AVOIDING TRIADIC REDUCTIONISM: SERIAL TETRADS - A USEFUL CONCEPT FOR STUDYING CONNECTED RELATIONSHIPS?

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ABSTRACT
This paper focuses on the concept of 'connection' in the Industrial Network Approach. The concept of 'triad' has been proposed in order to overcome 'dyadic reductionism'. However, use of 'triads' seems to impose some limitations on further theory development. The concept of 'serial tetrads' is proposed in order to avoid 'triadic reductionism'.

PROLOGUE
In 1923, the religion philosopher Martin Buber wrote the book *"I and Thou"* on the dialogue between man and God based on Judaism. In this book he discusses living with Nature, living with people, and living with the spiritual realities. In this book he discusses two pairs of words. The first is 'I-Thou' and the second is 'I-It'. Buber (1923, p. 5-7) explains the two pairs of word, and relates them to each other, in the following way:

"The first cardinal word is the word pair I-Thou. The second cardinal word is the word pair I-It. Because, in the cardinal word I-Thou, the I is different from the I in the cardinal word I-It."

"No I exists per se, only the I belonging to the cardinal word I-Thou and the I leading to the cardinal word I-It. When man says I, he implies one of the two. When he says Thou or It, the I from the one or the other cardinal word is present, too."

"The one saying Thou has no Something as an object. Because where there is one Something, there is another Something, any It borders with other Its, It is only there because it borders to others. But when one says Thou, there is no Something. Thou have no borders. The one saying Thou, has no something, it has nothing. But he is in the relation."

INTRODUCTION AND PURPOSE OF THE PAPER

During the last twenty years, a lot of empirical studies have been carried out focusing on what industrial markets generally look like. See for example Dubois (1998); Ford (1990); Gadde and Mattsson (1987); Håkansson (1982, 1989); and Turnbull and Valla (1986). Such studies have shown that industrial markets are characterised by the existence of long-term customer and supplier relationships, and that these relationships in turn are both complex and vary with regard to content and processual aspects. With that as a starting point several concepts and frameworks have been developed which have contributed significantly to our understanding of how business relationships can be characterised and analysed. For a detailed description of some of these concepts, see for example Dubois (1998); Dwyer, Dahlstrom and DiNovo (1995); Dwyer, Schurr and Oh (1987); Ford et al. (1998); Frazier, Spekman and O'Neal (1988); Gadde and Håkansson (1993); Håkansson and Snehota (1995); Powell (1990); and Wilson and Möller (1995).

Recently, there has been a change from studying dyadic buyer-supplier relationships to examining such dyadic business relationship in the context of other relationships the participating firms may have. These studies have shown that firms (and relationships) do not exist in isolation, but rather that they are connected to a network context through direct and indirect relationships (Anderson, Håkansson and Johanson 1994; Axelsson and Easton 1992; Blankenburg 1992; Havila 1996; Laage-Hellman 1989; Pedersen 1996 and 1998). This implies that in addition to characterising individual relationships, the studies have shown that single relationships also are affected by and affect developments in other relationships. Thus, a single business relationship exists both in itself and, at the same time, is embedded in a context, through its connections to other relationships. This is also stressed by Granovetter (1992, p. 33): "*'Embeddedness' refers to the fact that economic action and outcomes, like all social action and outcomes, are affected by actors' dyadic (pairwise) relations* ***and*** *by the structure of the overall network of relations. ... The structural aspect is especially crucial to keep in mind because it is easy to slip into 'dyadic atomization', a type of reductionism."* Grabher (1993, p. 4) seconds this proposition stating that: *"The structural aspect is especially crucial to keep in mind because it is tempting to slip into the sort of 'dyadic reductionism' that is prevalent in Williamson's transaction-cost approach: the treatment of dyadic activity as if this were structured by the norms and interests entailed in the roles of buyer and seller."*

Hence, within Economic Sociology, Granovetter (1992) and Grabher (1993) have pointed out the problem of 'dyadic reductionism', i.e. treating a dyad as if it existed separate from its context. Within the Industrial Network Approach, 'dyadic reductionism' is avoided by conceptualising relationships as being connected. This has e.g. lead to the introduction of the concept of a 'triad' which is proposed to be the smallest unit of analysis in which it is possible to study connections between relationships. In this paper, we review the different conceptualisations of 'connected relationships' within the Industrial Network Approach, e.g.

'serial triads' and 'unitary triads'; 'implicit', 'open', 'semi-closed' and 'closed' triads. On the basis of this review, we discuss whether the present conceptualisations of 'connected relationships' are consistent with the main assumptions of the Industrial Network Approach, the main theory development aimed at, and the primary unit of analysis.

Consequently, the purpose of the paper is twofold. Firstly, the purpose is to review the ways in which 'connected relationships' or 'connection'[129] is presently conceptualised within the Industrial Network Approach. Secondly, the purpose is to discuss the extent to which these conceptualisations are consistent with the ideas on which the Industrial Network Approach is based. On the basis of the review and discussion, we suggest the concept of 'serial tetrads' as a point of departure for future studies of 'connection', as 'serial tetrads' enables us to avoid 'triadic reductionism' and the identified problems related to the use of the concept of 'triads'. In the final section of the paper, we suggest points of departure for further research on 'connection'.

