Social Network Theory in International Relations Research

A literature review

Bachelor Thesis Liberal Arts and Sciences
Major Social Sciences
Supervisor dr. R.J.G. Jansen

Lieke 't Gilde
ANR: 365959
Liberal Arts and Sciences
Faculty of Humanities
Tilburg University
January 2014

Abstract

This literature review explores the possibilities that social network theory offers to capture the relational dimension that realist, liberalist and constructivist theories of international relations contain. Through an extensive literature review, international relations literature that contains research related to networks has been collected and analysed on the basis of structural and relational embeddedness. It is found that processes related to social network theoretical concepts are found in literature from all three international relations theories. However, these concepts are often not used to the full extent, as there is few literature available that explicitly researches the causal power networks have on international state behaviour. Social network theory can help make these processes more explicit. Next to this, social network theory offers concepts that are not yet found in IR literature that can help to unveil new processes in international state behaviour that have not yet been researched. The inclusion of social network theory has the potential to make the analysis of IR more comprehensive.

Table of Contents

1. Introduction

This literature review explores the possibilities that social network theory offers to capture the relational dimension that realist, liberalist and constructivist theories of international relations contain. These theories of international relations have not explicitly and systematically incorporated this relational dimension in their explanation of international politics. The relational dimension, which is explicitly captured in social network theory, focuses on how the relations of an actor with other actors affect its behaviour, as an addition to looking at characteristics of the actor itself. Social network theory focuses both on the structure and content of relations. Existing international relations research focuses mostly on characteristics of states to explain international state behaviour. As a consequence, the field has not yet been able to unveil the effect of relational aspects of ties that exist between states and that seem to influence the way in which they act.

In the academic discipline of international relations (IR), processes of international cooperation and conflict are being analysed. International politics is essentially a relational phenomenon. International conflict and cooperation are relational characteristics that exist between states. States find themselves acting in networks such as the United Nations and European Union. Additionally, flows of money, goods and services create ties between states that are of central importance to their existence.

In its analysis of cooperation and conflict, the IR discipline has long focused on conceptual frameworks based on realism, liberalism and constructivism (Waltz, 1979; Keohane, 1984; Wendt, 1992). Realism and liberalism are theories that focus on state (ego) characteristics in order to explain international politics. Both theories have been widely used in understanding state behaviour. However, they have difficulty explaining how international networks in which states are embedded influence state behaviour. Realism does only implicitly acknowledges that international networks have an influence on the emergence of cooperation and conflict between states. It recognizes these networks merely as a reflection of the relative power of individual states. This means that realism would take the number of relations a state has with other states as being a consequence of the relative power of this state. In doing so, realism is not able to grasp the relational dimension that is able to explain non-egocentric behaviour of states. Liberalism, however, does acknowledge the relevance of international networks in influencing individual state behaviour. Still, liberalists have only researched the effect of these networks in terms of characteristics of the states themselves. Liberalism would take the number of relations as a state characteristic that influences the power of this state; the more relations the more powerful a country might become. Liberalist IR research has not yet focused on the effect the position in a network can have on the policy choices of the states involved. The third theory of IR, constructivism, does acknowledge the causal effect network structures might have. Constructivism focuses on the diffusion of ideas through networks that can create cooperation and conflict. However,

constructivism mainly focuses on relations as establishing identity, and thus only looks at the content of relations and not at the causal effect of certain structures of relations. Next to this, constructivism seems to lack an approach to explicitly and systematically research the relational influence.

It follows that the relevance of the relational dimension in IR research is acknowledged by liberalism and constructivism. From the realist point of view a relational dimension is not made explicit. However, this theory does not have a satisfying answer to why states show non-egocentric behaviour. The relational dimension could be of complementary value, as it will help to capture network influences that might cause this non-egocentric behaviour into the realist analysis.

IR theory thus contains elements that can be recognized as relational. However, these are only made explicit to some degrees in the existing theories of IR. Next to this, the potential of the relational dimension to capture relational processes taking place in international politics is not used to the full extent. Doing so can help to understand international state behaviour in a better way.

A theory focussing on relational processes taking place in international politics has additional relevance next to the ego-centred view that is commonly used in the IR field, because states are essentially embedded in international networks of nations. It adds in making the relational dimension more explicit and in offering a structural approach to do research.

At the ego-level of explanation, relational structures that have the ability to either enable or constrain countries in their choices and actions are overlooked. Social network theory is able to explicitly add a relational dimension in order to unveil relational processes that influence individual actors. According to social network theory "networks are seen as defining the actor's environment or context for action and providing opportunities and constraints on behaviour" (Borgatti & Foster, 2003:1000). This direction of causality is applicable to networks in which states operate as well. The dimension of the causal power of networks is what social network theory has to add in theorizing about IR. Next to this, networks also have causal influence at the network level. For example, the way in which the European Union (EU) network is configured affects EU policy choices. Social network theory has the additional value of unveiling how the European network of states influences politics in Europe.

Next to this significance, social network theory offers a structural approach in theorizing about relational processes. IR is a field in which various types of relational characteristics have been addressed by the existing theories of realism, liberalism and constructivism; however, social network theory helps making these formulations more explicit. In other words, existing IR theories form a basis for relational thinking, however they lack a fitting approach to apply these concepts. Social network theory makes the relational mechanisms the central focus of research.

The relational dimension of social network theory seems to be able to fill the gap of realism, liberalism and constructivism in explaining the effect of relational processes taking place in networks

on the emergence of cooperation and conflict between states. Still, the theory has yet received little attention by IR scholars. Recently, several studies (Moaz, 1993, 2010; Hafner-Burton et al. 2006, 2010) applying social network analysis into IR theory have been written. There is also literature available about the state of the art in network analysis of IR. However, the academic field lacks a systematic review of the conceptual aspects of network theory in IR theory. Giving a systematic overview of the use of network theoretical concepts in IR literature creates the possibility to further explain how networks of states function and which influence these networks on decision making in international politics. Social network theory can contribute in giving a scientific explanation of the relational effects of networks of countries on the working of international politics.

The aim of this literature review is twofold. Firstly, it aims at making the currently available work on the relational dimension in IR research more visible, by looking for relational concepts that can be captured in social network theoretical concepts. In other words, the study aims at exploring the possibilities of social network theory to explicitly capture the relational dimension of IR research. Secondly, this paper aims at unveiling what social network theory has to offer in terms of new concepts that are not yet part of IR research. In doing this, the literature review will try to answer the following question:

To what extent are relational concepts recognizable in international relations research according to the literature, and in what way is social network theory able to add new relational concepts to existing international relations theory to make its analysis more comprehensive?

This literature research will focus on the relational concepts of structural embeddedness and relational embeddedness. Focusing on these central concepts of social network theory helps to recognize what is already practice and what has not yet been adopted in the IR field. Hence it will show what social network theory has to offer. The hypothesis is that by explicitly adding the relational dimension of social network theory, IR theory will become more comprehensive.

2. Theoretical Framework

This chapter will first explain the concept of relational thinking and social network theory. Then it will shortly explain the most important existing theories of IR: realism, liberalism and constructivism. Subsequently, existing concepts in IR theory are linked to comparable concepts in social network theory. Two main concepts of relational thinking in social network theory can be distinguished. The first, structural embeddedness, focuses on the configuration of the network. The second, relational embeddedness, focuses on the quality of the relations in the network.

2.1 Relational thinking

Theories based on a relational perspective differ from actor-based theories in their basic conceptual assumptions. Actor-based theories depart from the assumption that entities come first and relations between these entities are a consequence of their individual characteristics. According to the relational perspective the "units involved in a transaction derive their meaning, significance and identity from the changing functional roles they play within that interaction" (Emirbayer, 1997:287). Hence, a relational point of view gives an alternative starting point for analysing social processes. The relational view provides for an additional perspective of analysing relations as on-going processes instead of static ties connecting individual nodes. Relations do not change merely as a consequence of changes in the actors they bind. By using a relational perspective it is possible to see that relations have the ability to determine the actions of actors. Therefore, the relational perspective can help us see why actors behave in ways that were inconceivable by looking at their individual characteristics or self-interest. These actions might be rational given the context of a network consisting of relations in which states operate. Concerning the topics that theories in IR deal with, the following questions come to mind: why do states choose for cooperation while they have the capability to be self-sustainable? And why do states choose to become party in a conflict while their military capabilities are worse than those of their enemy? Actor-based theoretical perspectives are unable to answer these questions; relational thinking might provide a solution.

2.2 Social Network Theory

Social network theory is a sociology-based theory that builds upon the relational dimension. It is built on the conceptualization of nodes, the actors in a network, and ties, and the relations existing between those actors. The theory is grounded in three principles. First, the behaviour of a node is influenced by the behaviour of other nodes in the network. This means that nodes do not act independently from one another, they are mutually dependent. Second, the ties between nodes form the basis for the exchange of both goods and ideas. In other words, the ties channel the transmission of information through the network. Third, these ties have the ability to create structures among the actors in the network that can

influence their behaviour (Wasserman and Faust, 1994; as cited in Hafner-Burton et al., 2009). This suggests that because of a certain position in a social network an actor is for example constrained in its desire to enter conflict. At the same time it can be enabled to set up cooperation with unlikely partners such as former enemies. It is important to note that social network theory does not make any assumptions about the characteristics of the ties and nodes other than that the nodes are individual or social actors. Nodes can be cells, individuals, or organizations; the type of relations can vary between directional and non-directional.

