. This method helps in preserving the vertical complexity of social systems. In a recent study, Bellotti (2012) uses this framework to analyze the interaction between scientists and institutions and reveals successful strategies to obtain research funding. She shows that collaborations between scientists depend on their position in this multilevel structure. As a consequence, this work aims to contribute to this Multilevel Network Analysis (MNA) research program (Lazega and Mounier, 2002), rather than the Multilevel Analysis of Networks (MAN).

[1] An intertribal symbolic exchange system of shells and garlands in New Guinea that can be represented by a cyclic triad: A gives a shell to B, who gives a shell to C who gives a shell to A.

[2] Based on Holland and Leinhardt's (1981) work, Frank and Strauss (1986) showed that the structural dependencies in a network allow to explain a graph "only" with the study of the nodes' neighbourhood. The idea is to suppose that the network is generated by a specific stochastic process and then to consider this process as a self-organized space: "*The model then represents a distribution of random graphs which are assumed to be "built up" from the localized patterns represented by the configurations*" (Robins et al., 2007, p. 3).

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This framework can be useful to analyze markets and economic activities. Following Lazega (2013), it is possible to explore the impact of multilevel relationships on actors' performance. These multilevel relationships are an opportunity to expand an individual's personal network with the relations of his/her company (it is easier for an individual to contact another who works in a different company if their companies have a relationship). In markets, individuals can take advantage of the reputation of their organization. Conversely, an organization can take advantage of the popularity of its employees, which could explain hiring and firing strategies. This "multilevel" reputation effect can maintain, exacerbate or reduce status inequalities between actors at both levels. It makes it also possible to reveal forms of hidden costs introduced by other levels. As emphasized by Archer (2000) or Lazega (2013, 2014), the coevolution of two levels is complex, dynamic, and partly disconnected.

2. The multilevel embeddedness hypotheses in a trade fair

To formulate further hypotheses and illustrate this approach, we use the case of a trade fair for distribution of television programmes in Eastern Europe. Fairs could be considered to be small market arenas in which sellers and buyers can meet through face to face contact. These events are temporary organizations where knowledge about the market emerges and circulates among attendees and enables a collective learning process between firms (Bathelt and Schuldt, 2008). These events also play a crucial role in the construction of markets by fostering the emergence of a social environment and the production of specific norms and values (Aspers and Darr, 2011).

2.1. From "Same time next year"...

Many authors in geographic economics and management studied these events (Bathelt et al., 2004; Bathelt and Schuldt, 2008, 2010; Schuldt and Bathelt, 2011) that help companies in the globalized economy in identifying new partners, suppliers or clients from different parts of the world. The main argument is that these international ties – or *global pipelines* – do not require a permanent co-localisation, but only a temporary and recurrent co-localisation that concerns only a few steps in the deal-making process. According to these authors, these *global pipelines* are created during international trade fairs that bring together in the same place, for a few days, the *microcosm* of an industry. They emphasize that this is the only way for them to have a global, quick and precise vision of the whole market, and to compare themselves to their competitors. From the attendees' point of view, attending these events is relatively costly, but it is a good way to meet several new and key people (Seringhaus and Rosson, 1998). Moreover, the more companies attend these events, the more their upstream preparation costs (prospection, communication, logistics...) will decrease (Power and Jansson, 2008). If the main goals of the companies during these trade fairs are to sell and buy or to create new partnerships, these events are also symbolic places where reputation is constructed (Seringhaus and Rosson, 1998, 2001). Indeed, if a firm attends a trade fair regularly, it could be considered as a signal that the firm is thriving. The goal can also be simply "*to be there*" and to be seen (Power and Jansson, 2008).

This literature considers that the main advantage of these events is that information circulates and is built through this circulation within the global network, which generates knowledge pools. It produces a *global buzz*[3] that provides learning opportunities during and after the event, and thus supports the maintenance of long-distance business relationship (Maskell et al., 2006; Power and Jansson, 2008). In parallel, these authors give a structural content to the global buzz concept: "*During a fair, information is constantly transmitted from one agent to another. This process is repeatedly interpreted, evaluated and enriched with additional relevant information and knowledge. The decisive point is that while acquiring new knowledge, participants act simultaneously as both recipients and broadcasters of global buzz. The potential advantages and benefits of applying this knowledge become clearer as the trade fair evolves and interpretations are drawn from the variety of meetings.*" (Bathelt and Schuldt, 2010, p. 1962)

Above all, many authors agree to say that trade fairs are spaces for individual and organizational network construction. During this event, attendees increase the size of their personal network with new prospects, refresh, develop or simply maintain existing contacts: "*Relationships need to be built over time and nurtured through repeated contact at different events and that they met the same people again and again at the fairs.*" (Power and Jansson, 2008, p. 432). This dyadic experience implies personalization of the relationships between buyers and sellers – especially because the actors already know one part of mutual expectations – and allows for establishing trust ties between organizations (Power and Jansson, 2008). The fact that this event exists is proof that a deal-making process that requires long distance coordination also requires occasional, but regular, face-to-face meetings. As a result a high frequency of co-participation of two actors in the same event increases their chances of creating social and economic relationships.

Because inter-organizational partnerships need trust, information and mutual knowledge, the recurrence of co-participation reduces risks and facilitates inter-organizational links: Maskell et al (2006) coin this recurrent event *Same time next year*. This leads to the next multilevel hypothesis:

Hypothesis 3. The more actors co-participate in an event over a long time period, the higher the probability of having a relationship (*Same time next year* co-participation).

2.2. ...To "Next time this year"

However, one could consider that the previous approaches decontextualize the event and separate it from all the other trade fairs bringing together the members of the same industry. Indeed, as underlined by Power and Jansson (2008) many trade fairs are organized in the same industry during one single year and often organizations and individuals attend several such events. This repetition of events gives influence to the work of individual actors. They have to prepare the logistics, communications and prospection, to travel and invest several days to attend the fair, to follow-up with contacts after the event, and then prepare for the next trade fair (Power and Jansson, 2008). The different events are not isolated from each other; actors take into account this diversity of events and prepare their work by anticipating each of these international meetings. Moreover actors meet with each other and create relationships in each event. But many of these meetings can overlap. As a result, all the trade fairs of an industry are connected through the work of the actors but also through their social and economic relationships. Trade fairs are part of an annual global circuit and "*are less temporary clusters than they are cyclical clusters; they are complexes of overlapping spaces that are scheduled and arranged in such a way that spaces can be reproduced, reenacted, and renewed*

[3] Symmetrically with the *local buzz* of permanent clusters (Storper and Venables, 2004), temporary clusters generate *global buzz* if the event combines the following conditions: explicit coparticipation to maximize face to face interactions; possibilities for observations; existence of practice and epistemic communities from different parts of the world; dense and multiplex socio-economic relationships (Bathelt and Schuldt, 2011).