THE CONCEPT OF CONNECTION

The concept of connection within Social Exchange Theory

In order to define what we mean by connection within the Industrial Network Approach, we usually borrow a definition from Social Exchange Theory. Emerson (1972 in Cook and Emerson 1984, p. 3) has defined the concept of **connection** in the following way: *"Two exchange relations are connected to the extent that exchange in one relation is contingent, positively or negatively, upon exchange in the other relation".* This implies that two relationships must affect each other to be connected. This view of the concept of connection is also used by Yamagishi, Gillmore and Cook (1988, p. 835)[130], but in the latter article it is presented slightly different *"...two exchange relations, A-B and B-C, are defined as connected at B to form the larger network structure, A-B-C, only when exchange between A and B to some extent affects exchange between B and C, and vice versa".*

Furthermore, Emerson (1972 in Yamagishi, Gillmore and Cook 1988, p. 835) has elaborated on what is meant by positively and negatively connection. He defines these concepts in the following way: *"If two relations, A-B and B-C, are **positively** connected at B, exchanges in the A-B relation facilitate exchanges in the B-C relation and vice versa. If the same two relations are **negatively** connected at B, exchanges in the A-B relation diminish or prohibit exchanges in the B-C relations, and vice versa."* This implies that when relationships are positively connected at B, B e.g. exchanges something (resources, technical know-how, products etc.) to C which B has obtained from A, and which B either exchanges unchanged or further processed. When relationships are negatively connected at B, this often implies that A and C fight over something (resources, technical know-how, products) which is controlled by B.

The extensive work done by the authors mentioned above is based on a lot of laboratory experiments where individuals have been tested in different situations. For example, people have been asked to estimate the time spent on professional relations versus relations within the family or to friends. These types of experiments have lead to a more theoretical

[129] In the remainder of the paper we shall use the concepts 'connection' and 'connected relationships' interchangeably.

[130] Both Cook and Emerson (1984) and Yamagishi, Gillmore and Cook (1988) are based on earlier studies and publications by Richard M. Emerson and Karen S. Cook. See for example Emerson (1972) and Cook and Emerson (1978).

discussion about how different relationships are connected, and in what way relationships affect each other.

The concept of connection within the Industrial Network Approach

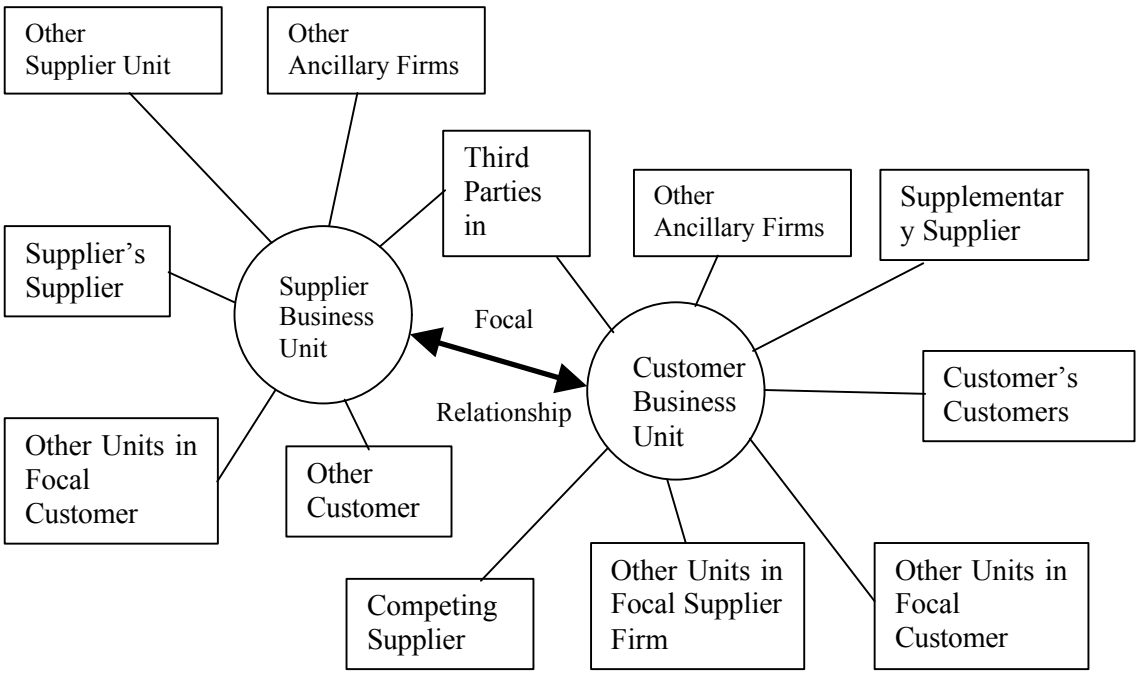
Within Social Exchange Theory, the relationships studied are, as mentioned above, between individual actors. Contrary to this, within the Industrial Network Approach we (primarily) focus on relationships between collective actors such as organisations or firms.[131] In the last ten years, studies have been carried out within the Industrial Network Approach focusing on the 'network context' of firms with special regard to how relationships are connected and thereby affect each other. In the rest of this section we shall present some of these studies, which are similar in one aspect: they are all inspired by and rely heavily on the authors presented within the Social Exchange Theory (especially regarding concept development). The different conceptualisations of connection (both related to triads and business context) which will be presented below all focus on connection as something which can be observed **between** relationships.[132]

One article, in which attention has been paid to the context of dyadic relationships within the Industrial Network Approach, is the one by Anderson, Håkansson and Johanson (1994). In this article, the authors discuss how to conceptualise business networks as sets of connected relationships. In relation to this, they define the 'network context' as *"The part of the network within the horizon that the actor considers relevant is the actor's network context"* (Anderson Håkansson and Johanson 1994, p. 4). Thus, according to this view it is the focal firm which defines what is the useful context for a given relationship, depending on how the (focal) firm perceives its horizon. The authors identify a lot of possibly relevant actors, related either to the buying or selling firm, in the context that may affect the focal dyadic relationship. Such actors (and relationships) are depicted in figure 1.

[131] We shall use the word actor and firm interchangeably. When we talk about individuals as actors this will be outlined specifically in the text.

[132] Consistent with the definition of connection presented within Social Exchange Theory, we shall not discuss connections **within** a relationship in this paper. Håkansson and Snehota (1995, p. 269) on the other hand use the concept of connection both when they identify and discuss relations between three different (but related) layers of substance (activity links, resource ties and actor bonds) **within** a relationship, and when they discuss relations **between** relationships.