Consequently, network theory can be applied to any kind of network structure. Social network theoretical concepts can be researched in the context of individuals, organizations and thus also states. As mentioned before, the only condition is that the actors in the network have to be classified as social actors. Hence, states must be classified as social actors. Various scholars have done this. Andrews (1975) was the first to theorize about the state as a social actor "in which social rules will constrain or constitute a state policy" (p. 521). Opposed to being a rational actor, a state acts based on the social interactions of "individual actors and organizational and associational complexity" (Meyer, et al., 1997:150). More recently, it is written that "three types of social actors within modern society can be identified: individuals, organizations and the state" (Baumann and May, 2001; as cited in King et al. 2010:297). According to these theorists, an organization has to have fulfilled two characteristics to be a social actor. First, it should have intentionality. This means that an actor has to act on its own behalf. Second, it should have external attribution. Other actors have to acknowledge the intentionality of the actor. For states the same conditions apply. As is central to realist IR theory, states act in their self-interest and strive for their survival. A state makes certain policy choices based on its own interest; hence, a state has intentionality. Furthermore, states are attributed the ability to act. Newspaper phrases like 'Ukraine suspends talks on EU trade pact' and 'UK must clarify view on Saudi' (*The Guardian*, November 23 2013) show this in linguistic terms. From this follows that the state can be conceptualized as a social actor, hence that social network theory can be used in IR research.

2.3 Theories of International Relations

International conflict and cooperation are relational concepts; cooperation cannot exist without at least two states having a cooperative relationship, nor can conflict exist without at least two states having a hostile relationship. By looking at how the three most important existing theories of IR explain processes by using ego- and relational factors, the way in which these relational concepts can be translated into social network theoretical concepts will become clear.

Table 1 Realism, Liberalism and Constructivism

	Realism	Liberalism	Constructivism
Major contributor	Morgenthau (1948), Mearsheimer (1994), Waltz (1979)	Keohane (1984)	Wendt (1992)
Unit of analysis	State	State, organizations	State, organizations
Nature of the state	Unitary actor, rational actor	Social actor	Social actor
Theoretical conceptualization	States act independently of their relation with other states. Their position is based upon their military and economic assets	States act according to their characteristics, but are enabled and constrained in their actions by the network they are embedded in	The structure states are part of determines how their characteristics and power is perceived by others
Causal relation	A state's (relative) characteristics → state behaviour	A state's characteristics + state's relations→ state behaviour	Social processes → identity → state behaviour

2.3.1 Realism

The realist theory of IR has long been the central focus in explanations of international state behaviour. Its starting point is states being rational actors striving for their own survival in an anarchic and hostile environment (Morgenthau, 1949; Waltz, 1979). Newer theories of IR either build upon realism or criticise it. A central point of critique is that realism falls short in explaining cooperative state behaviour (Keohane 1984; Wendt 1992), a gap that the relational perspective of network theory might be able to fill.

Realism does recognize relational characteristics that exist between states. However, these relations are seen as a consequence of the balance of power between states, not as an on going process in which relations are the cause of certain power balances. The realist theory of international relations[1] is based on four basic assumptions. Realist theory departs from an ego-level of explanation, reflected in its first two assumptions. First, realism assumes that states are the only relevant actors in the international context. Other institutions operating at an international level such as international organizations do not play a relevant role according to realism. Second, these states are unitary and rational actors. The behaviour of states results from rational reasoning given a certain situation and is neither influenced by national processes nor by other international actors. All states are alike units that have the same function, they only differ in their capabilities (Waltz, 1979). Thus, states act completely independent of other states and relations do not influence actors' choices. However, realism as well as other

---

[1] Realism knows a variety of sub-theories that are all based on four shared assumptions, and therefore explaining them in detail is not relevant for the purposes of this literature review. For the most commonly used sub-theories see Morgenthau, (1948), Mearsheimer, (1994) and Waltz (1979)

theories acknowledges that states interact with each other, and therefore ties between countries exist. Social interaction between states does happen but according to realism this is not an explanatory variable in why states behave in a certain way. The third assumption of realism is that states strive for their own survival. All state actions serve this goal.

Realism combines these three state characteristics and adds the fourth assumption of anarchy of the international system in order to explain what motivates state behaviour. This assumption has a more relational focus, insofar that the structure of the international system lacks a higher authority that manages states' relations with each other. Even though this looks like a purely relational characteristic, according to realism solely the characteristics of the ego will determine the relations that exist between the states. The relations themselves have no explanatory power to explain the behaviour of states within this anarchic structure.

As a consequence of the anarchic structure and the qualities of states, states will act egocentrically. Other states cannot be trusted as all strive for their own survival through maximizing their own security and states will not care about the wellbeing of other states. According to realism, security is reached through power, and power is measured in terms of military capabilities. "The placement of units (states) in relation to one another is not fully defined by a system's ordering principle (…). The standing of the units also changes with changes in their relative capabilities" (Waltz, 1979:82). Realism thus explains that the position of a state is always to be looked at relative to other states, and measures a state's capabilities in terms of relative capabilities. In other words, the absolute strengthening of one state automatically leads to the relative weakening of another state, even though this state did not lose any power in absolute terms. This is called the 'security dilemma'. The only way to secure the wellbeing of your own state is through relative power gains. As a consequence, states will behave in an aggressive way towards other states, as they always have to fight for their own survival.

It can be concluded that by looking at IR from the perspective of the security dilemma, realism acknowledges the relations that exist between states. However, the characteristics of these relations between states are not attributed any causal power. Realism does not conceptualize how these relations influence the anarchic structure as a whole, nor what the characteristics of the relations are and how they influence the choices states make.

Realism takes an actor-centred approach in explaining state behaviour. Cooperative behaviour reflected in ties existing between states results from the choice of a state to get involved in cooperation. As Mearsheimer (1994) puts it: "States contemplating cooperation must consider how the profits or gains will be distributed among them" (p.12). Thus, relations are seen as a product of the choices of the actor (see Table 1). Relations are actively formed if states can get advantage out of them. As Corbetta (2012) puts it, "joining behaviour has been viewed as a by-product of states' balancing (…) tendencies" (p. 372).

Because of this ego-centred view, realist theory describes the networks that are formed merely as

"mirroring the distribution of power in the system" (Mearsheimer, 1994:13). Therefore, a balance of power in the international system is the independent variable that explains conflict or cooperation; international networks represented in international institutions are merely "an intervening variable in the process" (Mearsheimer, 1994:13). This means that realism does not acknowledge the social network as having any causal power on the states acting in the network. Realism makes the network a variable in their analysis; thereby leaving aside structural and relational elements that would capture the relational aspects of IR explicitly. Thus, realist theory does not take the network as being a structure that enables or constrains states in their behaviour. Realism approaches the international network as a visualisation of the characteristics of the actors. Hence, it does not capture the relational aspect explicitly.

As a consequence of this point of view, realism has trouble explaining behaviour of states that seems to be altruistically or cooperatively driven. States do act non-egocentrically; this is because they are embedded in a certain network structure. The network alters states' behaviour and makes it less egocentric. The relational focus of social network theory would be able to add concepts to explicitly grasp this relational dimension. By examining how the presence or absence of ties between countries influences the position of a country in a network, social network theory enables for an expanded realist perspective. Because social network theory does not take the network as a holistic entity it gives the opportunity to look inside the network at its processes that influence a state's international behaviour. From the perspective of the network it can explain the emergence of cooperation and conflict. States maybe do not choose to form relations for reasons of self-interest. They might find themselves embedded in a structure that causes them to act in certain ways that would be rational from a realist perspective. Cooperation and conflict are characteristics of international state behaviour that are at least partly motivated by existing relations. The added value of social network theory next to realism is that it explicitly mentions the relational dimension implicitly captured in realist IR research.

Realism explains international state behaviour from an ego-centred point of view and takes the relational dimension as a dependent variable of state behaviour. Contrary to this, liberalism incorporates the network as an independent variable in its theory of IR

2.3.2 Liberalism

Relational structures are more explicit in the liberalist theory of IR than in the realist perspective. According to liberalism, relations are relevant in explaining state behaviour. Relations are used as explanatory factors that have the ability to influence policy choices of states. Also, being a member of an international organization alters state behaviour; it promotes cooperative behaviour and declines conflict behaviour. Liberalism acknowledges these processes as consequences of the relations of states (see Table 1).

The liberalist theory of international relations[2] is based on four core principles. First of all, liberalism assumes there is a possibility of social evolutionary progress, meaning that states can escape the 'state of nature' in which there is a constant struggle for power. The international anarchic structure can develop into a structure of international peace and cooperation. As a consequence, power is not the only goal of a state's foreign policy. Welfare and domestic political goals also play a role in states' policy choices in the international arena. This observation is opposed to the realist explanation and expectations of international state behaviour as it breaks with the idea of a constant power struggle and the security dilemma. As the power struggle becomes less significant, lasting cooperation becomes possible. This causes additional and alternative motivations for state behaviour than realism identifies, namely trade and improving welfare instead of merely focussing on survival.

The second core principle of liberalist theory does not take the state as a unitary actor in international politics. Liberalism acknowledges that processes taking place at the national level influence international state behaviour. Thus, national political structures affect foreign policy. From this follows that states are not alike-units; they differ not only in their capabilities but also in how they perform their function. Liberalism explains state behaviour as a consequence of national and international relational processes (Doyle, 1983). Thus, the relational dimension has explanatory power in state behaviour, according to the liberalist point of view.