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over time." (Power and Jansson, 2008, p. 423). Social and economic relationships and reputation during the cycle of the temporary clusters connect these events. Therefore, to the *Same time next year* hypothesis, we must add a *Next time this year hypothesis*:

Hypothesis 4. The more actors co-participate in different events during a short period of time, the higher the probability of having a relationship (*Next time this year* co-participation).

One could detect a tension between Hypotheses 3 and 4. Power and Jansson consider that the more consumer tastes are unstable in an industry the more knowledge is contingent and specific to an event (because the fashion cycle is shorter). Therefore, because trust among actors and the construction of reputation are long term processes and acquisition of relevant information a short term process, there may be a tension between them. The current literature does not separate explicitly the impact of co-participation at each level. This is why we aim to answer the following questions: what temporality should be more important in order to explain a deal between two companies or a relationship between two individuals? *Same time next year* or *Next time this year*? Above all, with respect to our multilevel embeddedness hypotheses, is it the same for both levels?

3. A trade fair for TV programmes in Eastern and Central Europe

3.1. A multilevel network data collection during a trade fair...

The trade fair that we study focuses on the distribution of TV programmes. Sellers are sales managers of TV programmes distributors and producers who come from diverse parts of the world (especially from Western Europe, Asia, Northern and Southern America). They attend the event to sell copyrights for broadcasting of TV programmes to acquisition or programming managers from regional and local TV channels (Central and Eastern European). Concretely, the event is organized once a year in a prestigious hotel in Budapest (Hungary). Sellers sit in booths with television sets to present their catalogues of films, series and shows. The buyers' goal is to select programmes which will fit their audience and perhaps bring new viewers. They walk around the place to visit sellers and choose in which programmes to invest. Some companies are represented by several sellers or buyers who are specialized in a particular type of programmes (for example animation, series or documentaries) and/or specialized in a specific geographic area (for example Balkan countries, central Europe, central Asia). Such companies are international media groups or the most important TV channels in specific countries. Generally only one employee interacts with each commercial partner.

The work of these sales and acquisitions representatives is clearly relational. Relationships between buyers and sellers are very personalized; they know and meet with each other regularly (or at least they try to). Once a contract is signed, the relationship is often reactivated in order to renegotiate the rights, or prepare for a new transaction. These partnerships are often repeated until a distributor becomes an official supplier of a channel. Their job also consists of aware of international and local trends in audiovisual markets: which are the successful programmes? What are the last deals? What is broadcast in which country? etc.

For sellers (but also for buyers), obtaining informal information is strategic because it is a good way to target potential clients, their needs, their resources, their reliability and their purchasing and bargaining power. For buyers, trade fairs are an opportunity to obtain information about market trends, new programmes and new technologies. Generally, informal information is a good way to identify new commercial opportunities. As a consequence, to explore the construction of partnerships and deals between organizations, it is necessary to take into consideration relationships between individuals and especially informal information exchanges.

The data that we present here was collected during the 2011 trade fair. Officially, 911 individuals were present – 451 buyers and 337 sellers – affiliated to 510 companies. Because it was impossible for us to collect the responses of 911 individuals with questionnaires during the three days of the trade fairs, we chose to focus on the animation segment of this market (buyers and sellers of animated programmes). Animation is one of the three different categories of audio-visual products (the others are fiction and documentaries) and can be defined as a sequence of pictures giving the illusion of movement (although with current technologies the boundaries between this genre and others are fuzzy).

This choice follows both nominalist and realist strategies developed by Laumann et al. (1989). A realist strategy is based on the actor's perceptions of the boundaries of their milieu. Concerning the audiovisual field, people are aware of these boundaries. As emphasized by Havens (2003, 2007), buzz and information concerning a specific segment in this field are not relevant for another (for example business information in the adult programme segment of the market is not relevant in the children contents segment). The animation segment is a distinct action system. Indeed, buying the famous format[4] *Who wants to be a millionaire?* is different from buying products such as *The Lion King* or a Miyazaki film. For example, an interviewee declared that "in animation, you must have a child's soul". As a result, the definition of the boundaries based on this animation segment is relevant for a realist strategy.

The nominalist strategy is based on a researcher's theoretical choices. At first we want to study a stable segment in terms of volume of exchanges. As long as there are children, there will be a demand for animation contents. In addition, this segment is characterized by a strong heterogeneity of business models. Companies could be commercial or public television stations, independent buyers, small producers, distributors, and also huge companies such as Disney.

Boundary specification of the population for the sociometric questions are based here on an ethnographic study including 51 semi-directive interviews with buyers, sellers and market organizers, and participation in six trade fairs in this field. To select individuals and organizations interested in this segment, before the trade fair in 2011, we visited all the website of attendees. We selected all the sites that had at least one animation programme in their catalogue (if they are distributors) or in their programme schedule (if they are television channels). In addition, we asked seven regular attendees of the studied event and in the animation segment in Central and Eastern Europe if we missed important actors in this list. With these criteria we selected a list of 261 individuals affiliated to 184 organizations and obtained responses from 128 individuals (49%) affiliated to 109 companies (60%).[5] As we can see in Tables 1 and 2, Central European buyers and English-speaking media groups are underrepresented. Two reasons explain that: firstly they had many meetings during the fair, so they were busy; secondly some of them have specific clauses in their employment contract prohibiting answering this kind of questionnaire.

We designed a multilevel study of this event. In our perspective, the first level of analysis is composed of individual buyers and sellers and the second level is the level of their companies. We asked

[4] TV programme that is written on paper but has not yet been actually produced.
[5] A team of eight persons (4 sociologists and 4 hostesses) collected for each individual their information exchange network and the contract network of their organization through face-to-face interviews (20 min on average) during the trade fair. In order to improve the response rate after the event, we also tried to reach attendees by fax, phone, mail, email and internet.

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Table 1
Response rate by geographical origin of organizations.

	Present population	Selected organizations	Respondent organizations	Response rate (%)
North America	57	21	11	52
Asia	27	12	9	75
Balkans	58	17	9	53
Central Europe	138	38	18	47
Oriental Europe	71	18	10	56
Western Europe	166	67	47	70
Middle-East	24	11	6	55
Total	553	184	109	60

Table 2
Response rate by organizations' business models.

	Present population	Selected organizations	Respondent organizations	Response rate (%)
Buyers				
Commercial TV station	56	19	9	48
Public TV station	14	9	5	56
TV station on platform	31	9	4	44
Independents buyers	162	42	21	50
Sellers				
Local producers	10	4	3	75
International producers	72	58	35	60
Distributors	45	18	15	83
Media groups	55	25	16	64
Visitors and presse	108	0	0	–
Total	553	184	109	60

the following sociometric questions and asked the respondent to check, in the list of the studied population, with whom they had each kind of relationship:

Question 1: Trade fairs such as MIPTV[6] or [studied event] are good ways to get access to informal information concerning competitors, suppliers, clients, successful programmes or trends in the market. Among the persons in the following list, from whom did you obtain this kind of advice or information during or before [studied event]? *(Could you please check their names in the* "ADVICE" *column)*[7]
Question 2: Among the people in the following list, with whom did you make a deal since the last [studied event], twelve months ago? *(Could you please check their names in the* "DEAL" *column?)*

Question 1 corresponds to the informal inter-individual network. The average degree for the studied population is 5.55; the median is 5 for indegree and 4 for outdegree. This network contains 85 mutual links (24% reciprocity rate). Among the 261 persons selected, the response rate of the 10% most quoted individuals is 60% and 55% for the 25% most quoted individuals. Compared to the global response rate (49%), we can say that the "élite" of the inter-individual network is somewhat better represented in our dataset.