FIGURE 1
Connected relations for firms in a dyadic relationship
(Anderson, Håkansson and Johanson 1994, p. 3)



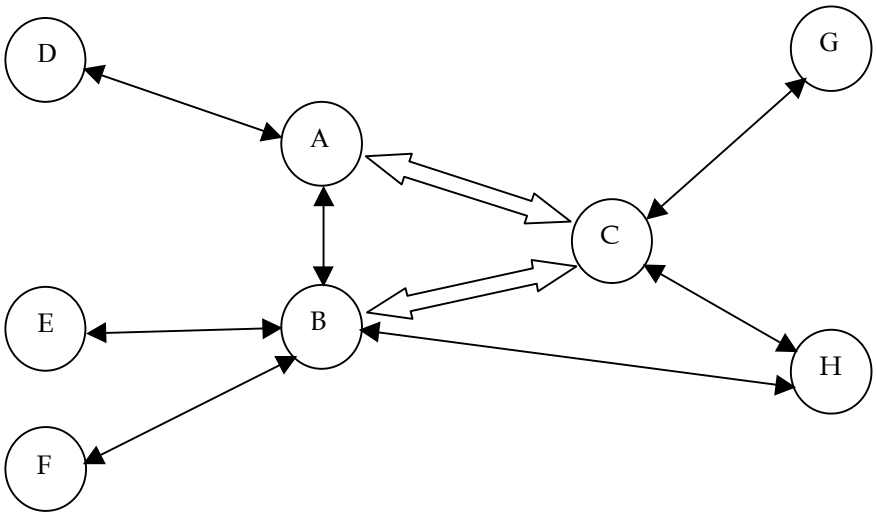
Anderson, Håkansson and Johansson (1994, p. 13) emphasise that, within the Industrial Network Approach, business networks are regarded as sets of connected relationships rather than sets of connected firms. Furthermore, dyadic relations are the focal unit of analysis when studying the concept of connection, which is also illustrated in the figure above (by the arrow). Furthermore, Anderson, Håkansson and Johanson (1994, p. 3) discern between the primary and secondary functions of relationships. *"By primary functions, we mean the positive and negative effects on the two partner firms of their interaction in a focal dyadic relationship. The secondary functions, also called network functions, capture the indirect positive and negative effects of a relationship because it is directly or indirectly connected to other relationships. However, in a given relationship, secondary functions can be as important as the primary ones, or even more so."*

Within the Industrial Network Approach, most of the other studies, which more or less explicitly focus on the concept of 'connection', have used the concept of **triad**. Cook and Emerson (1984) argue that a triad is the smallest unit of analysis which allows us to study connected relationships. Within sociology Simmel (in Wolff 1950) and within social psychology Weick (1969) in similar ways argue that a dyad (with two persons) completely changes when adding a third person. Within the Industrial Network Approach both Blankenburg (1992) and Laage-Hellman (1989) claim that it is useful to study connected relationships within triads because of the possibility to delimit the phenomenon in different ways. *"The addition of a third actor represents a leap-wise increase in complexity which makes it possible, in a simplified way, to analyze connections and other network phenomena which cannot be handled in the received interaction model"* (Laage-Hellman 1989, p. 31). In the remainder of this section, we shall present four publications, based on the Industrial

Network Approach, which are of interest to our discussion of connected relationships because they use the concept of triad. All four publications use the concept of triad to represent a small system with three actors and two **or** three connected relationships. Hence, it seems that the concept of 'triad' which is used within the Industrial Network Approach is defined by three actors **and two or three** relationships - and not by three actors **and three relationships**, which would be more in line with the conceptualisations of 'triads' used by e.g. Simmel (in Wolff 1950) and Thibaut and Kelley (1959).[133]

Laage-Hellman (1989) discusses connected relationships in his study of technological development in industrial networks. Empirically, he studied two networks, one within special steel and one within biotechnology; his main focus was on technological exchange between different firms and research units. Laage-Hellman (1989) introduces the concept of triad as a first step towards a network analysis. The concept is depicted in figure 2:

FIGURE 2
Schematic Illustration of a Triad Situation (Laage-Hellman 1989, p.31)