Thirdly, liberalism acknowledges the existence of so called 'spill over effects'. This means that state networks that emerge because of for example international trade, may be a driving force for other forms of cooperation, for example in the field of security. This mechanism works for relations of conflict as well. A trade conflict between two states often leads to political conflict between these states as well. Thus, relations in networks have the ability to create new relations; relations can have a causal effect. However, liberalism focuses on the influence of one relation on another relation, not on the effect of the relation on the actors that are part of the relation. A trade relation between two states can lead to a military cooperation relation between these two states as well. Hence, this notion does not say anything about the effect the relation has on the policy choices of the actors themselves. Thus, relations are thought to be able to have causal effects in creating other relations, but these relations are still initiated by the actors themselves (see Table 1).

Finally, in relation to structure, liberalism draws a fundamentally different conclusion about the existence of international organizations and international networks than realism does. Liberalism sees these international organizations as the solution to the anarchic structure, while realist theory sees the international cooperative networks simply as a reflection of the existing power structures within the anarchic international arena. By forming institutionalized international networks, states overcome the problems that are linked to anarchy, such as uncertainty, unpredictability and the costs of competitive

---

[2] Just as realism, liberalism knows a variety of sub-theories as well. They are all based on shared assumptions; therefore there is no need for this literature review to explain them extensively here. See Doyle (1983), Keohane & Nye (1989), Smith (1776)

policies. From a theoretical standpoint, regimes (or: networks) can be viewed as "intermediate factors, or 'intervening variables', between fundamental characteristics of world politics such as the international distribution of power on the one hand and the behaviour of states (…) on the other" (Keohane, 1984:65). Liberalism attributes a causal role to international organizations in restricting conflict and promoting cooperative behaviour. "Institutions constrain self-centred behaviour, overcome the security dilemma and thereby reduce states' propensity to fight" (Russett and Oneal, 2001; as cited in Pevehouse and Russett, 2006:972). In that sense, the liberalist theory of IR acknowledges the relevance of looking at relational characteristics by using a social network theory of international relations. If relations have the capacity to influence the behaviour of states, analysing the content of relations becomes a relevant field of research.

Even though liberalism explicitly acknowledges the relevance of the relational perspective, in existing liberalist research on the effect of state networks membership has been treated primarily as state characteristics. For example, states that share membership in international governmental organizations (IGOs) are less likely to get into conflict with each other (Oneal, et al., 2003). As with realism, the ego remains the central focus of research. Yet, relations also "create networks that define the relative social position of states in the international system, which in turn create conditions for conflict or cooperation" (Hafner-Burton & Montgomory, 2006:6). According to liberalism, relations are relevant. Still the theory does not provide a sufficient theoretical basis for analysing this relational dimension of the network that causes conflict and cooperation. This is where social network theory will be able to add an additional perspective to explaining international state behaviour. Social network theory moves away from "the liberal worldview that conceives of states as independent users of IGOs toward a worldview that understands states as embedded in an interconnected set of institutional associations that endows members with varying degrees of prestige and membership within clusters" (Hafner-Burton & Montgomory, 2006:12).

While realism bases its analysis on an actor-based perspective in IR research, liberalism forms a clearer basis for incorporating the relational concepts of social network theory into the field of IR. Constructivism, in its critique on the realist line of thought, builds even more upon the relational perspective.

2.3.3 Constructivism

The constructivist theory of IR is based on the assumption that the way states act is based on social and historical constructions. The world as we know it today is a consequence of an on going social process. Constructivism criticizes the materialistic conception of power that is dominant in the realist and liberalist view. Power is not material but a social construction. In accordance with this constructivist line of thought, Lazer (2011) noted that "power is intrinsically relational; it flows from the capacity to affect other actors" (p. 66).

Constructivism builds upon the same assumption about the anarchic structure in which states act,

according to constructivism however, this anarchy is what states make of it. States interpret the position of other states in relation to themselves, and base their behaviour upon these interpretations. "Self-help and power politics are institutions, not essential features of anarchy" (Wendt, 1992:395). In contrast to realism and liberalism, constructivism puts that the self-help system and the security dilemma are not necessary consequences of the anarchic structure. The way in which international relations work depends on perceived power. Whether states posses power is partly dependent on the conception of that state by others. The identity of states is created by interaction (see Table 1). Hence, relations that provide meaning take a central place in constructivism. Identity is at the basis of power and this identity is constructed through social interaction. As a consequence, the interactive relations between states determine what international politics look like. Contrary to the realist and liberalist ideas about what motivates states to act, according to constructivism states act not simply in a way that is based on their material capabilities or their striving for survival in the self-help system. Identities become another ground for policy choices.

Furthermore, according to constructivism the diffusion of ideas and identities through the international system becomes an important source of power. When other states share your view on how to act, you will become more powerful. This implies the importance of relational aspects of IR, as they assume that networks provide for the diffusion of ideas and identities through the international community. In constructivism, relations are the explanatory mechanism for the forming of a state's identity, as well as determining the dominant policies of cooperation or conflict. By assuming this, constructivists place emphasis on relational characteristics, focusing in ideas that flow through the relations. However, this is not the same for structural characteristics of networks in which states operate. Constructivist theory does not theorize about the influence a state's relative position in a network has on this state's power and influence. Social network theory would be able to add this dimension.

Additionally, constructivists do not have a systematic approach to conceptualize and analyse these network influences. The additional value of social network theory here lies in providing a theoretical basis to structurally research relational influence. "Social network theory offers a method for measuring the sources of socialization and the diffusion of norms based on the strength of ties between states, collective state identities such as security communities, and the importance of individual states" (Hafner-Burton et al., 2009:569).

2.4 International Relations and relational concepts

The existing theories of IR explain the working of international politics mainly from an ego-based perspective. However, the theories differentiate themselves in the way they explicitly mention relational influences. On the one hand, realism does not attribute causal power to relations in explaining state behaviour. As a consequence it falls short in explaining why countries seem to alter their behaviour because they are member of international networks. Realism is unable to explain non-

egocentric, cooperative state behaviour; social network theory would be able to add a new dimension to realist theory, looking at the bigger relational picture for its analysis.

On the other hand, liberalism and constructivism both acknowledge the importance of relations, although both in a different way. Whereas liberalism acknowledges being embedded in a relational structure influences the behaviour of the ego, constructivism goes one step further and places relations at the core of state behaviour and characteristics. Despite the incorporation of relations into the conceptual frameworks of these theories, neither theory is able explain how these effects work. Liberalism takes relations as characteristics of the state. According to constructivism relations do influence the ego. Still constructivism does not look into the content of the relations, as they do not have a method how to do this. Social network theory offers this conceptual basis, and would be a valuable addition based on these theoretical starting points.

Next to the classic IR theories, some recent scholarly work makes a case for the relevance of social network theory in analysing international politics. According to Maoz (2004), three sets of factors can be distinguished that have an effect on the likelihood of states getting into conflict with each other. Next to the (1) national attributes such as military capabilities and (2) domestic political processes such as the type of government that is ruling a country, the (3) external conditions and processes which states find themselves in have the capability of influencing cooperative and conflict behaviour of individual states. Furthermore, it is noted that "existing theories of international relations use notions that are central to social network theories" (Corbetta, 2012:371), however they are not yet identified in this way. Finally, Hafner-Burton et al., claim that the social network approach can complement existing structural approaches to IR that focus on actor attributes and static equilibriums. Social network theory analyses shows how material and social relationships create structures among actors through dynamic processes. "It also provides methods for measuring theses structures, allows for the operationalization of processes such as socialization and diffusion, and opens new avenues for reconsidering core concepts in international relations, such as power" (Hafner-Burton et al., 2009:560).

Social network theoretical concepts can thus be recognized in existing realist, liberalist and constructivist theories, and in the work of more recent scholars. Conceptualizations in IR theory about how and why states act in a certain way within a network can be linked to the concepts of structural and relational embeddedness, that are central to studying social networks.

2.5 Relational and structural embeddedness

Social network theory attributes explanatory power to networks as well as to the building blocks of these networks. Networks influence the behaviour of its actors, as well as the outcomes at the network level. The dyads, which form the network, also influence the behaviour of the actors. Thus, explanatory power is attributed both to the network and dyad level. The concept of structural

embeddedness focuses on the causal power of the network, whereas relational embeddedness looks at the influence of the dyad.

Table 2 Structural and relational embeddedness

	Structural embeddedness	**Relational embeddedness**
Core	The configuration of the network	The quality of one's relations
Level of analysis	Whole network	Dyadic
Keywords	Structural holes, network closure, connectivity, centrality, hierarchy, network size, indirect ties	Trust, identity, closeness, solidarity, strong ties, weak ties
Object of study	The influence of the configuration of the network on network outcomes.	Quality of social relations influences which of those resources that are within reach will be accessed, and to what extent.

