Policy Networks and Relationalism

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Abstract

The paper examines the philosophical foundations of network analysis/network science in the research on public policy and governance. The application of social network analysis (SNA) to policy analysis emerged during the late 1980s and early 1990s. However, this type of policy research was rather a latecomer compared to the use of SNA in sociology and other areas of social science. For a long time SNA was just treated as a specific methodological toolbox for analyzing a particular kind of data. However, since some time, an increasing number of scholars in social and political science conceive „relationalism“ as a new meta-theoretical frame or background philosophy for network studies. The basic idea emerged with American sociology in the 1990s and has spread into other areas of social analysis, for instance into social geography and recently also into political science. The goal of this paper is to trace and outline this debate, and to evaluate its implications and analytical potential for policy analysis and governance studies. In this respect the new theoretical orientation will be contrasted with other streams of theorizing such as various forms of institutionalism, structuralism, and different ideational variants emphasizing discourses and belief systems. The paper first gives a short overview on network analysis and network thinking in policy analysis, and then will locate this type of research network in a two-dimensional landscape of science, e.g. to identify if it is just a metaphor, a paradigm, an approach, a method or a theory. In a next step the paper discusses the promises of relationalism for political network analysis and its implications for policy network research. In this respect some variants of relationalism and varieties of relations in policy-making will be discussed.
1. Introduction

During the last decades social network analysis has also gained popularity in the various research fields of political science. Many of its methods are used in comparative politics and international relations, but also in public policy analysis and public administrations. A dominant part of this research is focused on networks in public policy. Policy networks are constellations of public and private actors which generate and implement public policies at all political levels – from local community politics to collective action at the global level.

Figure 1: The development of policy network literature

Like in other research areas of social network analysis, the study of political networks aims to find a systematic description and explanation of “network effects” and “network effectiveness, the influence and constraints of “relational structures” in the political realm and their modi operandi (Kenis & Raab 2007, Provan & Milward 1995). An increasing number of studies have taken this orientation. Some years ago we have compiled a systematic biography of publications on political networks (Schneider et al. 2007)1 which Philip Leifeld has also analyzed in a bibliometric perspective (Leifeld 2007). The diagram in Figure 1 is based on this study and shows the development of qualitative (red triangles) and quantitative studies (black points) on networks in public policy. Since the early 1990s both research orientations have expanded continuously.

Already in the early stages of the emergence of this new research field a debate on its epistemological status began. Tanja Börzel complained about the conceptual variety and confusion

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1 Our bibliography included more than a thousand titles from the mid 1970s up to 2007. There were about 200 quantitative studies, about 550 articles on qualitative research, and around 250 reviews and methodological articles. See http://www.uni-konstanz.de/FuF/Verwiss/Schneider/ePapers/PolNetw_StructBibliography.pdf
in this research area (Börzel 1998), and other scholars criticized the metaphorical orientation of this debate (Dowding 1995, Pappi & Henning 1998). Can policy network analysis be based on a theory or a model? Is it a new paradigm, a specific approach or just a bundle of specialized methods? A number of scholars use “policy networks” as a core concept of a new theory on the governance of modern societies with a more refined view on the relationship between state and society (Mayntz 1996, Rhodes 2006). For other scholars the study of networks and social relations in policy making is just a theory-unspecific application of analytical methods and research techniques that are compatible to a great variety of concepts with theoretical approaches (Knoke 2011, Pappi 1993). Even other researches complain about the metaphorical orientation in network thinking and argue for its systematic location in foundational social theories (Dowding 1995).

Interestingly, a similar debate took place during the 1980s in sociology, when Granovetter and Burt criticized the poverty of theory in social network analysis (Burt 1980, Granovetter 1979). But times are changing. Meanwhile a kind of “catch-up- theorizing” has taken place, and an increasing number of scholars are talking of “network theory” (Borgatti & Lopez-Kidwell 2011). Some schools of thought even propagate the emergence of a “network paradigm” and the establishment of “network science” (Börner et al 2007).