Question 2 corresponds to the inter-organizational network, which represents the economic structure of the milieu. Because they are sales and acquisitions representatives, individuals know the deals closed by their company. Although the answers are provided by individuals, this network of contracts can be considered an inter-organizational network. Indeed, approximately 45% of individuals quoted organization names and not individuals' names. During interviews, they justify this with several reasons: several individuals and divisions (accounting, legal, sales) could be involved during the deal-making process; the deal could be signed with other colleagues, previously in charge of this area, during negotiations initiated years ago. As a consequence, we shrank this network by organizations. It contains 347 deals (average degree = 6.34 and median = 5). Among the 184 organizations selected, the response rate of the 10% most quoted is 95% and 83% for the 25% most quoted companies. Compared to the general response rate (60%), we can say that the "élite" of the inter-organizational network is better represented (Figs. 2 and 3).

As Lazega et al. (2008) did, we articulate these levels with affiliation links between individuals and organizations. The following figure represents the "meta-system" of the three networks: information exchange between individuals, deals between companies, and affiliations. We can easily observe two dimensions of structural dependencies: horizontally, within each level, and vertically between the two levels. We distinguish actors at both levels between buyers (in red) and sellers (in blue) (Figs. 4–6).

3.2. . . .included in a global series of similar events

This trade fair is one of many taking place in the world. The TV programmes distribution sector is characterized by the importance of fairs, festivals and conferences that bring stakeholders of the profession together in the same place during a few days (Havens, 2003, 2007; Bielby and Harrington, 2008). Especially for sellers, the TV programmes market is globalized and these events are organized frequently all around the world.

In order to study the impact of temporary co-localization at both levels, we must take into consideration the plurality of these events. At first, festivals and trade fairs can be distinguished. Festivals constitute cooperation and quality evaluation settings, whereas trade fairs are more competitive and commercial places. This distinction is theoretical and for example the *Cannes Festival* organizes the Film Market (*Le Marché du Film*), and the most important trade fair, the *Marché International des Programmes de Télévision*

[6] MIPTV is the most important TV programme trade fair in the world, we will present it more precisely during next section.
[7] For persons who wanted more information to understand the question, we added: "*Examples of advice: "I think you should have this kind of programs in your catalogue". "I think you should broadcast this kind of program for your primetime, it is very successful in my country". "Is this buyer reliable?" "How should I negotiate with him?" "What do you think about the programs of this company?"*

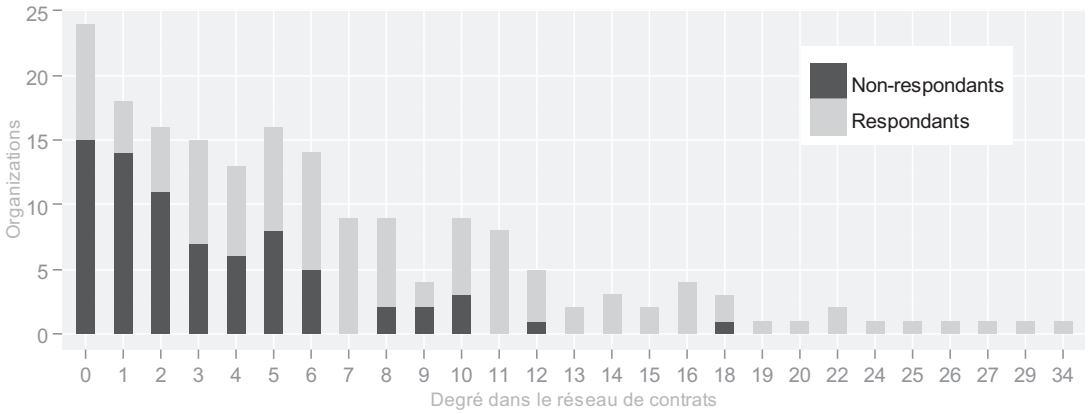

Fig. 2. Degree distribution for the interorganizational deal network ($n = 184$).

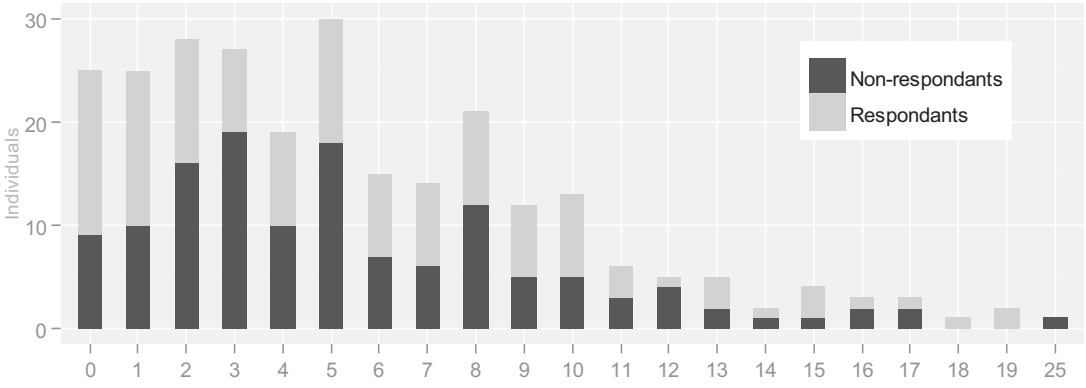

Fig. 3. Indegree distribution for the interindividual information exchange network ($n = 261$).