In analysing the effect of networks on the behaviour of individual actors two concepts take a central place, relational and structural embeddedness. How a network enables or constrains its actors is analysed according to these theoretical concepts or related distinctions in the literature (Burt, 1987; Granovetter, 1992). According to social network theory, a network has causal power. Therefore the position of an actor in the network influences its behaviour, as well as the content of the relation of the actor with other actors. Structural embeddedness looks at the position of an actor within the network (Moran, 2005). For example, the number of ties an actor has with other actors determines part of the strength of its position, and thereby the role that actor is able to play in the network. In IR theory this means looking at the number of coalition partners or the existence of isolated states. Relational embeddedness, on the other hand, looks at the dyadic level of explanation, and analyses the content of a relation of an actor with other actors in terms such as identity, trust, closeness and solidarity (Moran, 2005). Relational embeddedness thus identifies that what flows through the relation as being relevant for how the relation, the dyad, influences the behaviour of its actors. In IR theory, relational embeddedness would focus on how the type of relations states have causes them to cooperate or get into conflict

In existing IR theory elements of structural and relational embeddedness can be found. Realism, liberalism and constructivism all focus on different mechanisms in explaining international state behaviour, whereby realism and liberalism focus more on elements of structural embeddedness. The number of relations a state has and whether or not a state is a member of an international organizations are relational characteristics that can be linked to the structure of a network, thus structural

embeddedness. Constructivism, on the other hand, focuses more on relational embeddedness elements. The way in in which identities and ideas flow through international networks has to do with the content of the relations between states, and is therefore part of relational embeddedness.

The concepts of relational and structural embeddedness will be the starting point in finding relational dimensions in IR literature according to the concepts used in social network theory.

2.6 Theory and analysis

It is worth noting that this literature review will focus on social network theory and does not go into the field of social network analysis. This decision is based on a conceptual argument. Social network theory is originally used to theorize about networks of individuals and organizations. Even though the unit of analysis in studying whole networks in IR has a similar structure, namely the network, the individual nodes are states. Therefore they cannot be expected to behave in a similar way as organizations or individuals. Even though states as well as organizations and individuals are social actors, they do not have identical characteristics. They are similar, though not identical. This literature review focuses on to what extent relational concepts are recognizable in the literature, and how social network theory can be of additional value in the context of theorizing about states and politics. The sociological concepts used in social network theory are relatively new to the field of IR research. Therefore it is worth comparing existing and new concepts in the IR field and to see whether and to what extent these have the potential add an explicit relational dimension to IR research. Therefore, this paper focuses on social network theoretical concepts as this is thought to be the starting point for a successful inclusion of the relational dimension in the IR discipline. Social network analysis could be a subsequent step for empirical research.

3. Research Methodology

Literature from the discipline of IR that focuses on the relational dimension of IR has been searched in this literature study. This thesis is based on a strictly theoretical review to answer the research question; no empirical data study has been conducted. It is researched how relational concepts as known in social network theory are used in the IR literature, by looking for sociological concepts used in existing empirical IR studies.

3.1 Data search and collection

Scientific literature has been collected from the ISI/Web of Science database, which has been searched through Tilburg University.

Keywords relating to the concepts of relational and structural embeddedness in social network theory were used in the 'topic' and 'title' field in the literature search. The asterisk (*) was used to include plural terms, for example: network and networks were both included when searching for network*. Keywords used in the study were:

Embeddedness, network, relation, centrality, identity, trust, information, state, cooperation, peace, conflict, war

In order to narrow down the results to articles relevant for this study, the search results were filtered and only articles falling in the Web of Science Category of 'International Relations' and 'Political Science' were included. By using 'AND' in the search field, search terms have been combined to generate more specific results.

By using forward and backward snowballing more relevant literature has been found. The relevant literature that has been collected for this study is shown in Appendix A.

3.2 Data selection and analysis

The literature search resulted in 9549 articles that matched the search terms. After refining the search results to IR literature, 960 were scanned for possible inclusion in the analysis.

In order to select the literature from the search results, titles and abstracts have been read to see whether the study contained relevant information for this literature review. Due to the fact that there is little literature available that applies social network theoretical concepts into an IR analysis, criteria for inclusion in the literature have been broad.

First of all, only studies with 'states' as the object of study are included in this literature review. This excludes articles about NGOs and international studies about various sectors such as the health care sector.

Studies about international state processes that fall under the category of structural embeddedness are included if it is explicitly made clear in the abstract that the research is about causal power from the whole network, on network outcomes or on state behaviour. Many articles about international politics limit themselves to the effects of states on international networks. However, for this study only articles assessing the causal power a network has on the behaviour of the network have been included. Furthermore, the article has to focus on networks of states; relations between networks, between organizations and networks or other levels of analysis have been left out of this literature study.

Studies in IR that fall under the category of relational embeddedness are included if it is explicitly made clear in the abstract that the level of analysis is the dyadic relation between two states, and that this relation is attributed causal power to the international behaviour of these states.

The selection resulted in an inclusion of 22 articles into the literature review. A second search matrix (Table 3) was made to classify the relevant literature into the categories of relational and structural embeddedness. Then they were divided into groups matching their theoretical background: realism, liberalism or constructivism. Some literature was applicable to multiple categories.

3.3 Quality indicators

This study has systematically searched the Web of Science database for literature to be included in the analysis. In order to keep track of this research, the following is done. The relevant search terms were based on social network theory and IR literature, in order to make sure the right concepts were searched for. To find structure related literature, terms that can be linked to networks, cooperation and conflict were used. To find behaviour related literature, central objects of study in relational embeddedness literature were used as search terms, being identity, trust and information. The list of terms used in the study is not an exhaustive list of social network theory related concepts. However, an orientating search including more specific social network theoretical search terms made clear that these terms did not lead to any additional IR literature relevant for this study. Therefore it was chosen to stick to these relatively broad concepts to cover all network related IR literature and make sure no literature was missed out on. Only literature from well-known journals in IR research, that have been peer-reviewed before publications, is being used in order to enhance credibility of this literature review.

For the selection of literature, the results were scanned systematically to see whether the study assessed state behaviour, and whether a causal relation was described between network-related processes and the behaviour of states. All literature that fitted these criteria was included.

4   Results

The literature search resulted in 22 relevant articles from the field of IR that contain concepts that can be related to social network theoretical concepts. The articles that are included in this study are presented in Table 3.

Table 3 Results of literature search

	Structural embeddedness	Relational embeddedness
Realism	Corbetta (2013) **Kinne (2013)**	**Kinne (2013)**
Liberalism	Benson (2004) Bohmelt (2009) Dorussen and Ward (2008, 2010) Hafner-Burton and Montgomory (2006, 2009) Lupu and Traag (2013) Manger (2012) Oneal and Russett (1999) Oneal et al. (2003) Weiffen et al. (2011)	Bell (2013)
Constructivism	**Wirth (2009)**	Bearce (2006, 2007) Gartzke and Gleditsch (2006) Lejano (2006) Vucetic (2011) **Wirth (2009)** Rathbun (2012) Rother (2012)

It was found that the majority of IR literature does not contain research that can be captured in social network theory concepts. However, social network theoretical concepts have been found in papers from all IR theoretical backgrounds (see Table 3). Furthermore, there is an increasing amount of articles about social network theoretical concepts in the IR field in recent years.

Most studies that described processes that fit the category of structural embeddedness were found in the liberalist tradition, mainly in the subfield of international political economy. Studies fitting the concept of relational embeddedness were almost exclusively found in the constructivist tradition (see Table 3). The studies that are marked in bold fit both the category of structural and relational embeddedness.

It has been showed that the relational dimension that is captured in social network theoretical concepts can be found in IR literature. In the following paragraphs the analysis of the literature will be provided. First, the literature on structural embeddedness will be discussed. Second, the articles related to relational embeddedness will be discussed and the paragraph will be concluded with the literature relating to both concepts.

4.1 Structural embeddedness

Structural embeddedness is about the influence of the configuration of the network, meaning the existence or lack of relations between actors, on the behaviour of states or network behaviour (see Table 2). In contrast to relational embeddedness, which essentially refers to the quality and strength of a single dyadic tie, structural embeddedness is "about the extent to which a dyad's mutual contacts are connected to one another" (Granovetter, 1992:35). The literature presented here thus focuses on network structure.

Existing IR literature that includes social network theoretical related concepts of structure is mainly found in the liberalist tradition (see Table 3). This research focuses on the number of connections a state has within a network. Next to this, literature is found that focuses on the number of shared memberships of IGO networks of states, and how this affects the likelihood of conflict. These numbers are then used as variable to explain the likelihood of conflict between two states at a bilateral level, thus, the dyadic level. Hence, most existing literature focuses on membership of international networks as an independent variable that influences the likelihood of the emergence of conflict. As Hafner-Burton and Montgomory (2006) claim, this leaves two gaps in the existing literature. First, there is no extensive research on how state networks created by NGO membership influences the relations between states, "which in turn create the conditions for cooperation and conflict" (p. 6). Second, there has not yet been extensive research in a systematic manner on this network effect. However, a small amount of recent literature assesses the effect of network properties on the network outcome. A starting point for the explicit incorporation of social network theoretical concepts can be found.