Even more pretentious are efforts aiming at the philosophical foundation of network research in a new kind of X-ism, i.e. relationalism. Already in the 1980s Wellman conceived network analysis as a broad intellectual approach implying a specific world view (Wellman 1983). About a decade later Emirbayer has tried to promulgate this idea in a “manifesto for a relational sociology” (Emirbayer 1997). In his perspective social network analysis is conceived

“… not primarily a theory or even a set of complicated research techniques, but rather a comprehensive new family of analytical strategies, a paradigm for the study of how resources, goods, and even positions flow through particular figurations of social ties.” (Emirbayer 1997: 313)

During the last decade the idea of relationalism has gained an increasing number of followers. As a bibliometrical analysis on the basis of Google Scholar and Web of Knowledge shows, a veritable academic industry has emerged under this rubric, despite some variation in the meaning of the term “relational” or “relationalism” (cf. the various subdomains of this literature, above all sociology, geography, psychology, and management).

In the context of this new theory development, this paper is dealing with the promises and shortcomings of this new philosophical perspective. The paper thus applies a metatheoretical perspective. Metatheory in this sense is not a walk “into the houses of mirror, brilliant but exitless” (Skocpol 1987), but a valuable cleanup work in the jungle of knowledge. Its major goal is to bring some order in a sometimes confusing debate by inspecting various concepts and methods to identify potentials and shortcomings in this research area. A central question will be how the new relationalism can enhance political network analysis. Network research has not only to settle its theoretical and methodological status, but has also to reflect its philosophical foundation. To begin with these questions will be approached by localizing “relationalism” and political network research in the cognitive space of science. Thereafter aspirations and shortcomings of “relationalist thinking” will be discussed. The concluding section
will formulate a skeptical position towards a “pure relational” perspective in which only “relations are at work”. The paper calls for a pluralist ontological position, in which the world is governed not only by one single principle.

2. Between background knowledge, theory and observation

In order to examine the relationship between political network analysis and relationalism, both cognitive entities first have to be discussed at a philosophical level within the cognitive space of science. Metatheory relates to the spectrum of various activities, instruments and cognitive intermediates in the production of scientific knowledge. In the 1980s Jeffery Alexander conceptualized the “scientific continuum” as a spectrum of increasing abstraction from empirical reality to metaphysics (Alexander 1982). Starting by observation, it proceeds over methods, correlations, and propositions via increasing abstraction to concepts, models, and general presuppositions, which form the most abstract level. The latter includes implicit assumptions and background knowledge for any form of theory building. Fruitful in this perspective is that the naive, positivist view of theory building is overcome, and the multiple layers in the knowledge production are recognized. However, despite these improvements, Alexander’s continuum still implies some shortcomings: important key concepts are missing; the ordering of concepts is not fully convincing; and the multiple facets of theorizing are reduced to a single dimension.

Figure 2: The scientific space

Drawing on the work of the Canadian philosopher of science Mario Bunge, it is more convincing to expand Alexanders “continuum” into a two-dimensional space (Bunge 1996, Bunge 1998). In addition to the dimension of increasing abstraction there is also a dimension
of increasing precision. These two dimensions are depicted in Figure 2. Empirical knowledge can be, on the one hand, intuitive and vague, without an explicit specification of assumptions that underlie measurement and observation. For instance, if measurement is based on a clear indicator concept, we know in detail how facts are represented in data. Furthermore, at the level of theory this perspective distinguishes between vague and implicit background knowledge and explicated, precise theories. Theories should be hypo-deductive conceptual systems, or at least conceptual networks and analytical frames. Paradigms are mental figurations at a higher level, including families of theories with similar architectures, design principles, and world views (Bunge 1996, Bunge 1998, Bunge 2003).

At the empirical level an important distinction should be made between facts and data. The latter are representations of facts which are matched with models or theories at a more abstract level. Axiomatic, mathematized theory expresses maximal “farness” from the empirical reality. In the following section we try to arrange the different metatheoretical components of network analysis and relationalism in this two-dimensional space.

3. From network metaphors to network science

To conceive society as an organism or the state as a ship was the starting point of famous political metaphors and grand theories on state and society (take for instance Plato’s republic). For network thinkers there is also a broad array of images available (Brandes & Schneider 2009).