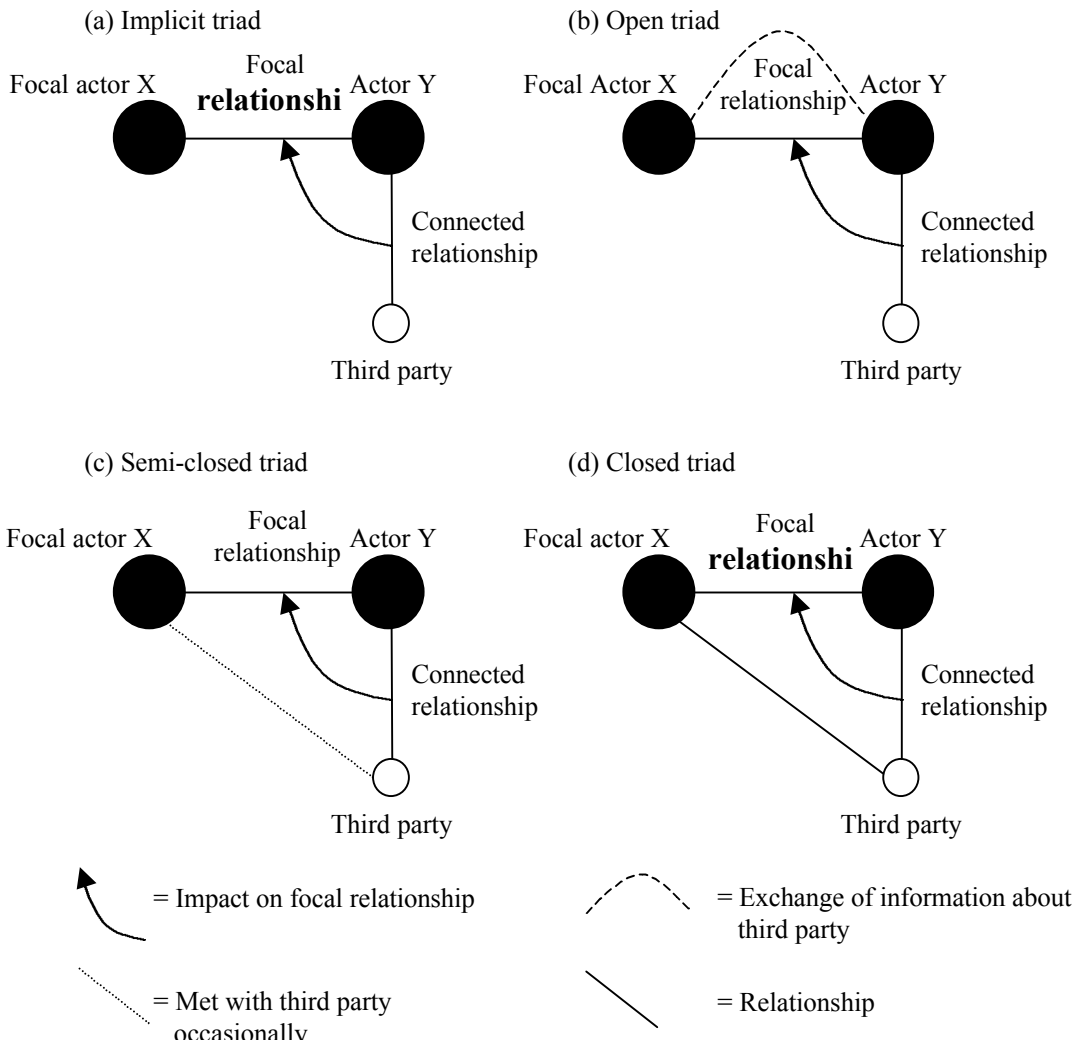
Laage-Hellman (1989, p. 31) claims: *"the key question is how the relationships in the triad affect each other, and how these connections affect the development of the individual interaction processes and the interplay within the triad and surrounding network."* Furthermore, he stresses that "… *connections within the triad may be strongly influenced by other direct relationships that the actors are involved in. ...By implication, triad analysis should not be restricted by definition to the relationships between the three focal actors. How many actors and relationships should be considered when analysing a certain triad situation is an empirical question"* (Laage-Hellman 1989, p. 32). With this as the conceptual point of departure, Laage-Hellman (1989) analysed six empirical triad situations in order to discuss connected relationships. On the basis of this analysis, he introduces two types of 'connection' concepts: activity-based connection and actor-based connection.

[133] As pointed out by a reviewer, the concept 'triadic setting' may be more appropriate to use within the Industrial Network Approach instead of the concept of 'triad', as this approach seems to focus on the phenomenon of 'connection' between relationships but not so much on the phenomenon of 'triads' *per se*. However, whether the concept of 'triad' as it is presently used within the Industrial Network Approach should be abandoned due to it being different from the more usual ways of defining 'triads' in other theoretical approaches (i.e. three actors and three relationships) will not be discussed further in the present paper.

Smith and Laage-Hellman (1992) propose a concept called 'small group analysis' based, among other things, on the thesis of Laage-Hellman (1989). In the article they use the concepts of activity-based connection and actor-based connection, mentioned above, but they also develop an analysis of transformation patterns focusing on how a focal actor can choose to transform its relationships. Smith and Laage-Hellman (1992) suggest five different transformation patterns: by-pass, combination, bridge, displacement and separation. In addition to this, they discuss methodological choices related to studying small groups and triads.

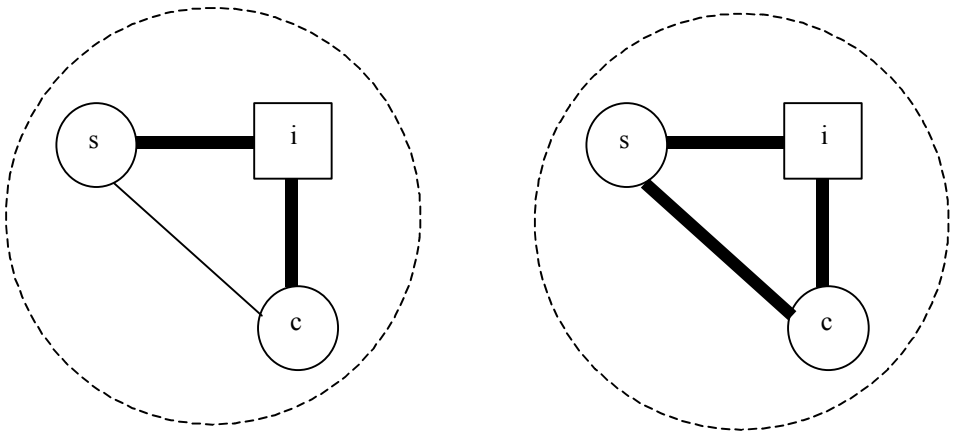
In her licentiate thesis, Blankenburg (1992) discusses the concept of 'connected relationships' in industrial networks. She studied 85 relationships between a Swedish producer/supplier and its customers in different European countries, and how these relationships are affected by 'potential connections'. The main purpose of her study is to show the existence of connected relationships. Furthermore, Blankenburg (1992) discusses different ways in which a focal relationship is affected by connections as well as different modes of managing connected relationships. In her study *"... we do not consider effects from the focal relationships to other relationships, only the effects from other relationships to the focal one"* (Blankenburg and Johansson 1992, p. 10). In this study, the author uses a triad approach and identifies four types of connections: competitor, chain, internal, and ancillary. Furthermore, she suggests four different modes of managing connections within a triad - dependent on what type of interaction and information exchange can be observed between the focal relation and the third party. These are depicted in figure 3:

FIGURE 3
Modes of managing connected relationships (Adapted from Blankenburg 1992, p. 22)