Firstly, Weiffen et al. (2011) suggest that when states in a network are embedded in inter-democratic institutions, "an independent and positive effect on the conflict behaviour of its members exists" (p. 379). Secondly, Dorussen and Ward (2010) analysed the effect of trade on peace. In their analysis they find that trade networks have a pacifying effect, and that "engagement with the international trade network (…) matters more than trade links with particular third parties" (p. 41). They find evidence that indirect trade ties are becoming increasingly important to generate peace within a network of trade, meaning that communication effects are central to the emergence of peace in a network. "The importance of indirect links by way of specific third countries has declined, and the general embeddedness of state dyads in the trade network has become more relevant" (p. 29). Finally, Oneal and Russet (1999) and Oneal et al. (2003) described that the relative number of shared memberships of intergovernmental organizations has a negative effect on the likelihood of conflict between these states. By taking the number of network memberships as a state characteristic, they analysed the effect at the individual level instead of the relational level, and they could not make any predictions about the effect the position of these states in the network has on the likelihood of conflict, neither about the likelihood of conflict as a network outcome. However, the social network theoretical

concepts of structural equivalence and degree centrality could make the analysis of their observation more encompassing.

4.1.1 Structural equivalence

Structural equivalence focuses on the effect of a network structure on the behaviour of the actors within the network (Wasserman & Faust, 1997). "Two actors are structurally equivalent to the extent that they have exactly the same profile of relations with all other actors in the network" (Maoz, 2011:56). Based on the assumption that the network in which a state acts influences its behaviour, similar behaviour from states with the structurally equivalent positions can be expected.

This concept of social network theory can be found most in liberalist IR articles focusing on trade and IGO membership. When measuring the number of shared memberships of NGOs, Oneal and Russett (1999) looked at the number of ties two states shared, which is at the core of structural equivalence. By adding the social network theoretical concept, the outcomes of Oneal and Russett's research can be expanded from predicting the likelihood of conflict between two states, to predicting the type of behaviour of these countries within the network. Aggressive or cooperative behaviour in certain situations will be identical for states that are structurally equivalent. In using the concept of structural equivalence, generalizations about the behaviour of states in a certain position can be made, transcending the comparison of two states. For example, Kinne (2013) writes that structural equivalence is at the basis of network convergence and mechanisms for cooperation. The social network theoretical concept could complement the realist prediction that states with similar relative material power would behave similarly. Realism focuses on relative power positions whereas social network theory focuses on the structure in which a state is embedded. Combining both views could generate a more encompassing view, that accounts both for the influence of the actor's capabilities, and the way in which the network he operates in enables or constrains his behaviour.

4.1.2 Centrality

A second concept in social network theory that can help explain why cooperation or conflict emerges in a network is centrality. According to Freeman (1979) "centrality is an important structural attribute of social networks (...) in that it is related to a high degree to other important group properties and processes" (p. 217) in the network. Centrality measures have the ability to say something about the effect on the behaviour of actors as well as the behaviour of the network.

First, if a state is more central to a network its policy choices and actions will be more influential for other actors in the network. However, the state is also more influenced and constrained by other actors in the network, compared to a state that has a more peripheral position. By looking at the relative number of IGO memberships, Oneal and Russett were indirectly assessing the degree centrality of these states. These numbers give information about the relative centrality of one state compared to another, and thus provide information about how policies and actions of these states will

influence and are influenced by other actors in the network. Hence, by using the social network theoretical concept of centrality, predictions about how state behaviour is influenced by the position in a network can be made. This is for example done by Hafner-Burton and Montgomory (2006), who predict that centrality of states in the social network (…) will alter these states' conflict propensities due to disparities of social power given by the location of these states in the network (p. 7). Secondly, centrality has a strong effect on network outcomes as well. Freeman (1979) suggested that there are "three 'theories' of how centrality might affect group processes" (p. 238) being closeness, betweenness and centralization of the network. Literature on centrality measures of networks of states, such as closeness, betweenness and centralization, affecting the outcome of these networks has not been found. This shows a gap in the literature. Social network theory could provide an addition to IR research in this respect. For example, Leavitt "argued that the speed and efficiency of a network in solving problems as well as the satisfaction of participants and their perception of a leadership structure should be related to the tendency of a single point to be outstandingly central" (Leavitt, 1951 as cited in Freeman, 1979:227). If these logics are applied to international networks of states such as the UN, they could provide us with new insights about the effects of for example hegemony on outcomes of international peace and security.

4.1.3 Indirect ties

Indirect ties come into play when actors do not have a direct relationship but are related to each other via a third party. Liberalist IR literature (see Table 3) contains research that can be linked to the social network theoretical concepts of indirect ties. Bohmelt (2009) describes in the context of third parties intervening in disputes between two states, that "indirect links, as established for example through the network of intergovernmental organizations (IGOs) connect the disputing dyad to multiple other actors, and may thereby create connections between belligerents even if direct links are either absent or torn apart" (p. 299). In the context of non-economic ties, the literature focuses on how indirect ties created by international organizations influence the position of one state or the relation between two states. The existing literature thus focuses on the effect of structure on the actors in the network. Literature that focuses on the effect of indirect ties in a network on network outcomes has not been found. This suggests another gap in the existing literature where social network theory could be of added value. For example, indirect connections are viewed as valuable mechanisms for exchange of network-based resources (Provan et al., 2007). The efficiency of state networks in spreading knowledge about terrorism groups could be researched and predicted by using the concept of indirect ties.

In the context of international political economy, social network theoretical concepts have already to a large extent been incorporated in the research. Benson (2004) researched the effect of both dyadic trade and trade network ties, and suggests "states within a dyad have two separate paths to more

peaceful interactions. The first lies in tightening ties between states, the second in strengthening dyadic security and economic ties to the international order" (p. 659). Lupu and Traag (2013) analyse the influence of interdependence in a group of states on the likelihood of conflict, and find that "indirect trade ties decrease the probability of conflict by increasing the costs of war both for the potential combatants and for their commercial partners" (p. 23) and that therefore "states within the same trading community are significantly less likely to experience conflict with each other" (p. 23). This confirms the earlier mention research by Dorussen and Ward. Thus, in the context of international political economy, literature on indirect ties and the effect on states and the whole network can be found.

4.2 Relational embeddedness

Relational embeddedness is about the quality of the relation at a dyadic level (see Table 2). The type of relation a state has with another state, for example a relation of trust, solidarity of hostility, determines what kind of information flows through the relation, and the way a state acts in relation to the other. It focuses on the behaviour of states. Most IR literature that contains concepts that can be linked to relational embeddedness is found in the constructivist tradition (see Table 3). Three concepts reappear in the literature shared identity, trust and information flows.

4.2.1 Identity and trust

IR literature that can be related to relational embeddedness focuses almost exclusively on the concept of shared identity. For example, Gartzke and Gleditsch (2006) analyse the likelihood of conflict in a dyad of two states by looking at identity. They measure whether sharing a culture is a determining factor in the emergence of conflict or cooperation. They find that "democratic dyads are less likely to be involved in a dispute" (p. 70). Wirth (2009) also identifies shared identity as one of the determining aspects of the likelihood of conflict or cooperation in a dyad. Other authors such as Vucetic (2011) and Rother (2012) follow this line of thought by stating that the presence of a collective identity, build through dyadic interactions, shared history, language and cultural memory, influences the likelihood of conflict between states. Lejano (2006) proposes that next to the rationalist game-theoretic model that analyses the peace making process as "calculations of individual utility, carried out by individual, autonomous agents" (p. 578), a model of care should be incorporated in explaining the emergence of conflict and cooperation. This model focuses on "actions that (…) arise not out of individual calculation, but in coherence with jointly constituted relationships" (p. 578). Relationship building and identity forming happen between states through interaction, and are an essential element in explaining why cooperation or conflict emerges, next to the rational calculations explained in the game theory model.

Contrary to these authors, Rathbun (2012) argues, based on a case study of multilateralism in the NATO, that shared identity at the dyadic level is not the driving force behind cooperation among the

states. He points to another relational embeddedness concept, namely trust, as causing cooperation rather than conflict. Furthermore, he adds that a dyadic relation can have causal power in creating a common identity, which in turn enables for continuation of cooperation between states.

Realist and liberalist IR theorists have barely incorporated the effects of relational embeddedness in their analyses of international politics. In the constructivist literature however, social network theory related concepts, mainly focusing on the role of shared identity, can be found. Studies show empirical evidence that the type of dyad between two states influences the likelihood of conflict and cooperation between these two states. Although the importance of information flows is recognized in IR research, a more detailed analysis of the information flows through these dyads has not been done yet.

4.2.2 Information flows

The fact that information flows are an essential factor in the emergence of cooperation and conflict is recognized in IR literature. Bearce et al. (2006) and Bell (2013) describe how the high density of information flows in a network decreases the likelihood of militarized conflicts between the states that are part of this network. States in a dyad that are transparent about their actions and capabilities are less likely to get involved in a military dispute, and coalition networks have the same effect at a multilateral level. The more information that flows through the ties, the less likely conflict is between the states, or the members of the network. Furthermore, Bearce (2007) found that the more institutionalized these networks of states are, the more power they have in influencing their member states' interests. Through information flows, international networks of states "provide greater information about the state of the world, including information about member-states' capabilities, intentions, and so on" (p. 721). These studies acknowledge the causal power information flows can have, however, they do not analyse what type of information flows through what kind of ties. In predicting international state behaviour, this could however be of great value. IR researchers tend to jump to the conclusion that in dyads in which the actors have a shared identity, or when there is a relation of trust, the likelihood of conflict is lower than when this is not the case. Social network theory additionally analyses how the type of relations a node has determines the kind of information in the network it can acquire. Trade relations provide states with different information about other nodes in the network than relations of trust or shared identity. This is where social network theory could be of additional value. It analyses the type of information that flows through the dyad, and what the process is that causes a lower likelihood of conflict in the case of shared identity between states.