![Network Metaphors](image)

**Figure 3: Network Metaphors**

Everybody who has looked at a spider’s web or a fisher’s net can easily comprehend a set of nodes and links. A network thus depicts a specific arrangement of nodes and links (edges) as the smallest units of relational configurations. On the other hand, there are the notions of web, net and braid (the translation of the German word “Geflecht”; see for instance the concept “Flechtwerk” of Werner Sombart and the notion of “Politikverflechtung” introduced by Fritz
Scharpf (Scharpf et al 1976, Sombart 1927)). And roads, rivers, channels and circuits are further representations of networked configurations. Although it is very difficult to represent dynamic interaction in images, it can be drawn in networks for instance by the notion of a collision of billiard balls.

As mentioned above, in network research there is a tradition of criticism with regard to metaphorical orientations. Indeed, metaphorical thinking implies serious flaws, but metaphors made also useful epistemic contributions in the evolution of knowledge. Rather close to empirical reality, they can provide fruitful analogies in everyday language and intuitive ideas about complex structural and functional configurations. For instance, Platos’ helmsman metaphor has explained in a simple way the advantage and superiority of specialised knowledge. Metaphors in this sense are a kind of proto-theory.

A first step in the theorization of metaphors is the explication and specification of fields of meaning. For instance, in network research there are competing network notions and ideas of what networks are. There are at least two rival network concepts with rather different meanings: On the one hand there is a network concept based on graph theory, on the other hand a network concept embedded in institutional theory which is frequently used in the governance debate. Whereas a network based on graph theory includes all sets of nodes and links, a network based on institutional theory only contains specific configurations, thus only a subset of the graph theoretical concept.

Figure 4: Competing network concepts

For instance all configurations of nodes and links in figure 4 are networks in a graph-theoretical view, whereas in an institutional perspective only figure 4-f is seen as a network. Relational configurations in the latter sense are specific governance structures beyond markets and hierarchies (Kenis & Schneider 1991, Powell 2003). However, both network notions are not completely incompatible, since governance structure can be formalized by graph-theoretical models too, but their meanings are not convergent.
If a conceptual system or analytical framework is used to systematically describe and explain a given object of knowledge, then we build a theory about that given object. For some time there was a dominant conviction that a “theory of networks” could not exist since there are so many types and forms of networks across countless domains and levels of social reality. For instance, how can we compare a mafia-type criminal network to a smart grid in the energy sector? Since some time, however, a group of physicists has tried to find comparable network characteristics in all natural and social phenomena – networks of proteins, people, words, or web sites in the internet. Their ultimate goal is to find general network patterns and generalizable “network laws”. An example of such a generalization is the discovery of the law of preferential attachment in so-called scale-free networks. Scale-free means that the distributional pattern of network links remains more or less unaffected by rescaling. This happens if the power law counts, if many nodes are involved in few links, and if few nodes have many links. This pattern is known since Alfredo Pareto’s research on patterns of income distribution. Based on advanced computing power and large data sets, network research could test these preferential attachments in many areas since the 1990s. Mark Newman (2010) published an encompassing textbook covering most of these new streams and directions of network science.

Besides these general network theories claiming general validity in nature and society, there are social and political variants of network theory. A specific type is for instance Bruno Latour’s actor-network-theory (ANT), claiming descriptive and explanatory power for socio-political and technological configurations (Latour 1996), or Manuel Castels theory of the network society (Castells 2011), or theories on networked socio-technical systems (Mayntz & Hughes 1988). Some scholars understand networks also as key-mechanisms of social order in “modern” or advanced societies (Raab & Kenis 2009).

In general, social theories are systems of propositions including more or less “general” laws and mechanisms. But “general” does not necessarily mean universality across time and space. For instance, some mechanisms only work in specific social domains or institutional contexts. Theories covering such “semi-universal” patterns are so-called middle range theories, whereas grand theories such as rational choice, game theories and versions of systems theory claim comprehensive coverage. Some social grand theories are mathematized and suggest high precision, whereas others remain vague and often implicit. Their appeal is often to evoke certain images of society that focus on important aspects or trends of social and political development. Castells' theory of the network society is such a case.