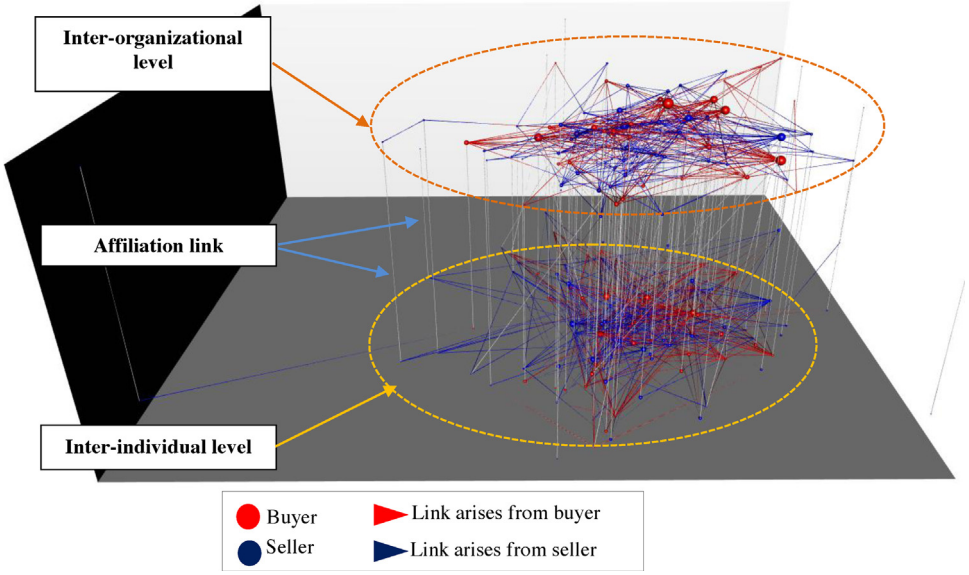

Fig. 4. Visualization of the multilevel social network of the trade fair.

(International Market of TV Programmes – MIPTV) reserved a market space for coproduction. Two other dimensions must be introduced: kind of products that are exchanged (films, animation, documentaries) and the geographical origin of one side of the market (e.g., buyers from Asia or sellers from France).

Because our study focuses on Central and Eastern Europe and the animation segment, we are more exhaustive for all these events globally. We selected 19 other events for which – when it was possible – we collected the list of attendees at each level. This dataset could therefore be considered a three-mode network (see Table 3).

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Table 3
Number of attendees to "our" event in 2011 and to at least one of the 20 other events.

Area	Name	Kind	Localization	Nbr of org.	Nbr of indiv.
	[studied event]	Trade fair	Budapest (Hungary)	543	926
Central and Oriental Europe	Teleshow Moscow Spring	Trade fair	Moscow (Russia)	28	27
	Teleshow Moscow Autumn	Trade fair	Moscow (Russia)	26	25
	World Content Market	Trade fair	Prague (Czech Rep.)	120	144
Europe	European Film Market	*Festival*	Berlin (Germany)	109	60
	NATPE	Trade fair	Miami (USA)	142	78
America	LA Screenings	Trade fair	Los Angeles (USA)	73	19
	American Film Market	*Festival*	Los Angeles (USA)	57	*nd*
	Ventana Sur	*Festival*	Buenos Aires (Argentina)	20	*nd*
	BCWW	Trade fair	Seoul (South Korea)	7	1
Asia	Asian Television Forum	Trade fair	Singapore (Singapore)	33	*nd*
	Asian Film Market	*Festival*	Busan (South Korea)	13	*nd*
Middle East	Discop Istanbul	Trade fair	Istanbul (Turkey)	90	89
Africa	Discop Africa (in march)	Trade fair	Dakar (Senegal)/Accra (Ghana)	36	27
	Discop Africa	Trade fair	Nairobi (Kenya)	36	22
Animation	Cartoon Forum	*Festival*	Sopot (Poland)	2	4
	MIFA	*Festival*	Annecy (France)	1	2
General	KidsScreen Summit	Trade fair	New York (USA)	53	*nd*
	MIPTV	Trade fair	Cannes (France)	352	456
	MIPCOM	Trade fair	Cannes (France)	330	*nd*

Reading: Among the organizations attending the *TeleShow Moscow Spring*, 28 had also attended "our" event.

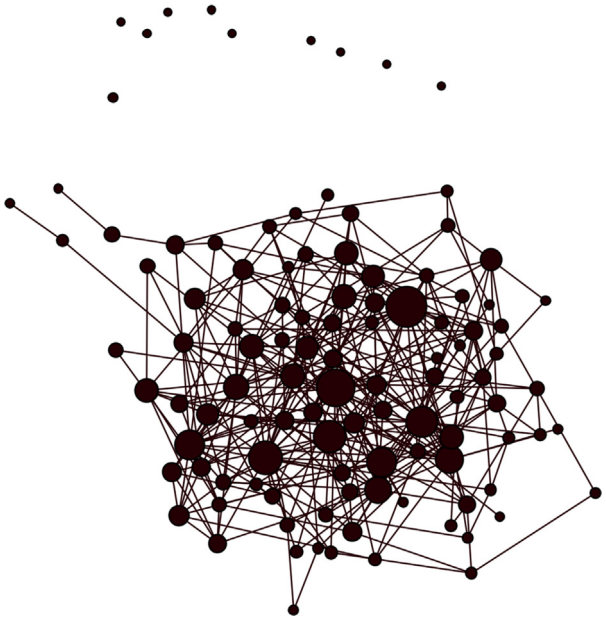

Fig. 5. Interorganizational deal network ($n = 109$).

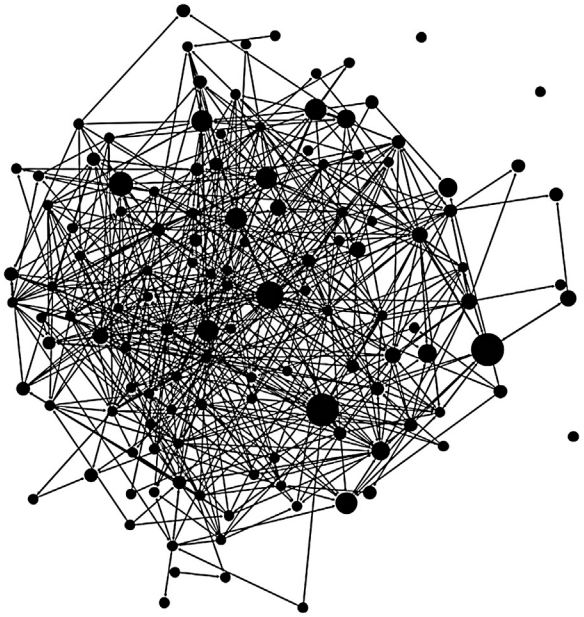

Fig. 6. Interindividual information exchange network ($n = 128$).

Based on these data, we created three different co-participation networks at both levels. First, we selected the MIPTV and MIPCOM participation data, which are the world most important generalist and non-specialized trade fairs in the TV programmes distribution market. They gather on average 12,000 participants. We treat the co-participation to these events separately (MIP variable). Second, we added up the participation data of 17 other events that took place at the most one year before "our" trade fair at each level to test the *Next time same year* hypothesis. Third, we added up co-participation data for the five previous events of "our" trade fair at each level to test the *Same time next year* hypothesis. In the next two sections we test our hypotheses at both levels separately with an ERGM estimation.[8] The question is how co-participation can shed light on multilevel embeddedness. What social multilevel process is implied?