In her thesis, Havila (1996) studies the changing role of intermediating actors in business-relationship triads. Empirically, she focuses on the intermediating actors in eleven international supplier-customer relationships. The main purpose of the study is to conceptualise different business-relationship triads, and how these change over time. Havila (1996) does not explicitly discuss the concept of 'connection', but indirectly her discussion of triads contributes to the conceptualisation of connection in the Industrial Network Approach. Havila (1996) operates with two units of analysis: (1) the business-relationships triad, and (2) the role of the intermediating actor. Hence, *"the units of analysis are defined in a way which differ from the usual way of viewing business relationships: instead of seeing the relationship as a phenomenon joining two parties, the selling and the buying, one more party, the intermediating actor, is explicitly included"* (Havila 1996, p. 48). On the basis of this, she distinguishes between two types of triads: serial triads and unitary triads. These are illustrated in figure 4:

FIGURE 4
Two types of Triadic Business Relationships (Havila 1996, p. 27)



a. Serial Triad b. Unitary Triad

s = supplier
c = customer
i = intermediating actor
--- = focal business relationship (demarcation)
thick line = much contact
thin line = little contact

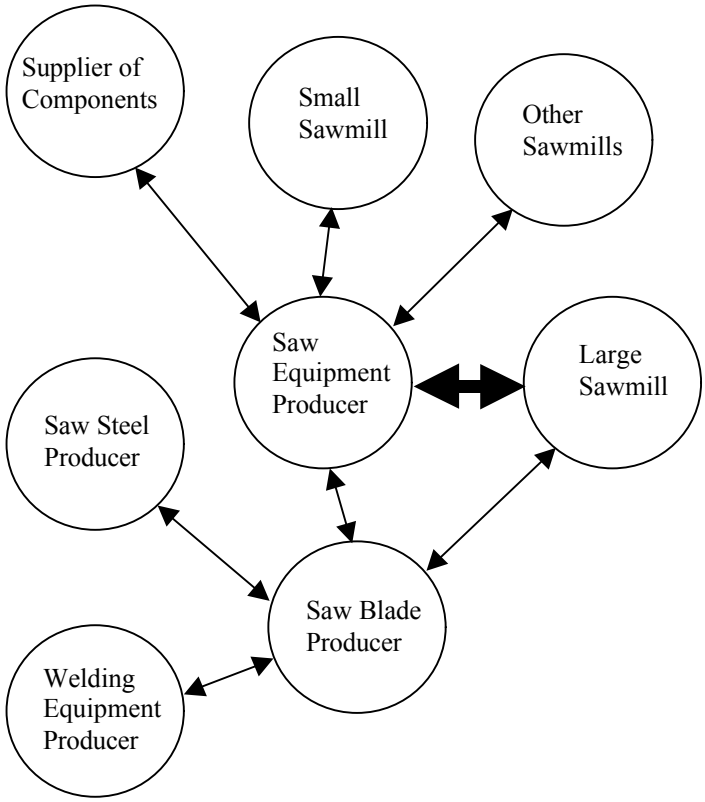
HOW THE CONCEPTS OF TRIAD AND CONNECTION HAVE BEEN USED FOR EMPIRICAL STUDIES

The purpose of presenting several attempts at conceptualising connected relationships, especially related to triads within the Industrial Networks Approach, is to understand the issues which the authors address. Having presented the theoretical concepts, we may want to

enquire into the type of empirical material which has been analysed with these concepts as the point of departure; i.e. investigate how the theoretical concepts have been investigated methodologically and empirically. Therefore, in this section, the empirical material of Anderson, Håkansson and Johanson (1994), Laage-Hellman (1989)[134], Blankenburg (1992), and Havila (1996) is presented.

In the article by Anderson, Håkansson and Johanson (1994), the empirical material which is used as the basis for exemplifying the concept of business network context consist of two case studies; one case related to the development of new saw equipment, and one case related to the change of labels for soft drink bottles. The first of these two cases is depicted in figure 5:

FIGURE 5
New Saw Equipment Case (Anderson, Håkansson and Johanson 1994, p. 6)



In addition to the two case studies, Anderson, Håkansson and Johanson (1994) conduct a substantive validity assessment of constructs which they propose in order to capture the substance of 'network context'.

Laage-Hellman (1989) uses two case studies, one of a special steel network and one of a biotechnology network. *"In the special steel study technological exchange within individual relationships and in connection with particular cases is in focus. The network is there as a background factor and an environment for the interaction processes. In the biotechnology study the situation is reversed. Here the network itself and its development is focused on. Relationships between actors constitute the background in the form of network components"*

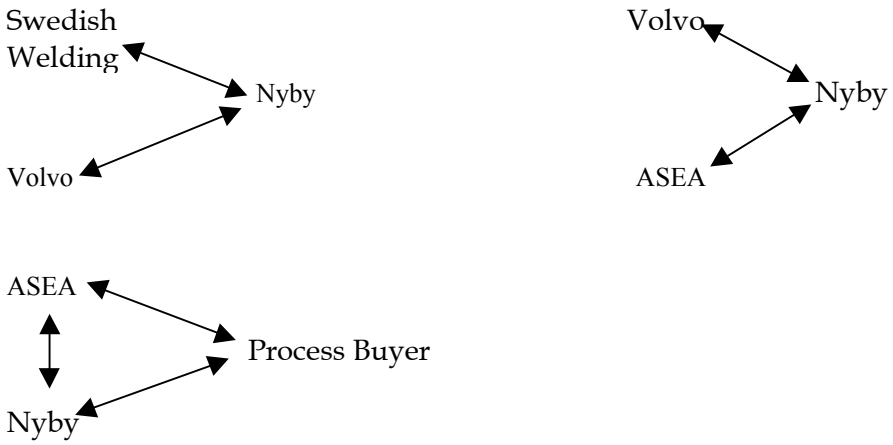
[134] In this section and in the analysis, we shall not consider the empirical material used by Smith and Laage-Hellman (1992) separately as it to a large extent is similar to that used in Laage-Hellman (1989).