The most abstract axiomatic theory in this context, graph theory, can be traced back to Leonard Euler in the 18th century. Graph theory provides a formalized language for precise descriptions of relationship structures. On this basis a variety of algorithms can be constructed for the analysis and explanation of all kinds of relationships (Brandes 2010). However, graph theory is not a theory of real objects (e.g. factual political or technical networks) in the sense that it could refer to general patterns and mechanisms. If graph theorists explain the whole world in the sense of a "theory of everything", their explanations are highly – and in a certain way perplexingly – abstract without carrying much information (Dipert 1997).
From grand or middle range theories – axiomatic or not – we have to distinguish varieties of implicit knowledge stocks and background knowledge. These include presuppositions, paradigms, and also versions of X-isms. All three are located on the left side of the spectrum of precision in figure 2. Some social scientists see the network perspective as such a new mental entity (Kilduff et al 2006, Stegbauer 2010).

Scientific worldviews such as “X-isms” (Bunge 1979) are more elaborated than metaphors, even if they are more imprecise and inexplicit. X-isms are "ideological" orientations and emphasize the general superiority of certain interpretations and analytical perspectives. A holist, for example, holds the view that individual and social action is no analytical entity as such, but is determined by macro-structures - such as class divisions or functional differentiation structures (ontological X-ism), and that only explanatory models based on these structures can provide satisfactory explanations (methodological holism). In contrast, individualism derives macro-level social phenomena exclusively from the action and interaction behavior of individuals. Table 2 lists some of these X-isms as examples. Not all differ in a clear-cut way, for instance structuralism and relationalism overlap in some areas. Some recent research programs combine different X-isms. For instance, James Coleman and Ronald Burt in a certain way combine individualism and structuralism (Burt 1982, Coleman 1990).

**Table 1: X-isms: Major Background Philosophies**

<table>
<thead>
<tr>
<th>X-isms</th>
<th>Main propositions</th>
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<tbody>
<tr>
<td>Holism</td>
<td>The whole is more important than the parts (Hegel: „Das Wahre ist das Ganze&quot;) (Ant: Individualism)</td>
</tr>
<tr>
<td>Idealism</td>
<td>Ideas are the main drivers of human action (Ant: Materialism)</td>
</tr>
<tr>
<td>Institutionalism</td>
<td>Institutional rules are main drivers of human action</td>
</tr>
<tr>
<td>Pluralism</td>
<td>The world is made up by a plurality of entities and principles (Ant: Monism)</td>
</tr>
<tr>
<td>Relationalism</td>
<td>All things and subjects are expressions of relations (Ant: Essentialism, Substantivism)</td>
</tr>
</tbody>
</table>

Source: (Bunge 2003)

4. **Relationalism and the network paradigm**

Relationalism is a new social ontology aiming to explain the world primarily or exclusively on the basis of relations. It is a contrasting alternative to substantialism or essentialism. Together with structuralism it is probably the most influential background philosophy for network research. In the 1970s, some theory-based network analysts used structural-functionalist systems theory as foundational theory. For instance, Laumann and Pappi applied Parsons AGIL scheme in their empirical network research on local political networks (Laumann & Pappi 1976).

In the 1980s, Wellman and Berkowitz presented the network approach as structural analysis as such and emphasized close links between network analysis and variants of structuralism (Wellman & Berkowitz 1988). Particularly influential was French structuralism with its focus on deep structures, but also variants of American structuralism gained popularity in sociology.
Harrison White, a prominent figure of the so-called "Harvard Structuralists" (Scott 2000) is seen, at least since the publication of "Identity and Control", as one of the most important spokesperson of "new structuralism" or “relationalism” (Mützel 2010, White 1992). It was particularly this perspective that influenced Mustafa Emirbayer’s relationalist manifesto, where he tried to formulate a new ontology based exclusively on relations (Emirbayer 1997).

In this respect relationalism appears as a special form of structuralism which does not include all kinds of structures (such as distribution structures, infrastructures, control structures, symbol structures), but puts its focus exclusively on relational structures. As shown in Table 2, useful distinctions between different structural levels and sectors of society are given by Hartmut Esser (1993).

**Table 2: Structural levels of society**

<table>
<thead>
<tr>
<th>Superstructure</th>
<th>Belief systems</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Ideologies</td>
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<tr>
<td>Institutional structure</td>
<td>Functional differentiation</td>
</tr>
<tr>
<td></td>
<td>Social inequality</td>
</tr>
<tr>
<td></td>
<td>Corporative structure</td>
</tr>
<tr>
<td>Social Structure</td>
<td>Distribution structure</td>
</tr>
<tr>
<td></td>
<td>Structure on interdependence</td>
</tr>
<tr>
<td></td>
<td>Relational structure</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Modes of production</td>
</tr>
<tr>
<td></td>
<td>Production technologies</td>
</tr>
</tbody>
</table>

Source: Esser (1993: 458) with modifications

A relational structure is a particular structure that can be represented by links between points. In mathematics, this structure is also called graph - a set of nodes and edges. In this context the relationalist world view stresses the primacy of relationships over the related. It has affinities to Leipniz’ idea that in the physical and social world there are no independent, self-sufficient entities, but all things would be made up by relations (Castañeda 1975).