A concept that could add to the understanding of the effect of relationships between states is for example the effect of the strength of ties. According to Granovetter (1973) weak ties are necessary to gain access to new information, whereas strong ties are not suited for this purpose. This logic could be applied to IR as well. What the current IR literature lacks are studies about the content of information flows through ties of a state. Existing literature researches the type of relation a dyad can be classified into, not what this relation contains, neither what the effects of these information flows are for the

likelihood of cooperation and conflict between them. States that have a relation of shared identity or trust are less likely to get into conflict with each other. Why? Because when a state identifies itself with another it does not want to get into conflict? Or because a relation of shared identity and trust causes information flows of high quality and quantity, thereby reducing uncertainty about the other's actions, and hence lowering the chance on conflict? This has yet to be researched, and Granovetter's notion about the strength of ties could be of theoretical value here. By combining the recognition in IR that information flows matter, and that different types of relations between states can exist, social network theory could add a better understanding of what information is available to states and what is not. In might enhance the predictive value of what certain ties between states mean for the emergence of cooperation and conflict.

4.3 Mixed

Most literature that has been object of study in this literature review could be connected either to the concept of structural or relational embeddedness. Two articles however described both the effect of structure and the content of relations on state practices, and how this influences the likelihood of conflict and cooperation (see Table 3). These articles looked at the mutual influence of structural and behavioural characteristics on international state behaviour. Kinne (2013) describes how similar structures of relations of states (structural embeddedness) leads to a mechanism that establishes mutual trust between these states (relational embeddedness). If two states have an identical structure of relations with other states, this leads to a relation of trust and consequently reduces the likelihood of conflict. Wirth also connects structural embeddedness to relational embeddedness in the context of third party influence. He confirms Wendt's theoretical assumption that "external constraints by a third party may facilitate or complicate the building of trust in this process" (Wendt, 1999; as cited in Wirth 2009:491). This can be connected to structural embeddedness. "The more structural embeddedness there is in a network, the more information about each player is known to all the other players and the more constraints there are on each player's behaviour" (Burt, 1992).

These articles distinguish themselves from the other articles included in this literature review, in the sense that they take an encompassing approach in looking at state behaviour from a structural, relational and IR point of view. Whereas in other studies elements can be recognized that relate to social network theoretical concepts, the articles by Kinne and Wirth take social network theoretical concepts as a starting point in their analysis. They combine insights from sociology as well as the IR tradition, and thereby create an encompassing study that shows the potential of including social network theory into the field of IR research.

The literature analysis resulted in finding social network theoretical related concepts in literature from all three IR theories, but only in a small number of articles. Even though various concepts of structural and relational embeddedness can be found in existing IR literature, these concepts are often not used

to the full extent. Processes linked to structural embeddedness such as structural equivalence, centrality and indirect ties are found in IR literature, just like relational embeddedness concepts as identity, trust and information flows. However, related concepts such as closeness, betweenness, centralization and strong and weak ties are not found. Thus, relational processes in IR are mentioned in the literature, but these are rarely linked to concepts that can be researched systematically. The relational dimension is only researched to a limited extent. Next to this, only a limited number of social network theoretical concepts was found. Social network theory seems to have complementary value with existing IR research, and has potentially new concepts to offer that make IR research more comprehensive.

5 Conclusion and discussion

This literature review aimed at providing an overview of social network theoretical concepts in IR research. In doing so, the thesis tried to unveil whether and how social network theory could be of complementary value to IR research by making the relational dimension of IR more explicit, and by adding concepts that are not yet incorporated in existing IR research. The literature review aimed at answering the following research question:

To what extent are relational concepts recognizable in international relations research according to the literature, and in what way is social network theory able to add new relational concepts to existing international relations theory to make its analysis more comprehensive?

There is very little literature available in the field of IR research that contains relational concepts from social network theory. Literature that does contain these concepts can be found in realist, liberalist and constructivist traditions. This is striking given the fact that realism does not provide a clear basis for attributing causal power to the relational aspect of IR. Two articles have been found that combine the realist tradition of an actor-centred view with the relational dimension, moving away from traditional realist theory. Still, the vast majority of IR literature that explicitly contains the relational dimension can be found in the liberalist and constructivist theoretical background. The structural dimension of networks is found mainly in the liberalist tradition. Concepts that are related to structural equivalence, centrality and indirect ties are found in the literature. However, these concepts are not used to the full extent. Structures are described, but the causal power networks can have on the behaviour of states embedded in a network structure according to the relational dimension is often neglected. Concepts that can be linked to relational embeddedness can be found mainly in the constructivist tradition. Here identity and trust are central in the research, and IR literature recognizes information flows as being an important causal mechanism in international state behaviour. Unexpectedly though, the relations are given few substantive meaning. Research about the content of relations remains superficial.

5.1 Implications

The aim of this literature review was to explore whether and how the relational dimension of social network theoretical concepts is used in existing IR research. The literature review did provide a valuable insight into the state of the art of IR literature containing social network theoretical related concepts. It showed that literature based on realism, liberalism and constructivism all, to various degrees, contain the relational dimension. However, the link to social network theoretical concepts is rarely made in the literature. Some social network theoretical concepts are described but not used to the full extent; others are not yet included in the research. The small number of articles that has been

found in the literature search shows that interdisciplinary research combining the sociological theory of social networks and IR is a field yet to discover. It suggests that a branch of research has been identified with big potential for new research. Social network theory has complementary value with existing IR theory. If used together the theories might provide new insights in international cooperation and conflict between states. By looking at international state behaviour as being shaped by the networks state act in, the analysis of IR becomes broader.

The incorporation of social network theoretical concepts to existing IR theory provides an additional starting point for its analysis: the network. It makes the relational dimension of IR more explicit and better researchable. Furthermore, social network theory offers concepts that are not yet found in IR literature, such as strong ties and weak ties, that have the potential to unveil new processes in international state behaviour that have not yet been researched. The inclusion of social network theory has the potential to make the analysis of IR more comprehensive.

5.2 Limitations of the study

This study aimed at exploring whether and how the relational dimension of social network theoretical concepts is used in existing IR research. The choice was made to focus on the three main theories of IR: realism, liberalism and constructivism, as the starting point for the research. This choice was made because the grand majority of IR research is based on one of these three theories. Still, other theories of IR exist. These are all to some extent based upon the three main theories, however they all have their own (political) background and base their analysis on somewhat different assumptions. The two most accepted 'alternative' theories of IR are Marxism and feminism. The results of this study showed that relational dimension concepts of social network theory were found across the three main theories of IR. Given the fact that Marxism and feminism are closely related to the three main theories, social network theoretical related concepts might be found in these theories as well. Because Marxism and feminism were not included in this literature review, the results presented might not be complete. This provides an opportunity for further research, additional relational concepts might be found if the literature search is extended, including papers based on these additional theoretical backgrounds.

A second, more theoretical point is that this literature review accepts that social network theory is applicable in IR research. The article showed that the only assumption social network theory makes about the network, is that its actors can be classified as social actors. The literature defines the state as a social actor; hence social network theory can be used in IR research. In other words, according to social network theory itself, its method can be applied to the analysis of international conflict and cooperation. However, there is one major difference between a network of states on the one hand and a network of people or organizations on the other hand. An international network of states is a far more permanent and static object of study than networks of people or organizations. In the case of people and organizations, actors have the ability to leave one network and enter a different network. Also, new networks are created relatively easily. States can however not leave the international arena,

and the establishment of new intergovernmental networks is a complicated, political charged and time-consuming process. Furthermore, interdependence between states is extremely high in the current world order. States can simply not survive without relations of trade and cooperation with other states. There are very few exit options available. This is not a dimension social network theory makes any assumptions about and therefore this is not an obstacle for the use of this theory in to context of states. Still it is a major difference in how the two types of networks work, that might have theoretical implications. It can be expected that the permanent and static character of networks of states influences the outcomes of network processes. Social network theoretical concepts could maybe not be applied to these networks without adapting them to the new context. Future research into this question might provide an answer whether this important difference between networks of states and organizations and people creates a problem for the use of social network theory in IR research.

The literature review has unveiled the possibilities of social network theory to capture the relational dimension that the realist, liberalist and constructivist theories of international relations contain. Next to this, it was found that social network theory has to offer new concepts that are not yet included in IR research to make it more comprehensive. This is a starting point for future research: applying social network theoretical concepts to the relational dimension in IR research to complement existing research. Furthermore, future research could add new relational concepts to IR research, and look into the potential differences between networks of organizations and people on the one hand, and networks of states on the other.