4. Different temporalities between levels

4.1. Interorganizational level: same time next year in an oligopoly with fringes

We consider here the inter-organizational deals network composed of 109 companies (symmetric network). As previously mentioned, we suppose that specific social mechanisms occur at each level (Hypothesis 1). Concerning the interorganizational level, we follow Benhamou (2004) and her definition of the audiovisual field as an oligopoly with fringes. This means that a limited number of very large companies dominate the market: they are very popular in network terminology and this explains the highly skewed degree distribution in this network. At the world scale, this "hyper core" is composed by "the Majors". In parallel, this kind of oligopoly is characterized by a high density within the core: popular actors exchange intensively together.

[8] ERGM models presented here are estimated with PNet (Wang et al., 2006).

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In order to investigate this, we ran the core/periphery algorithm of Borgatti and Everett (2000), available in UCINET (Borgatti et al., 2002) and obtained a core composed of 34 organizations. The mean centrality of the organizations in this core is 12.2 against 3.7 for the periphery. Moreover, the density within this core is 23.2% and 2.2% within the periphery. Organizations of this core are quite heterogeneous in terms of business models or geographical origins. English speaking media groups and commercial TV stations are more represented in the fair. Some small companies like independent buyers or distribution specialists are also in this core. We can thus reformulate hypothesis H1 for the interorganizational level:

H1 – Structural Morphology: The interorganizational network represents an oligopoly market.

In order to test our hypotheses, we included in the estimation the following data as dyadic covariates. At the interorganizational level, multilevel embeddedness (H2) can be captured by the effect of the shrunk advice network by organization (equal to 1 if the affiliate individuals exchange advice during or before the event, regardless of the orientation of the link). The *Same time next year* co-participation hypothesis (H3) can be approached by the number of co-participations between companies in the five previous events (max = 5). In a similar way, *Next time this year* co-participation (H4) by the number of co-participations between companies at the 17 other events as dyadic covariates (max = 5). We test these hypotheses by controlling the effect of the economic category of the actors (in the deal network, the majority of relationships are naturally between buyers and sellers), of geography (because of the existence of quotas of national production, deals between companies from the same geographical areas are more frequent), and of coparticipation in the two generalist events (MIP).

Table 4 represents dyadic and Markov high-order models for this symmetric network. The first column reports the results of the baseline model, including only exogenous control effects. Because it is a contract network, most of the links are between the two sides of the market: buyers and sellers. Organizations coming from the same geographic area closed more deals together, but this effect disappears when we introduce the structural dependencies (model M3).

The second column reports the results of the dyadic model with baseline effects and the embeddedness and co-participation covariates (Hypotheses 2–4). This model shows that regular co-participation in the same event over the long term has a positive and significant effect on deal making (*Same time next year*). Co-participation in the biggest world trade fairs has a significant impact in this dyadic model. Above all, co-participation in twenty other events during the year before "our" event does not have a significant impact. We can conclude that it is the historical and long term frequency of contacts that explains deals between companies, and not any short term frequency regardless of the context: *Same time next year* rather *Next time this year*. The last dyadic covariate shows that the multilevel embeddedness hypothesis is the strongest exogenous effect in this model. An information exchange link between individuals facilitates deal making between their respective companies.

The last column reports the results of the general ERGM with structural high order effects and the effects corresponding to the previous hypotheses. We notice that except for geographic homophily, which disappears, all of the previous observations are validated. Concerning the endogenous effects, the *alternating k-star* parameter shows a skewed degree distribution. Some organizations are very active in this deal network. The fact that the triadic effect has a positive parameter shows a concentration of ties in some specific parts of the graph (Pattison and Robins, 2004; Snijders et al., 2006). But here, triadic closure is rarer because this is a deal network which implies few ties among sellers or among buyers. However the concentration of the tetradic configurations indicates the existence of some dense parts of the graph. Here, *alternating k-two-path* is significant and above all sufficient (with the star parameter) to fit the other network statistic, especially the triadic configuration (see goodness of fit for this model in Appendix 2). In addition, the weighting coefficient for this effect shows a highly skewed two-path distribution, and then a concentration of the links in a few sub regions of the graph, which creates a core/periphery structure. We can say that some companies are very active and have many deals with each other; in other words, the same popular sellers close many deals with the same popular buyers. This is an oligopolistic structure.

To sum up, the inter-organizational network corresponds to an oligopolistic market that is embedded in the inter-individual relations and in which the deal is explained by the previous co-localisations in the same context.

4.2. Inter-individual level: next time this year in a coopetition milieu

We consider here the inter-individual information exchange network composed of 128 individuals (oriented network). As mentioned above, we suppose that each level has a specific structural organization (Hypothesis 1). Following Ingram and Roberts (2000), we can observe collaboration within the sellers' side. Because we study a business to business market, we think the buyers' side is more structured than in a business to consumer market. Buyers can also exchange information. Even if two actors are competitors, they can collaborate. This is why we think that the whole system is characterized by *coopetition* (Brandenburger and Nalebuff, 2011). This neologism between competition and cooperation underlines that actors who could be considered to be competitors actually collaborate (Ingram and Roberts, 2000; Lazega, 2001; Éloire, 2010). We can illustrate this phenomenon in our data with the fact that among sellers the density of information exchange is 2.6%, and 2.3% among buyers. We can thus reformulate hypothesis H1 for the interindividual level:

H1 – Structural Morphology: The inter-individual network represents a coopetitive social milieu.

If the structure is different, the impact of the exogenous effects can be also different. In order to test hypotheses H1, H2, H3 and H4, we include the following data as dyadic covariates in the estimation of the models. At the inter-individual level, multilevel embeddedness (H2) can be captured by the expanded deals network by individuals (equal to 1 if the affiliate organizations make a deal during or before the event) or by official meeting between the two affiliate organizations during the trade fair[9] (equal to 1 if they had at least one meeting scheduled). *Same time next year* co-participation hypothesis (H3) can be tested by the number of co-participations between each individual at the five previous events (max = 5). In a similar way, *Next time this year* co-participation (H4) by the number of co-participation between individuals at 12 other events as dyadic covariates (max = 4). We test these hypotheses by controlling the effect of the economic category of the actors (seller or buyer) and the geographic homophily effect (as previously defined) (Table 5).

Table 5 corresponds to dyadic and Markov high-order ERG models for this network. The first column reports the results of the

[9] The meeting network was extracted from the trade fair organizer's meeting platform. Most of the time, agenda is common to employees of the same company so that if one of them does not come to the event, his/her agenda is transmitted to his/her colleagues.

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Table 4
ERG model estimates of structural and actor-relation effects of inter-organizational deal network.