Promoters of modern relationalism present long lists of renowned theorists and philosophers supporting this peculiar worldview. Mustafa Emirbayer quotes Marx, Simmel, Cassirer, Dewey, Bentley, Elias, Foucault, Bourdieu, and Luhmann as relationalists. According to him Karl Marx was a “profoundly relational thinker“ (Emirbayer 1997: 297). Marx stated in “Grundrisse” that “society does not consist of individuals, but expresses the sum of interrelations, the relations within which these individuals stand”. Likewise in his 6th Thesis on Feuerbach Marx wrote: “But the essence of man is no abstraction inherent in each single individual. In reality, it is the ensemble of the social relations.”

A further key witness for Emirbayer is Ernst Cassirer, a student of Heidegger. His book "Concept of substance and function concept" is quoted with the paragraph:

Things "are not assumed as independent existences present anterior to any relation, but . . . gain their whole being . . . first in and with the relations which are predicated of them. Such ‘things’ are terms of relations, and as such can never be given in isolation but only in an ideal community with each other" (Cassirer 2000: 36).
One of the most stylized arguments is taken from Harrison White. In “Identity and Control” he wrote: “There is no tidy atom and no embracing world, only complex striations, long strings reptating as in a polymer goo.” (White 1992: 4). And even Niklas Luhmann is assigned to this new philosophy of networks since his system theory, in fact, reduces societies and its various subsystems to relations of communication (Luhmann 2007).

However, the idea that the world only consists of relations and that there are relations without relata is rather mysterious. Especially in the cultural sphere it is conceivable that meanings arise as nodes in semantic networks so to speak from nowhere. Perhaps this is the reason why in particular the sociological and cultural studies versions of relationalism put their focus on the cultural level of analysis (Fuhse & Mützel 2010). But this is only one of the various streams of this new X-ism.

Emphasis on social relations have also been put by the historical sociology version of relationalism in which Elias, Mann and Tilly are seen as forerunners (Hobden 2001). In this perspective, Daniel Nexon has emphasized the process-based nature of social development moves in the forefront:

„Relationalists [...] adopt a scientific ontology that privileges processes over substances. A focus on any form of social transaction necessarily gives priority to processes rather than ‘things’, since transactions are dynamics exchanges rather than entities. But relationalism implies a stronger claim about the fundamental priority of processes” (Nexon 2009).

Andrew Abbott delineates this view from the mechanism approach, which usually would require an agent or the intentional actions of an individual (Abbott 2007).

"By contrast, the relational view presupposes an act, usually a thing that was done, and a scene, usually a set of connections in social time and social space that create the concentric and crosscutting loci for action. Moreover, the relational view makes the scene the dominant term of the pair. For the relational account defines an act as a making of relations within a scene” (Abbott 2007: 9).

The relational approach would explicitly seek a process-related understanding of social affairs, in which all social entities - the results of action, actors and relationships – are endogenized (Abbott, 2007: 19).

While the above quotation from Marx implies a multidimensional concept of structure in which conditions may include both material conditions and relationships, the type of relationalism that was sketched in the last paragraphs implies in contrast a radicalization in the sense that all structures and relations are reduced to interaction structures. Within the spectrum of quantitative and graph theory-based network research, relationalism thus is focusing on a very specific type of relation with the implication that other social structures and levels do not play important roles in the constitution of society. But, as we will see in the next section, interaction is only a special type of relationship.
5. A variety of social relations

There is a wide range of relational contents and formal characteristics. Many relational structures in complex societies overlap so that they form a large three-dimensional "relation box" (Winship 1988). Social relations are a key aspect of society and many sociologists put great emphasis on this aspect. For instance, in Max Weber’s sociology social relationships are key categories in social, political, and economic analysis (Weber 1980). Social relationship are defined broadly as action behavior taking the action of the others into account (Weber 1980: 13). According to Weber, social relations include fighting, hostility, sexual love, friendship, filial piety, market exchange, contract compliance, competition, class community and a national sense of community.