(Laage-Hellman 1989, p. 29). Hence, interaction within individual relationships is in focus in the first case, whereas a network of relationships is the unit of analysis in the second. On the basis of the two case studies, he investigates six different triad situations:

- Triad situation A: two suppliers and one customer
- Triad situation B: one supplier and two customers
- Triad situation C: one supplier, one customer and one end-user
- Triad situation D: one supplier, one customer/end-user and one R&D organisation/consultant
- Triad situation E: one industrial firm and two R&D units
- Triad situation F: two industrial firms and one R&D unit

The empirical studies focus on technological development processes. This may be one reason why it seems as if Laage-Hellman (1989) centres his analysis on one firm and the different counterparts which become involved in technological development together with the firm, and how relationships between the focal firm's relationships to these counterparts are connected. An example of this is shown in figure 6:

FIGURE 6
Three Type A Triad Situations in the ASEA-NYBY Case (Laage-Hellman 1989, p. 99)



Blankenburg (1992) studied 85 supplier-customer relationships in the IMP2 project, which is a co-operation project between researchers from France, Germany, Italy, Japan, Sweden, the UK, and the USA. All suppliers were Swedish, and all customers were non-Swedish. The empirical material came from personal interviews during which a standardised questionnaire was filled out by the interviewer. The material consists of the answers from the suppliers which were asked about an important customer relationship, potential connected relationships for the supplier (seen from the supplier) and potential connected relationships for the customer (also seen from the supplier). In total, 312 connected relationships were identified; 101 connected via the supplier, and 211 connected via the customer. On the basis of this, she made a cross-sectional quantitative analysis.

Havila (1996) studied 11 business-relationships triads with a Swedish supplier, a non-Swedish customer, and an intermediary in the foreign country. The intermediary could be a supplier's sales subsidiary, a group sales subsidiary, a distributor, an agent etc. Part of her material also came from the above-mentioned IMP2 study; however, in addition to this she made a number of personal interviews. *"To achieve as much variation as possible it was*

decided that the suppliers, the intermediating actors, and the customers should not be the same in the selected cases" (Havila 1996, p. 58). Hence, the 11 triads were non-overlapping.

ANALYSIS

In the case studies used by Anderson, Håkansson and Johanson (1994), only counterparts of one of the firms involved in the focal relationships are investigated. Even if their conceptual framework of a 'business network context' explicitly portrays two sides of a focal relationship, the empirical basis only pertain to the 'business network context' seen from one of the two parties' sides.

In the case studies carried out by Laage-Hellman (1989), the development of a focal business relationship does not seem to be in focus, either. Instead, Laage-Hellman (1989) appears to focus on technological development processes and identifies and analyses occasions on which connections have influenced the processes. This implies that he primarily tracks a focal development process in which a focal firm is involved.

Blankenburg (1992) analyses effects from third parties on a focal relationship. The third parties are either counterparts of the supplier in the focal relationship, or counterparts of the customer in the focal relationship. However, all third parties are studied from the suppliers' perspective, which implies that it is a single actor's perception of which third parties (of both actors involved in the focal relationship) affect a focal relationship that is taken into account. Furthermore, the third parties are not specifically identified and thus treated in a generalised way ('a supplier', 'a customer', 'an intermediary' etc.). Hence, even if Blankenburg (1992) has a focal relationship as an important unit of analysis, she analyses third parties of both sides to the focal relationship on the basis on information from one of the firms in the focal relationship, only. Furthermore, and more importantly, Blankenburg (1992) analyses connected relationships (to a focal relationship) via the supplier or the customer separately – and not in relation to each other. Hence, (a) third parties are analysed one at a time, (b) only effects of third parties on the individual focal firms (and not the focal relationship) are considered. Consequently, the focal relationship is not approached as a 'quasi-organisation' with substance – interrelated third party effects on the 'team' are not considered.

Havila (1996) focuses on the changing role of intermediating actors in triads. She has the intermediating actor as one of her units of analysis. Furthermore, she discusses the changing role of this actor in relation to a context, which she defines as a 'business-relationship triad'. This constitutes her second unit of analysis, and she relates the changing nature of the second unit of analysis to changes in the first unit of analysis. Thus, none of her units of analysis is a focal dyadic relationship. Consequently, neither the development of the supplier-intermediary relation, nor the development of the intermediary-customer relation is explicitly discussed.

All the studies mentioned in the paper have contributed considerably to understanding and conceptualising different aspects of industrial networks. However, when looking at the studies above, it appears that only in some of them a business relationship is the focal unit of analysis. In addition, none of the studies which operate with a focal business relationship are based on empirical material originating from both parties.

DISCUSSION AND SUGGESTIONS FOR FURTHER RESEARCH

Within the Industrial Network Approach, as previously mentioned, the concept of triad has been proposed in order to allow connections between relationships to be captured analytically. The advantage of the concept of triad is that it represents the smallest unit of analysis in which it is possible to capture connections between relationships. However, even if the concept of triad is indisputably of importance and definitely has merit for understanding part of the phenomenon of connections between relationships, it seems as if the concept of triad, in some ways, has 'restricted' empirical studies carried out within the Industrial Network Approach on which further theory development is to be based. Naturally, assessing if a particular conceptualisation 'restricts' the gathering of empirical material depends on the point of departure which is taken. Therefore, we need to elucidate on 'points of departure' in relation to which such restrictions may become manifest. In other words, we need to reflect on the extent to which addressing the 'main issues' within the Industrial Network Approach is facilitated or hampered by the concept of triad and the way in which it is (or has been) used within the Industrial Network Approach.