	Model 1	Model 2	Model 3
Structural dependencies			
Density	−3.0979 (0.159)*	−4.445 (0.206)*	−7.542 (0.553)*
Alternating k-star (*lambda = 2*)	–	–	0.7309 (0.152)*
Alternating k-two-paths (*lambda = 4*)	–	–	0.0597 (0.009)*
Baseline effects			
Economic category (*Interaction*)	−1.6566 (0.25)*	−1.1507 (0.268)*	−1.189 (0.269)*
Economic category (*Activity*)	0.6481 (0.169)*	0.3557 (0.19)	0.583 (0.184)*
Geographical origin (*Matching*)	0.6734 (0.166)*	0.3092 (0.19)	0.3494 (0.181)
Co-participation effects			
MIP (*Interaction*)	–	0.286 (0.074)*	0.1496 (0.059)*
17 other events in 2011 (Dyad Covar.)	–	0.1759 (0.101)	0.0867 (0.101)
5 previous events (Dyad Covar.)	–	0.2418 (0.037)*	0.1203 (0.031)*
Multilevel embeddedness effect			
Advice link between affiliate individuals (*Dyad Covar*)	–	2.0851 (0.116)*	1.9103 (0.116)*

Note: Effects with a star are significant with a *t*-ratio less than 0.05 (approached Wald test (Koskinen and Daraganova, 2013)). For structural effects visualization, see Appendix 1. Goodness of fit table for model 3 is in Appendix 2.

baseline model. At first, the geographic homophily effect is positive: individuals who come from the same region exchange information with each other. Second, the individual economic category on the trade fair is certainly the strongest effect. As in the interorganizational level, the social structure of this market cuts across the boundary between sellers and buyers. Information exchange is greater between individuals of different categories than within categories (note that odds-ratios for this effect show that interaction between sellers is higher than between buyers).

The second column reports the results of the dyadic model with baseline effects and the embeddedness and co-participation covariates (Hypotheses 2–4). Here, every covariate regarding co-participation is positive and significant. The last two dyadic covariates underline an inter-organizational contextualization of the inter-individual link. We could say here that the deal between the organizations of two individuals constitutes a specific context for the inter-individual interaction. The covariate concerning the interorganizational meeting during the event has a positive influence (and significant) on the inter-individual link. Therefore, a part of the social relationships are nested in economic relationships, and more generally in inter-organizational relationships. These effects are very strong and positive. Social relationships are indeed embedded in economic relationships.

The last column reports the results of the general ERGM with structural high order effects. The parameter concerning the co-participation to five previous events is now close to zero. In parallel we tried to introduce only the number of participations to the last five events and the results are the same: neither are significant and always close to zero. So when we add structural parameters, it is not the historical and long term frequency that best explains the relationship between two individuals, but short term frequency regardless of the context: *Next time this year* rather than *Same time next year*.

In an ERGM the structural parameters represent the self-organized part of the network. Regardless of the attributes parameter, the social milieu generates some specific forces which explain the existence of a link between actors. Star parameters show that some actors are very popular (*Alternating k in-star* positive) and some actors are very active on the network (*Alternating k out-star* positive). It could also show a tendency towards hierarchy

Table 5
ERG model estimates of structural and actor-relation effects on the presence of inter-individual information exchange network ties.

	Model 4	Model 5	Model 6
Structural dependencies			
Density	−4.1710 (0.1273)*	−4.616 (0.150)*	−8.518 (0.320)*
Reciprocity	2.08397 (0.1535)*	1.5613 (0.159)*	1.8240 (0.177)*
Alternating k-in-star (2)	–	–	0.9704 (0.110)*
Alternating k-out-star (2)	–	–	1.1653 (0.106)*
Alternating transitive k-triangles (2)	–	–	0.6255 (0.150)*
Alternating down and up k-triangles (2)	–	–	−0.439 (0.175)*
Alternating transitive k-two-paths (2)	–	–	−0.077 (0.010)*
Alternating down and up k-two-paths (2)	–	–	0.1200 (0.027)*
Baseline effects			
Economic category (*Interaction*)	−2.0004 (0.1720)	−1.755 (0.199)*	−2.031 (0.223)*
Economic category (*Sender*)	0.97274 (0.1434)	0.8539 (0.164)*	1.2501 (0.163)*
Economic category (Receiver)	1.29163 (0.1435)*	1.1641 (0.161)*	1.2467 (0.163)*
Geographical origin (*Matching*)	0.77885 (0.1050)*	0.7818 (0.107)*	0.7149 (0.103)*
Co-participation			
5 previous events (*Dyad Covar.*)	–	0.1043 (0.026)*	0.0343 (0.019)
12 other events in 2011 (*Dyad Covar.*)	–	0.6971 (0.108)*	0.5573 (0.091)*
MIP presence (*Interaction*)	–	0.3842 (0.088)*	0.2081 (0.070)*
Multilevel and contextual embeddedness			
Interorganizational official meeting during the event	–	1.0232 (0.098)*	0.8429 (0.094)*
Deal between affiliate organizations	–	1.0928 (0.088)*	0.9308 (0.088)*

Note: Effects with a star are significant with a *t*-ratio less than 0.05 (approached Wald test (Koskinen and Daraganova, 2013)). For structural effects visualization see Appendix 3. Goodness of fit table for model 6 is in Appendix 4.

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in the network. Beyond these degree effects, we could say that three specific social mechanisms explain the structure: exchange, collaboration and competition.

First, the tendency to *reciprocity* between actors is the strongest effect. The social exchange is more mutual than in a "random" distribution and this tendency builds up the network. We can think that both actors in a relationship are interested in obtaining some information. For example for a buyer/seller relationship, the seller can obtain information about the local market trends and, on the other side, the buyer can seek information about successful programmes and what is broadcast in other countries.

Second, the articulation of the *alternating transitive k-triangle* (positive) and the *alternating transitive k-two-paths* (negative) could be interpreted as a collaboration mechanism. Generally individuals have a shorter access to informants. We do not have a broker effect: when individual A gives some information to B and B to C, generally, C also has access to A. Social pressure closes the transitive two-paths. We could say that this milieu is characterized by a social *collaboration* mechanism between potential competitors.

Third, in the whole network there are more structurally equivalent actors than expected: *alternating two-paths down and up* parameter is positive and significant. But, when two individuals give or obtain information to or from the same actors (they are structurally equivalent) they have a lower chance of exchanging information with each other: *alternating down and up triangle* parameter is negative. Thus this network is characterized by many structurally equivalent individuals who do not exchange with each other. We may conclude that the third socio-economic mechanism in this milieu is *competition*.

The articulation of the last four parameters (and thus the two last socio-economic processes) shows a multi-core global structure connected to each other in majority by some in- or out-2-stars. This milieu seems to cover economic and social processes and to be characterized by a coopetition phenomenon.

To sum up, the inter-individual network represents a *coopetition* milieu, evolving in other contexts during the short term, and embedded in economic relations.

5. Discussion and conclusion

Different levels do not evolve simultaneously following the same path. How can we interpret this?