In Georg Simmel’s perspective relations play even a greater role in the constitution of society (Simmel 1910). “The causal interdependence which weaves each social element into the being and doing of every other, and thus brings into existence the external network of society” (Simmel 1910: 391). Influenced by this formal perspective, Leopold von Wiese even proposed a sociological system in the 1930s that was based almost purely on the analysis of social relations. However, this perspective only received limited recognition in Germany and remained almost completely unknown abroad (Wiese 1933).

![Diagram of social relations]

**Figure 5: Varieties of social relations**

Social studies centering on the analysis of relations only gained currency by social network analysis since the 1970s, and in this context a number of relationship types have been studied
during the last decades. Various textbooks provide overviews on the typical relationships that are studied in this analytical perspective. Interestingly the various typologies overlap only partially in the application of identical categories (Borgatti et al 2009, Knoke & Kuklinski 1982, Knoke & Yang 2008, Wasserman & Faust 1994). Figure 5 displays these typologies as a network. Rectangles present scholars, triangles show categories of relations, and points characterize individual variants.

One of the most recent typologies of relations is presented by the group around Borgatti. This categorization distinguishes similarity, social relationships, flows and interactions as the main relational types. But putting "similarity" at the same level than all other relations is not without problems, since the former do not imply direct connections but only comparative relatedness. In this respect, it is important to distinguish between binding and non-binding relations: a relation between two relata is binding, if one relatum or both relata are changing their state on the basis of this relation. (Bunge 1996: 73). While relations like similarity or simultaneity between nodes can be represented in the form of affiliations or "CATNETS" (White 1992), similarity itself does not imply state changes, although proximity or similarity in the form of homophily can of course generate new relations, which in turn may generate state-changes in relata.

![Diagram of relations in policy network studies](image)

*Figure 6: Relations in policy network studies*

The respective types of relationships are usually based on different functional mechanisms and causal structures. For instance, the interaction of armed groups is based on a completely different process than the generation of trust between persons. Even interactions may follow quite diverse logics, if we consider the differences between coercion, competition and bargaining (Scharpf 2000). Energy flows differ from communication flows, the transmission of information. Even within communication flows there is a different logic when it is based on
“open channels” in contrast to “closed conduits” (Owen-Smith & Powell 2004). And information infrastructures are not the same as information flows. Pathways or channels are usually opportunity structures, not the information itself. For instance, membership in working bodies and policy-making committees provide opportunities for interactions, but are not interactions themselves (Brandes & Schneider 2009, Leifeld & Schneider 2012).

Many of the relations above have been studied in the empirical policy network literature that we have collected in the structured bibliography mentioned above (Schneider et al 2007). Most popular in these studies were information exchange, contact, cooperation, and influence reputation.

6. The flaws of radical relationalism

In light of the diversity of relations shown in Figures 5 and 6 it is highly problematic to treat only one type of relations - interactions – to be the tissue that holds the social world together. It is even more problematic to conceptualize relations without relata as it was suggested by Cassirer and White. However, at this point it should be mentioned that in the paragraph that was cited by Emirbayer, Cassirer does not make an ontological statement about the world as such, but refers only to symbolic structures in the area of number theory. Harrison White's reference to polymers is rather inappropriate, too. Even an amateur chemist knows that these "sticky substances" consists also of macro-molecules as substrates.

Nicolai Hartmann called such a perspective in which relations exist without relata "pure relationalism", which ultimately would boil down to nonsense (Hartmann 1964).

"There are relations of relations, in which relata are themselves configurations of relations. And because relations are most likely to be rationally comprehensible and expressible in the structure of reality, there is a tendency of relationalism to resolve everything that exists in relations. In this way one gets pure relationalism in which the successive stages of a relationship exist without a base point of relatedness, i.e. without final relata. The world is then one big spider web of relationships, without the entities that are related. This immense nonsense is contrasted with the counter term of the relation, the substrate. A relation presupposes a relatum. Relata in this sense are the substrates of the relation” [transl. by VS] (Hartmann 1964: 214)²

Of course, relations can have an immense impact on its relata and may even cause them to transform or even to merge. This is, for instance, the central theme in complexity theory advanced by Stuart Kauffman (1996). Self-organization of the world emerged by chemical reaction networks. The network as a metabolic graph is a kind opportunity structure for catalysis

and reaction of different substrates, creating new entities and organizational levels. But even here initial substrates form the starting points.