One first issue which we may address is the type of theory we aim to develop. In relation to this issue, some researchers within the Industrial Network Approach argue for the need for building explanatory models. For example, Håkansson and Snehota (1995, p. 5) suggest that *"We need descriptive models that take into account the elements of relationships, the process that form the relationships, and that capture the consequences of their connectedness. We need 'maps' where relationships and connections are identified and put in relation to other important constructs in business studies such as costs, revenues, innovations and strategies. We need explanatory models where relationships are either* ***the explained*** *or* ***one of the explaining variables****."*

A second issue which may be addressed is which phenomena we should develop explanatory models of. In relation to this issue, within the Industrial Network Approach much weight is put on duration, longevity, continuity of business relationships which puts into focus processes of relationship development, as well processes of network development. The conceptualisation of episodes and relationships, the emphasis on the need for studying episodes in relation to their contexts, i.e. relationships over time, accentuate the need to focus on processes[135]. Furthermore, within the Industrial Network Approach, a relationship is seen as something which requires mutuality. No actor can build up a relationship on its own – a relationship has two sides. This is e.g. stressed by Håkansson and Snehota (1995, p. 20) arguing that *"Business relationships have the components of mutual orientation, commitment, adaptations, trust-building and social exchange over time. There is mutual interdependence of outcomes since they cannot be controlled unilaterally."* Hence, a business relationship is something qualitatively different from the two parties involved in it.

In what ways may the concept of triad, and the way it has been used, restrict our ability to develop theory which is consistent with the issues described above? In order to explain the development of relationships, what happens inside them, and how they change over time, we need to take into account the two sides of a connected relationship. A relationship cannot be developed by one of the parties, and how it develops will depend on the 'intermixing' of the two parties respective attitudes (towards co-operation and commitment) towards the counterpart. This is, for example, stressed by Håkansson and Snehota (1995, p. 42) who

[135] This should not be interpreted in such a way that structures are unimportant to investigate. Within the Industrial Network Approach, it may seem as if structures are, however, regarded as being of less interest *per se* in case they are not related to processes.

emphasise that *"The development of a relationship ... between two companies cannot be unilateral, it requires co-alignment of two parties. How it will develop will depend on how each of the parties act and react in the relationship. Once established, a relationship has a life of its own, it gets its own substance as a dyad."* Furthermore, as argued by Anderson, Håkansson and Johanson (1994) we need to take into account primary as well as secondary functions of business relationships. [136] They characterise the primary function of business relationships as *"the interlinking of activities, creative leveraging of resource heterogeneity, and mutuality based on self-interest of actors"* (Anderson, Håkansson and Johansson 1994, p. 3). Secondary functions arise due to connections between relationships and "*concern chains of activities involving more that two firms, constellations of resources controlled by more than two firms, and shared network perceptions by more than two firms"* (Anderson, Håkansson and Johanson 1994, p. 3). Hence, such effects are related to how the dyadic relationship is related to its network context. The reason why it is important to take into account **both** functions of a relationship is that the stance taken by each of the parties, respectively, involved in a dyadic relationship, towards the particular relationship, will depend on how they perceive the primary and secondary functions of the relationship. And, as pointed out by Anderson, Håkansson and Johanson (1994, p. 13) *"...because we regard business networks as sets of connected business relationships rather than as sets of connected firms, secondary functions of relationships should be of prominent interest for analysis...."* Hence, connections are of primary interest. However, since a relationship has two sides, the secondary functions for **each** of the two parties seem important to analyse.

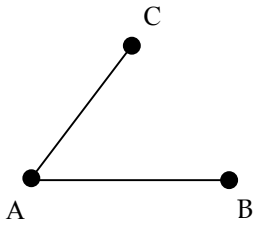
If we, with the concept of triad, have concluded that 'it is enough to empirically study single serial triads', then our ability to develop explanatory (and normative) models of connected relationship (and network) development processes may be severely hampered. This is, obviously, because we will only get 'one side' of the relationship when we study a single triad. In a serial triad, the focus is on one 'actor connector function', see for example Rosenbröijer (1998), or one actor's role, see for example Havila (1996). What we need, is two (both!) sides of the relationship. Naturally, this may be studied by means of a unitary triad, in which it is possible to study more than one 'actor connector function'. However, as pointed out by Anderson, Håkansson and Johanson (1994) their conceptualisation of 'network context' differs from the one usually employed in Social Exchange Theory. They argue that "*Our conceptualization for a business context departs from Thibaut and Kelley's (1959) social context for at least two reasons. First, Thibaut and Kelley consider only groups, so that, by definition, the actors are completely interconnected. By contrast, within a business network context, some actors germane to each member of a focal dyad will not be directly connected to the other member. Thus, CL and* CL_{ALT}[137] *for the group have more cohesive meanings that for a business network context. Second, in the Thibaut and Kelley analysis, which largely focuses on triads of friends, an actor simply changes group when exercising* CL_{ALT} *for the group. It would be much more difficult, if not impossible, for a focal firm to move to a new network context, which has a completely different set of connected business relationships."* (Anderson, Håkansson and Johanson 1994, p. 9). This may be related to Granovetter's (1985, p. 1363) discussion of 'the forbidden triad', according to which all serial

[136] These functions seem to be partially consistent with the the types of functions mentioned in Håkansson and Snehota (1995). However, while Anderson, Håkansson and Johanson (1994) operate with two types of functions, Håkansson and Snehota (1995) operate with three funstions: the function for the dyad, the function for the single actor, and the function for third parties (the network function). It may be argued that the primary function of relationships is equivalent to the function for the dyad, and that the secondary function comprises the function for single actors and the function for third parties (the network function).

[137] Detailed description and discussion of the CL and CL_{ALT} concepts proposed by Anderson, Håkansson and Johanson (1994) is beyond the purpose of this paper. The reader is referred to their article (1994, p. 9-12).

triads with two strong relationships are (or will eventually become) unitary triads. By implication, serial triads are temporary phenomena. This concept is depicted in figure 7:

FIGURE 7
The forbidden triad (Granovetter 1985, p. 1363)



However, according to the above-mentioned proposition by Anderson, Håkansson and Johanson (1994, p. 9), it seems as if 'the forbidden triad' is less forbidden in industrial networks, and, consequently, in the Industrial Network Approach. Therefore, as opposed to the unitary triad, which may be likened to a group, it may be of more interest, within the Industrial Network Approach, to study two 'actor connector functions', without restricting these to be identified within a unitary triad. We need two 'actor connector functions', because the development of relationships will depend on how both parties succeed in creating beneficial secondary functions of a focal relationship[138]. However, these two 'actor connector functions' may be of interest to study in non-unitary, non-group-like, contexts, because 'forbidden triads' are 'permitted triads' in industrial networks.[139]