Firstly, these differences indicate that multilevel temporalities should be considered in terms of embeddedness: how do actors at each level manage these different temporalities? These one show the complexity of economic performance in such multilevel settings. In the market for TV programmes, our ethnographic study suggests that tacit knowledge and private information are crucial for individuals to identify commercial opportunities. The best way is to attend many events during a short time period. But in parallel, their organizations have to be reliable by participating over a long time period in successive events at the same place. If deals are initiated by specific employees in an inter-organizational context, an organizational network is more than the basic sum or concatenation of employee relationships. During interviews, several experienced individuals explained to us that they are free to prepare the trade fair, but that they have a lot to do afterwards: updating several databases, following meetings, writing reports, etc. This helps to understand (and complexify) our results. We can observe different temporalities in the system: inter-individual relationships change faster and inter-organizational relations change more slowly. Organizational relationships have a different time frame than interpersonal links. This is why some organizations developed specific mechanisms to cope with this a-synchrony. Our results capture in part experience effects but in a dyadic way (when we add these effects as actor effects the results are the same). Whereas the morphologies at each level are different (because they are about different actors and relationships), this underlines that the efficiency of the meta-unity individual/organization is a complex articulation between these two sets of actors, forever on the razor's edge.

Secondly, a traditional ERGM at each level shows some differences between the two levels. To further investigate this meta-system, it could be interesting to use the formalization of Wang et al. (2013) concerning Multilevel ERGMs. Unlike previous work, our dataset is composed of oriented (level one) and non-oriented (level two) networks. Furthermore, the embeddedness hypothesis supposes to study two kinds of actors, the two sides of the market: buyers and sellers. In this sense, as in a multilevel network, we can distinguish three sub-networks: between sellers, between buyers, and between buyers and sellers (Iacobucci and Wasserman, 1990). This multi-sided specification is fundamental because relationships between and within buyers and sellers are different, as relationships between and within individuals and organizations. A basic specification of the coparticipation effects by this proposition shows that the embeddedness hypothesis on a market is more complex (see Table 6). These different temporalities are above all the result of the fact that the relation at each level is constructed in a specific context. At the inter-individual level, a triadic closure is often permitted by an intra-milieu relationship. This relationship is constructed most of the time in the *Next time this year*, short term framework. Yet this relation between competitors allows for obtaining some strategic information for example about prices (Ingram and Roberts, 2000) or suppliers (White, 2002; Éloire, 2010).

These results show that embeddedness is not only a dyadic process or a tetradic multilevel configuration but a six-order substructure including individuals and organizations, and also buyers and sellers. To sum up, embeddedness can be redefined as a multilevel problem in a multi-sided system.

Table 6
ERGM model for the inter-individual network with coparticipation effects specified by economic category.

	Model 7
Structural dependencies	
Density	−8.401 (0.360)*
Reciprocity	1.8173 (0.192)*
Alternating in-star (2)	0.9665 (0.112)*
Alternating out-star (2)	1.1568 (0.112)*
Alternating transitive k-triangles (2)	0.6317 (0.152)*
Alternating down and up k-triangles (2)	−0.432 (0.170)*
Alternating transitive k-two-paths (2)	−0.075 (0.009)*
Alternating down and up k-two-paths (2)	0.1214 (0.027)*
Baseline effects	
Economic category (*Interaction*)	−1.642 (0.308)*
Economic category (*Sender*)	1.0553 (0.253)*
Economic category (Receiver)	1.0687 (0.242)*
Geographical origin (*Matching*)	0.7027 (0.115)*
Multilevel and contextual embeddedness	
Interorganizational official meeting during the event	0.8338 (0.099)*
Contract link between affiliate organizations	0.9208 (0.084)*
Co-participation	
MIP presence (*Interaction*)	0.2040 (0.074)*
5 previous events SELLER (*Dyad Covar.*)	−0.166 (0.050)*
5 previous events BUYER (*Dyad Covar.*)	−0.061 (0.083)
5 previous events SB (*Dyad Covar.*)	0.1740 (0.041)*
5 previous events BS (*Dyad Covar.*)	0.0554 (0.024)*
12 other events in 2011 – SELLER (*Dyad Covar.*)	0.4881 (0.188)*
12 other events in 2011 – BUYER (*Dyad Covar.*)	0.7970 (0.331)*
12 other events in 2011 – SB (*Dyad Covar.*)	−0.273 (0.257)
12 other events in 2011 – BS (*Dyad Covar.*)	1.1178 (0.275)*

Note: Effects with a star are significant with a *tt*-ratio less than 0.05 (approached Wald test (Koskinen and Daraganova, 2013)). For structural effects visualization, see Appendix 3.

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Creating international ties in the context of a globalized market requires a complex multilevel process that involves companies and their employees. In the case of television programme distribution in Eastern Europe, the networks reveal different structures and involve different mechanisms of tie formation. On the first hand network morphologies are clearly different. Our analyses show that structural and co-participation effects are different between the two levels. We observe a *Same time next year* process for deal-making between organizations, a *Next time this year* process for information exchanges between individuals, and a multilevel structural dependency. Some data characteristics can explain this result: the content of the link, temporality, and the characteristics of the actors (buyers or sellers). While we can easily observe triadic mechanisms of cooperation and information exchanges between individuals, triadic mechanisms are less likely to occur in a competitive deal network between companies.

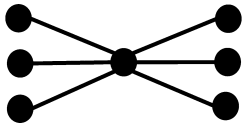
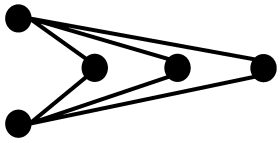
But on the other hand the structures of different levels strongly influence each other and are interdependent. The long term deal network between companies influences cooperation ties between individuals, which in return can bring new business opportunities and constraints to their companies.

Thus reframing the embeddedness paradigm with a multilevel network analysis (MNA) perspective seems to be a fruitful approach to understand globalization of markets. Trade fairs such as the event under study seem to be arenas for creating long distance relationships paving the way for long term inter-organizational partnerships. If we take into account that individual actors can move from a company to another or that a company could be represented by several employees, we have to study these two levels separately to understand the complex dynamic process of creation of international ties between companies.

Acknowledgements

The research presented in this article was carried out as part of the Multilevel Social Networks program funded by the French National Research Agency (ANR) and directed by Emmanuel Lazega. Support from Sciences Po (DYREM Project), the University of Paris-Dauphine, the Leverhulme Fund (especially Mark Tranmer, Mark Elliot, and Elaine Mackey) is gratefully acknowledged. We also thank Alexandre Coulondre, Johan Koskinen, Dean Lusher, Mohamed Oubenal, Philippa Pattison, Garry Robins, Tom Snijders, Peng Wang, the members of the Observatoire des Réseaux Intra et Inter-organisationnels (ORIO), the Guest Editors of this special issue and three anonymous referees.