6 References

Andrews, B. (1975) Social Rules and the State as a Social Actor, *World Politics*, vol. 27, no. 4, pp. 521-540

Barry, A. (2013) The Translation Zone: Between Actor-Network Theory and International Relations, *Millennium Journal of International Studies*, vol. 41 no. 3, pp. 413-429

Bearce, D. H., Bondanella, S. (2007) International Organizations, Socialization, and Member-State Interest Convergence, *International Organization*, vol. 61, no. 4, pp. 703-733

Bearce, D. H., Flanagan, K. M., Floros, K. M. (2006) Alliances, Internal Information, and Military Conflict Among Member States, *International Organizations*, no. 60, pp. 595-625

Bell, S. R. (2013) What you don't know can hurt you: Information, external transparency, and interstate conflict, 1982 −1999, *Conflict Management and Peace Science*, vol. 30, no. 5, pp. 452-468

Benson, M. A. (2004) Dyadic Hostility and the Ties That Bind: State-to-State versus State-to-System Security and Economic Relationships, *Journal of Peace Research*, vol. 41, no. 6, pp. 659-676

Bohmelt, T. (2009) International Mediation and Social Networks: The Importance of Indirect Ties, *International Interactions*, vol. 35, pp. 298–319

Borgatti, S. P., Foster, P. C. (2003) The Network Paradigm in Organizational Research: A Review and Typology, *Journal of Management*, vol. 29, no. 6, pp. 991-1013

Burt, R. S. (1987) Social contagion and innovation: Cohesion versus structural equivalence, *American Journal of Sociology*, vol. 92, no. 6, pp.1287–1335.

Burt, R. S. (1992) *Structural holes: the social structure of competition*, Harvard University Press, Cambridge

Corbetta, R. (2012) Cooperative and Antagonistic Networks: Multidimensional Affinity and Intervention in On-going Conflicts, 1946-2001, *International Studies Quarterly*, vol. 57, pp. 370-384

Dorussen, H., Ward, H. (2008) Intergovernmental Organizations and the Kantian Peace: A Network Perspective, *Journal of Conflict Resolution*, vol. 52, no. 2, pp. 189-212

Dorussen, H., Ward, H. (2010) Trade Networks and Kantian Peace, *Journal of Peace Research*, vol. 47, no. 1, pp. 29-42

Doyle, M. W. (1983) Kant, Liberal Legacies, and Foreign Affairs, *Philosophy and Public Affairs*, vol. 12, no. 3, pp. 205-235

Emirbayer, M. (1997) Manifesto for a Relational Sociology, *American Journal of Sociology*, vol. 103, no. 2, pp. 281-317

Freeman, L. C. (1979) Centrality in Social Networks Conceptual Clarification, *Social Networks*, vol. 1, pp. 215-239

Galazkiewicz, J. (1985) Interorganizational Relations, *Annual Review of Sociology*, vol. 11, pp. 281-304

Gartzke, E., Gleditsch, K. S. (2006) Identity and Conflict: Ties that Bind and Differences that

Divide, *European Journal of International Relations*, Vol. 12, No. 1, pp. 53-87

Granovetter, M. S. (1992) Problems of explanation in economic sociology, *Networks and Organization: Structure, form and action*, pp. 25-56

Granovetter, M. S. (1973), The strength of weak ties. *American Journal of Sociology*, vol. 6, pp. 1360–1380

Hafner-Burton, E. M., Kahler, M., Montgomery, A. H. (2009) Network Analysis for International Relations, *International Organization*, Vol. 63, No. 3, pp 559 - 592

Hafner-Burton, E. M., Montgomery, A. H. (2006) Power Positions, International Organisations, Social Networks and Conflicts, *Journal of Conflict Resolution*, Vol. 50 No. 1, pp. 3-27

Hafner-Burton, E. M., Montgomery, A. H. (2009) Power or Plenty: How Do International Trade Institutions Affect Economic Sanctions? *Journal of Conflict Resolution*, vol. 52, no. 2, pp. 213-242

Keohane, R. O. (1984) *After Hegemony, Cooperation and Discord in the World Political Economy*, Princeton University Press, United Kingdom

Kinne, B. J. (2013) IGO membership, network convergence, and credible signalling in   militarized disputes, *Journal of Peace Research*, vol. 50, no. 6, pp. 659-676

King, B. G., Felin, T., Whetten, D. A. (2010) Perspective – Finding the Organization in Organizational Theory: A Meta-Theory of the Organization as a Social Actor, *Organization Science*, Vol. 21, No. 1, pp. 290-305

Lazer, D. (2011) Networks in Political Science: Back to the Future, *PS: Political Science and Politics*, Vol. 44, No. 1, pp. 61-68

Lejano, R. P. (2006) Theorizing Peace Parks: Two Models of Collective Action, *Journal of Peace Research*, vol. 43, no. 5, pp. 563-581

Lupu Y., Traag, V. A. (2013) Trading Communities, the Networked Structure of International Relations, and the Kantian Peace, *Journal of Conflict Resolution*, vol. 65, no. 6, pp. 1011-1042

Maoz, Z., Terris, L. G., Kuperman, R. D., Talmund, I. (2007) Network Centrality and International Conflict, 1816-2001: Does it Pay to Be Important? *Applications of Social Network Analysis: Universitat Verlag Konstanz,* pp. 121-151

Maoz, Z. (2011) *Networks of Nations, The Evolution, Structure, and Impact of International Networks, 1816-2001*, Cambridge University Press, New York

Mearsheimer, J. T. (1994) The False Promise of International Organizations, *International Security*, vol. 19, no. 3, pp. 5-49

Meyer, J. W., Boli, J., Thomas, G. M., Ramirez, F. O. (1997) World Society and the Nation-State, *American Journal of Sociology*, vol. 103, no. 1, pp. 144-181

Moran, P. (2005) Structural vs. Relational Embeddedness: Social Capital and Managerial Importance, *Strategic Management*, vol. 26, pp. 1129-1151

Oneal, J. R., Russett, B. (1999) The Kantian Peace: The Pacific Benefits of Democracy, Interdependence, and International Organizations, *World Politics,* vol. 52, no. 1, pp. 1-37

Oneal, J. R., Russett, B., Berbaum, M. L. (2003) Causes of Peace: Democracy, Interdependence, and International Organizations, 1885-1992, *International Studies Quarterly*, vol. 47, pp. 371-393

Pevehouse, J., Russett, B. (2006) Democratic International Governmental Organizations Promote Peace, *International Organization*, vol. 60, no. 4, pp. 969-1000

Provan, K. G., Fish, A., Sydow, J. (2007) Interorganizational Networks at the Network Level: A Review of the Empirical Literature on Whole Networks, *Journal of Management*, vol. 33, no. 3, pp. 479-516

Rathbun, B. C. (2012) From vicious to virtuous circle: Moralistic trust, diffuse reciprocity, and the American security commitment to Europe, *European Journal of International Relations*, vol. 18, no. 2, pp. 323-334

Rother, S. (2012) Wendt Meets East: ASEAN cultures of conflict and cooperation, *Cooperation and Conflict*, vol. 47, no. 1, pp. 47-69

Vucetic, S. (2011) Bound to Follow? The Anglo sphere and US-led coalitions of the willing, 1950-2001, *European Journal of International Relations*, vol. 17 no. 1, pp. 27-49

Waltz, K. N. (1979) *Theory of International Politics*, Columbia University: Waveland Press Inc.

Wasserman, S., Faust, K. (1997) *Social network analysis: Methods and applications*, Cambridge University Press, New York

Weiffen, B., Dembinski, M., Hasenclever, A., Freistein, K., Yamauchi, M. (2011) Democracy, Regional Security Institutions, and Rivalry Mitigation: Evidence From Europe, South America, and Asia, *Security Studies*, vol. 20, pp. 378-415

Wendt, A. (1992) Anarchy is what States Make of it: The Social Construction of Power Politics, *International Organization*, vol. 46, no.2, pp. 391-425

Wirth, C. (2009) China, Japan, and East Asian regional cooperation: the views of 'self' and 'other' from Beijing and Tokyo, *International Relations of the Asia-Pacific,* vol. 9, pp. 469–496

7   Appendices

Appendix A. Search matrix

Search terms	Hits	Hits after refining	Literature included
Structural embeddedness			
Topic embeddedness AND conflict* AND state* OR Topic embeddedness AND peace AND state*	33	5	Dorussen & Ward (2010), Weiffen, et al. (2011)
Topic network AND relation* AND conflict* OR network AND relation* AND cooperation* OR	3464	241	Benson (2004) Lupu & Traag (2013), Manger (2012)
Topic network AND centrality AND conflict* OR network AND centrality* AND cooperation*	121	12	Hafner-Burton & Montgomory (2009)
	Backward snowballing: Dorussen & Ward (2008), Hafner-Burton & Montgomory (2006), Oneal et al. (2003), Oneal & Russett (1999)		
Relational embeddedness			
Topic identity AND cooperation AND state* identity AND conflict* AND state*	1603	215	Gartzke & Gleditsch (2006), LeJano (2006), Rhatbun (2011), Rother (2012), Vucetic (2010), Wirth (2009)
Topic trust AND cooperation* AND state* OR Topic trust AND conflict* AND state*	517	86	Kinne (2013)
Topic information AND cooperation AND state* OR information AND conflict AND state*	3811	401	Bell (2013), Bohmelt (2009), Bearce (2007, 2006), Corbetta (2012)

Author/title/year	Type of study	Type of embeddedness	Level of analysis	Dependent variable	Independent variable	Main findings
Bearce (2006) Alliances, Internal Information, and Military Conflict among Member-States	Quantitative analysis	Relational embeddedness	- Dyad - Network	Likelihood of militarized dispute	- Democracy - Economic growth - Trade interdependence - Power preponderance - Joint alliance	Alliances provide such information to internal participants of IGOs, and greater knowledge within the alliance about member state military capabilities, reduces certain information problems that could potentially lead to war.
Bearce (2007) International Organizations, Socialization, and Member-State Interest Convergence	Quantitative analysis	Relational embeddedness	Network	Density of institutional interactions	Interest similarity	Institutionalized IGOs have a strong effect on the interest of their member states. Unstructured IGOs reveal no effect in promoting member-state interest convergence. Following recent theory arguing that great powers in the international system often use IGOs for coercive means, we find that institutional socialization gets weaker as the power imbalance within the dyad grows.
Bell (2013) What you don't know can hurt you: Information, external transparency, and interstate conflict, 1982 −1999	Quantitative analysis	Relational embeddedness	Dyad	Likelihood of militarized dispute	- External transparency - Mass unrest - Elite unrest	Governments that are more externally transparent are less likely to initiate conflict and are less likely to have the opportunity to use force for diversionary purposes.
Benson (2004) Dyadic Hostility and the Ties That Bind: State-to-State versus State-to-System Security and Economic Relationships	Quantitative analysis	Structural embeddedness	- Dyad - Network	Hostility	- State ties to one another - State ties to the international order - States' Joint Ties to One Another and the International Order	Both (1) tight security and economic ties to the international order and (2) tight intra-dyadic security and economic ties have important, independent effects in limiting dyadic hostility. This suggests that the states within a dyad have two separate paths to more peaceful interactions – the first lies in tightening ties between states, the second in strengthening dyadic security and economic ties to the international order.