Hence, even if there is nothing 'wrong' with the concept of triad, even if it *per se* does not impose restrictions on us (researchers active within the Industrial Network Approach) in relation to the theory development we may agree to strive for, it seems as if we have become restricted by it. Restricted in a way which may prove to be unfruitful for further theory development of (a) the type which is suggested to be of primary interest and of (b) the phenomena which are proposed to be of utmost importance, cf. Anderson, Håkansson and Johanson (1994, p. 2) emphasising *"the dyadic relationship as the unit of primary interest within business networks, rather than the individual firms themselves."*

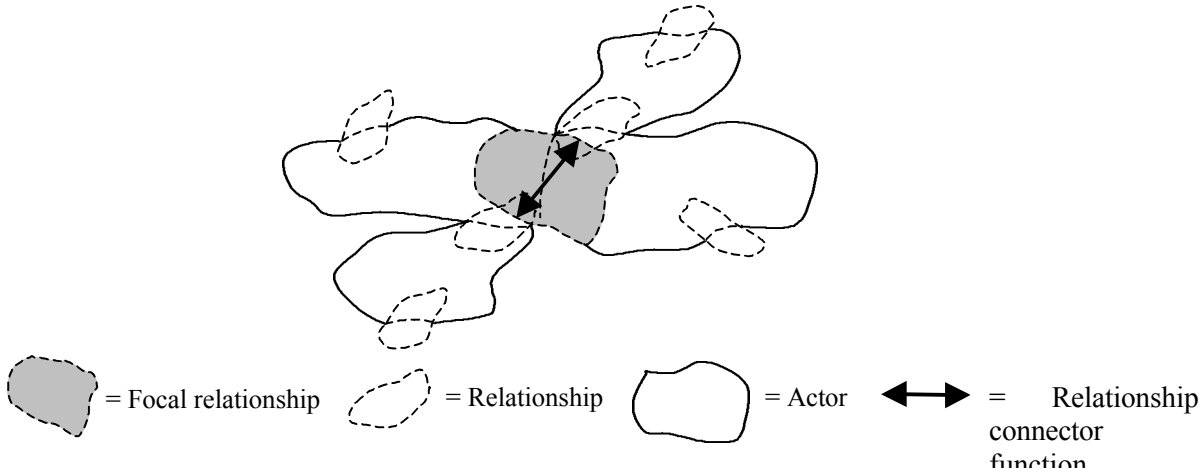
Therefore, on the basis of the preceding discussion, we would like to introduce the concept of **serial tetrads**. A tetrad is a system of four entities – in our case, four actors. Furthermore, it contains three relationships. A tetrad can be said to be the smallest unit of analysis in which it is possible to study two overlapping triads in which the third parties of the focal relationship differ. Thereby two actor connector functions, which do not pertain to the same 'group', can be identified. Hence, two interrelated sets of primary and secondary functions which influences the 'jointly' developed relationship may be studied empirically and, in turn, enable theory development on issues which are important to our understanding of industrial networks. Furthermore, a serial tetrad is the smallest unit of analysis which allows for enquiry into a **'relationship connector function',** i.e. how relationships as substantial 'quasi-

[138] If one of the firms is not able to create such secondary effects, the relationship will probably cease to exist; either because it goes out of business, or because it (or a part of it) becomes a part of the only counterpart with which it was able to create positive primary functions; cf. "*The identity of an organization is created in interaction with its major counterparts ... a business organization without its interactive environment loses its identity"* (Håkansson and Snehota 1989, p. 530).

139 It may even be proposed that an important aspect of industrial networks is exactly that it allows for 'forbidden triads', i.e. that two parties involved in a relationship can be connected to respective counterparts without these turning into cohesive groups. This may even be a reason for the existence of some actors.

organisations' work to connect different (at minimum two) third parties of the actors involved in the focal relationship. This may be in line with the proposition that "*Empirical studies of relationships between organizations have revealed features which make it possible to extend the use of the network as a theoretical concept. Relationships, especially between industrial firms, possess characteristics (duration, complexity, adaptations, etc.), indicating that they may be seen as some kind of quasi-organization which in themselves can be economic objects. As a consequence the lines in the networks can be seen as existing in themselves. If the lines have a substance of their own the network will no longer be just a metaphor. Consequently, they can be seen as a form of organization and possible to treat and research as a phenomenon"* (Håkansson 1997, p.232). Hence, it may lead us to finally 'show more substance' in the lines. The concept of 'serial tetrad' is depicted in figure 8:

FIGURE 8
A serial tetrad



And, in case new knowledge is created on the basis of empirical studies using 'serial tetrads' (and relationship connector functions) as the point of departure for studying development processes of business relationships (and networks); in case, empirical 'evidence' is gathered for differences between unitary triads and serial tetrads, then we may achieve a basis upon which we may assess whether there were limits of the concept of triads for creating explanatory models of dyadic business relationships in network contexts. Naturally, the methodological implications and difficulties with investigating relationships (and networks) in this way should not be underestimated. Therefore, we may also need to discuss and develop suitable methods for gaining the kind of empirical material needed for complying with the suggestions in this paper. We would like to encourage (some) researchers within the Industrial Network Approach to further discuss, and especially apply, the concept of 'serial tetrads' in their future endeavours at understanding industrial networks. Because, as Latour (1987) reminds us, the value of a concept will depend on whether (and how) it is taken up by other researchers.

EPILOGUE

Returning to Buber (1923) we can see that studying relationships is not an easy task. The I-Thou relation is not the same as the I-It relation. One the one hand, we need to be in the relation in order to understand its complexity and uniqueness. On the other hand, as Buber (1923) claims, 'It borders to other Its', which implies that we need to be outside a single relation in order to see how it relates to other relations. As Buber (1923, p. 34) submits *"... without It, man cannot live. But he who has I-It relations, only, is no man."*

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