How problematic it is to conceptualize relations without relata can be demonstrated by the emergence of the modern nation-state. Since its formation it is involved in an increasingly dense web of international relations. Inspired by sociological relationalism, Jackson and Nexon accused current political science theories in International Relations to misapprehend modern state-formation in an essentialist perspective (Jackson & Nexon 1999). In contrast, the relational view would give a more convincing explanation of the rise of the modern nation-state, where a specific constellation of interaction would have produced the modern nation-state as a new form of organization.

It is interesting that Nexon modified his perspective about 10 years later. In a detailed reconstruction of the historical development of European nation-states after the Reformation in the 16th Century he discussed a whole range of relations and relata - cultural, economic and political relations, as well as rulers, elites and the public (Nexon 2011). His approach ultimately tries to explain how transnational links were the relational infrastructure of the spread of Reformation and Counter-Reformation. These relations generated identity relationships within and between the pre-state segments that ultimately led to new border relations between different segments. But even here, each time-specific relationship was connected to specific nodes, and the latter did not emerge from the former. Complex relationships exerted transformative effects on their relata which again produced new relata and new relations. In addition to the rulers there were local intermediary powers, elites and populations as diverse nodes in a complex transnational network that transformed the prior composite political regime into territorial nation-states. The core idea of the radical relationalism that relations exist independently of their relata is thus ultimately untenable. Relations always need relata as a basis for interconnection (Bunge 2000).

The last mentioned version, including relation without relata, might be called "pure" or "radical relationalism". This extreme position has to be delineated of a moderate version of relationalism in which the entities exist on their own right. Relata precede relations or at least they occur at the same time. The emergence of a relationship then causes state changes within entities, i.e. relations are changing their relata. This can happen directly, for instance by information exchange causing preference changes within relata, or indirectly, for example, by similarities between relata (homophily) which create willingness to share and exchange information. In a further step these information flows can in turn be transformative for the relata in question, for instance by learning processes. It is also conceivable that an existing relationship, such as an institutional infrastructure, facilitates the development of these relations. Multiplex networks in which several relations exist in a parallel way may invoke different causal chains to act and interact simultaneously. In the analysis of such networks it is important to stress the diversity of such mechanisms.
7. Conclusion

If relationalism refers to an ontology in which relations alone count in reality and nodes or “relata” are only structural effects without any self-efficacy, it is ultimately a similar form of reductionism as we have encountered in individualism, holism or institutionalism.

Human behavior and social processes, however, cannot purely be explained by the self-efficacy of individuals and organizations, yet only through institutional control systems or relational structures in which they are embedded. Ultimately, it is difficult - if not logically impossible - to imagine a pre-existing relation without relata. Much more convincing is the idea of relational configurations in which an altered macro constellation produces new relata, dissolves old ones or transforms existing relata into new entities.

In the above mentioned example a certain macro-political constellation of international relations creates new political entities such as nation-states. These new units never arise ex nihilo, but are in most cases transformations or “recombines” prior traditional political structures. This is a central idea of the theory of evolution. Yet, such transformations can be quite radical and can result in new emergent entities. These, however, are never created from scratch, but are always recombinations or modifications of things that already exist.

Another conclusion of these considerations is that one should not talk in an abstract manner about "relationships" or "interactions". There is a huge range of relations that are each different things and are associated with different mechanisms. How these diverse relations interact both in nature and society is still a largely unexplored research area. Society is multiplex or "pluri-relational" and there are many different relations between heterogeneous relata in society at the same time. There are also, as shown above, many levels of social structure, which cannot be described in relational structures alone. All this is still a great challenge for future theory building.

Relationalism as a background philosophy, "catch-up theorizing" of network studies in general and policy network research in particular is therefore of limited use. Relations in public policy making are ubiquitous and heterogeneous. It is hard to imagine a universal theory of relations, since their mechanisms are often very different. Theories always have to be related to specific mechanisms and operative logics of things and their interrelatedness.
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