Bohmelt (2009) International Mediation and Social Networks: The Importance of Indirect Ties	Social network analysis	Structural embeddedness	Network	Likelihood of militarized dispute	- Direct links - Indirect Links - Maximum Flow of Information	Indirect, rather than direct, links between belligerents determine whether third parties are more likely to manage a conflict. Indirect ties create a social network that directly involves outside parties into disputes. This will increase the exchange of information, as well as the chances that third parties have a vital interest in intervention.
Corbetta (2012) Intervention in Conflicts from a Network Perspective	Quantitative analysis	Structural embeddedness	Triadic relation	Intervention in conflict	Balance in triadic relations	The nature of the triadic relations among disputants and third parties influences not just the likelihood of intervention, but also the type of intervention. When triadic relations are unbalanced, third parties are more likely to intervene as intermediaries. On the contrary, when triadic relations are balanced, third parties are more likely to intervene in a partisan manner.
Dorussen & Ward (2008) Intergovernmental Organizations and the Kantian Peace: A Network Perspective	Social network analysis	Structural embeddedness	Network	International peace and stability	Existence of intergovernmental organizations	International stability is not necessarily the direct and individual impact of IGOS, because they generally are institutionally weak. Rather, membership of IGOs creates network ties between states, allowing them, either individually or collectively, to intervene more effectively in latent conflicts. The IGO network also provides direct and indirect communication channels, where indirect links can act as partial substitutes for direct diplomatic ties.
Dorussen & Ward (2010) Trade networks and the Kantian peace	Social network analysis	Structural embeddedness	Network	Likelihood of conflict	Density of trade networks	Trade networks are pacifying in that both direct and indirect trade linkages matter, and as the global trade network has become more dense over time, the importance of indirect links by way of specific third countries has declined, and the general embeddedness of state dyads in the trade network has become more relevant.
Gartzke & Gleditsch (2006) Identity and Conflict: Ties that Bind and Differences that Divide	Quantitative analysis	Relational embeddedness	Dyad	Likelihood of conflict	- Linguistic similarity - Religious similarity - Ethnic similarity	Violence is more likely among states with similar cultural ties. Furthermore, dyads where a group is politically privileged in one state but a minority in another tend to be particularly conflict prone.

Hafner-Burton and Montgomory (2006) Power positions, International Organizations, Social Networks and Conflict	Social network analysis	Structural embeddedness	- Dyad - Network	Militarized interstate disputes	Social networks of intergovernmental organizations (IGOs)	IGO memberships creates a disparate distribution of social power, significantly shaping conflicts between states. Membership partitions states into structurally equivalent clusters and establishes hierarchies of prestige in the international system. These relative positions promote common beliefs and alter the distribution of social power, making certain policy strategies more practical or rational.
Hafner-Burton and Montgomory (2009) Power or Plenty: How Do International Trade Institutions Affect Economic Sanctions?	Quantitative analysis	Structural embeddedness	Network	Sanctioning behaviour of s state	Preferential Trade Arrangements	Increases in bilateral trade do decrease sanctioning behavior; while an increase in the potential sanctioner's GDP or centrality in the network of all Preferential Trade Arrangements (PTA) make sanctioning much more likely. However, mutual membership in PTAs has no direct effect on the propensity of states to sanction each other.
Kinne (2013) IGO membership, network convergence, and credible signaling in militarized disputes	Quantitative analysis	Structural embeddedness Relational embeddedness	Network	Likelihood of conflict	Network convergence	Network convergence strongly correlates with a decline in militarized dispute initiations. The more that states collaborate with one another's IGO partners, the less likely they are to fight
LeJano (2006) Theorizing Peace Parks: Two Models of Collective Action	Model	Relational embeddedness	Dyad	Likelihood of conflict	Presence of 'peace parks'	Next to game-theoretic incentives such as self-interest and a cost/benefit analysis, care-based incentives such as relationships that constitute identity evolve in coherence with the web of relationships, and influence the likelihood of conflict.
Lupu & Traag (2013) Trading Communities, the Networked Structure of International Relations, and the Kantian Peace	Quantitative analysis	Structural embeddedness	- Dyad - Network	Likelihood of conflict	- Indirect trade ties - Trading communities	Indirect trade relations reduce the probability of conflict by creating (1) opportunity costs of conflict beyond those reflected by direct trade ties and (2) negative externalities for the potential combatants' trading partners, giving them an incentive to prevent the conflict. Trade flows create groups of states with relatively dense trade ties. Within these groups, the interruptions to trade caused by conflict create relatively large costs. As a result, joint members of trading communities are less likely to go to war; however little they directly trade with each other.

Manger (2012) A Hierarchy of Preferences: A Longitudinal Network Analysis Approach to PTA Formation	Network analysis	Structural embeddedness	- Dyad - Network	Trade partners	Country's income	Supplanting the multilateral trade regime with preferential agreements creates a system of highly asymmetrical relationships of weaker spokes around a few hubs.
Oneal et al. (2003) Causes of Peace: Democracy, Interdependence, and International Organizations, 1885-1992	Quantitative analysis	Structural embeddedness	Network	Militarized interstate disputes	- Trade and economic interdependence - Joint IGO membership - Capability ratio - Alliance - Distance	The pacific benefits of democracy, economic interdependence, and international organizations are all the more apparent if they are compared to the effects of alliances and a preponderance of power, the elements stressed in realist theories of international politics. Surprisingly, alliances do not reduce the likelihood of interstate disputes, even fatal ones, when the influences of the Kantian variables and previous dyadic conflicts are held constant.
Oneal & Russett (1999) The Kantian Peace: The Pacific Benefits of Democracy, Interdependence, and International Organizations, 1885-1992	Quantitative analysis	Structural embeddedness	-Dyad -Network	Involvement in military disputes	- Democracy - Economic interdependence - Involvement in IGOs	Democracy, economic interdependence, and involvement in international organizations reduce the incidence of militarized inter state disputes. The international system is more peaceful when there are more democracies and when trade is greater. All dyads –even those not democratic or interdependent- become less dispute-prone when those systemic Kantian variables increase.
Rhatbun (2011) From vicious to virtuous circle: Moralistic trust, diffuse reciprocity, and the American security commitment to Europe	Case study	Relational embeddedness	Dyad	NATO cooperation	Moralistic trust	Moralistic trust facilitates the initiation of cooperation, so that states begin a virtuous circle of trust, collaboration and enhanced trust. It is also the foundation of diffuse reciprocity inherent to multilateralism.

Rother (2012) Wendt meets East: ASEAN cultures of conflict and cooperation	Case study	Relational embeddedness	- Dyad - Network	Norms of conflict or cooperation	- Collective identity - State identity - Interaction - External influence - Cultural memory	The existence of a collective identity among states in a given region can manifest itself in distinctive logics or cultures of anarchy. These are based on norms of conflict or cooperation that can be established through interaction, can be proposed by outside agents and localized, or can be affected by the re-negotiation of state identity caused by domestic events. In addition, norms rooted in the cultural memory or consciousness of a region.
Vucetic (2010) Bound to follow? The Anglosphere and US-led coalitions of the willing, 1950 −2001	Quantitative analysis	Relational embeddedness	Dyad	Coalition forming	Shared language	English- speaking states/nations tend to be more willing to join US-led military coalitions than states/nations selected at random.
Weiffen, et al. (2011) Democracy, Regional Security Institutions, and Rivalry Mitigation: Evidence From Europe, South America and Asia	Case study	Structural embeddedness	Dyad	Extent of rivalry mitigation	Embeddedness of international institutions	The embeddedness of international institutions in transnational and trans-governmental linkages corresponds to each member's regime type and that these institutional differences are responsible for the varying extent of rivalry mitigation.
Wirth (2009) China, Japan, and East Asian regional cooperation: the views of 'self' and 'other' from Beijing and Tokyo	Case study	Relational embeddedness Structural embeddedness	Dyad	Likelihood of conflict	- Different interpretations of history - Power shift	Bilateral relations should be assessed on the basis of a comprehensive approach including both the realist approach of power balance and the constructivist approach of representation of the 'self' and 'others'.