Appendix 1. Configuration visualization for the interorganizational network

PNet name	Configuration visualization
Arc	
Alternating k-star	
Alternating two-path	

Appendix 2. Goodness of fit for the interorganizational level

Pnet name	Observed	Mean	Standard deviation	*t*-ratio
Edge	347	348.91	348.91	−0.06
2-star	3307	3195.09	566.36	0.20
3-star	13,590	12,677.50	3892.20	0.23
4-star	48,435	48,923.55	29,084.34	−0.02
5-star	146,009	190,931.50	208,698.59	−0.22
Triangles	118	118.08	30.11	0.00
4-clique	8	5.98	4.54	0.44
5-clique	0	0.06	0.27	−0.20
6-clique	0	0.00	0.01	−0.01
7-clique	0	0.00	0.00	NA
Isolates	10	9.11	3.34	0.27
Triangle2	291	249.56	118.68	0.35
Bow_tie	1151	1317.59	803.30	−0.21
3Path	30,582	28,220.36	7156.81	0.33
4Cycle	1202	794.43	255.31	1.60
AS(2.00)	1021.602	1028.65	126.43	−0.06
AS(2.00)	1021.602	1028.65	126.43	−0.06
AT(2.00)	252.262	259.55	53.80	−0.14
AT(2.00)	252.262	259.55	53.80	−0.14
A2P(4.00)	2808.958	2841.31	463.98	−0.07
AC(2.00)	8	5.96	4.49	0.46
AET(2.00)	688	690.82	179.33	−0.02
Std Dev degree dist	5.172	4.87	0.39	0.77
Skew degree dist	1.243	1.22	0.49	0.05
Global clustering	0.107	0.11	0.01	−0.21
Mean local clustering	0.108	0.10	0.02	0.21
Variance local clustering	0.02	0.02	0.01	0.17

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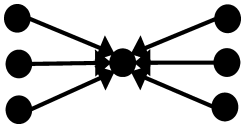
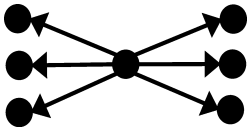
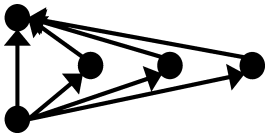
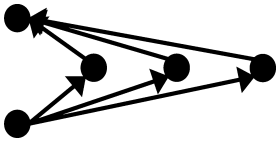
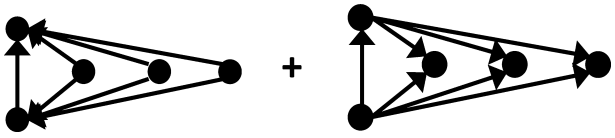
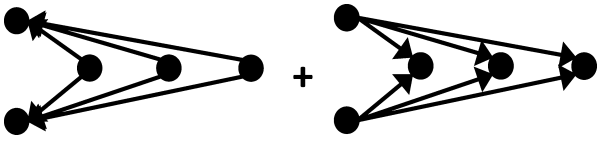
Appendix 3. Configuration visualization for the interindividual network

PNet name	Configuration visualization
Edge	
Reciprocity	
Alternating k-in-star	
Alternating k-out-star	
Alternating transitive k-triangles	
Alternating transitive k-two-paths	
Alternating down and up k-triangles	
Alternating down and up k-two-paths	

Appendix 4. Goodness of fit for the interindividual level

Effects	Observed	Mean	stddev	*t*-ratio
arc	679	681.780	90.860	−0.031
Reciprocity	85	88.165	19.331	−0.164
2-in-star	2833	2720.385	610.122	0.185
2-out-star	3203	3032.686	617.668	0.276
3-in-star	9237	8264.106	2701.527	0.360
3-out-star	11,891	10,460.240	3040.845	0.471
path2	4432	4447.036	1103.167	−0.014
T1	5	7.059	3.840	−0.536
T2	75	83.744	34.304	−0.255
T3	149	167.379	59.437	−0.309
T4	96	100.369	33.389	−0.131
T5	110	107.999	34.860	0.057
T6	257	280.648	98.453	−0.240
T7	1482	1509.991	454.081	−0.062
T8	1590	1646.774	466.711	−0.122
T9(030T)	542	528.648	143.526	0.093
T10(030C)	97	113.534	38.417	−0.430
Sink	20	19.801	4.572	0.044
Source	13	12.537	3.578	0.129
Isolates	3	5.099	2.864	−0.733

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Appendix 4 (*Continued*)

Effects	Observed	Mean	stddev	*t*-ratio
AinS(2.00)	979.791	983.745	161.131	−0.025
AoutS(2.00)	1006.704	1010.584	158.847	−0.024
AinS(2.00)	979.791	983.745	161.131	−0.025
AoutS(2.00)	1006.704	1010.584	158.847	−0.024
Ain1out-star(2.00)	1101.734	1135.660	198.639	−0.171
1inAout-star(2.00)	1052.997	1065.572	198.789	−0.063
AinAout-star(2.00)	275.920	284.172	34.007	−0.243
AT-T(2.00)	413.875	419.816	102.628	−0.058
AT-C(2.00)	230.750	267.303	83.119	−0.440
AT-D(2.00)	390.516	393.906	97.127	−0.035
AT-U(2.00)	374.938	384.482	95.537	−0.100
AT-TD(2.00)	402.195	406.861	99.733	−0.047
AT-TU(2.00)	394.406	402.149	98.902	−0.078
AT-DU(2.00)	382.727	389.194	95.973	−0.067
AT-TDU(2.00)	393.109	399.401	98.129	−0.064
A2P-T(2.00)	3612.469	3692.572	840.105	−0.095
A2P-D(2.00)	2491.367	2466.781	456.851	0.054
A2P-U(2.00)	2137.373	2169.012	455.624	−0.069
A2P-TD(2.00)	3051.918	3079.677	637.751	−0.044
A2P-TU(2.00)	2874.921	2930.792	640.868	−0.087
A2P-DU(2.00)	2314.370	2317.897	439.112	−0.008
A2P-TDU(2.00)	2747.070	2776.122	569.498	−0.051
Std Dev in-degree dist	4.605	4.291	0.373	0.842
Skew in-degree dist	0.774	0.591	0.224	0.818
Std Dev out-degree dist	5.227	4.854	0.392	0.952
Skew out-degree dist	0.862	0.728	0.277	0.484
CorrCoef in-out-degree dists	0.280	0.291	0.095	−0.114
Global Clustering Cto	0.085	0.086	0.010	−0.158
Global Clustering Cti	0.096	0.097	0.011	−0.079
Global Clustering Ctm	0.122	0.119	0.011	0.344
Global Clustering Ccm	0.066	0.075	0.011	−0.834
Global Clustering AKC-T	0.115	0.114	0.009	0.118
Global Clustering AKC-D	0.078	0.079	0.008	−0.090
Global Clustering AKC-U	0.088	0.088	0.009	−0.055
Global Clustering AKC-C	0.064	0.071	0.010	−0.764

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Please cite this article in press as: Julien, B., et al., Embeddedness as a multilevel problem: A case study in economic sociology. Soc. Netw. (2015), http://dx.doi.org/10.1016/j.socnet.2015.03.005

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