

Chapter 9

Network Analysis and Morphogenesis: A Neo-Structural Exploration and Illustration

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The goal of the Morphogenetic Society project¹ is to develop an account of social stability and change at the macro-level in late modernity. It is thus different from the Morphogenetic Approach, as an explanatory framework presented as appropriate for analysis at all levels from the micro- to the macro-level and at all times (Archer 1988, 1995). According to this perspective, three elements are always involved in any social transformation—big or small: ‘structure’, ‘culture’, and ‘agency’. The challenge is always to specify their interplay as the basis of explanation for the stability or change of any social phenomenon chosen by the investigator, when using the Morphogenetic Approach or in exploring the notion of Morphogenetic Society.

This chapter sketches one possible methodological and theoretical contribution to this project. An initial summary presents network analysis, in combination with other methodologies, as a technique that can help develop and specify the morphogenetic project by exploring some of its preliminary ideas about morphostatic and morphogenetic processes in relation to the meso-level of social reality. The present chapter initiates a dialogue between the neo-structural framing of network analysis and the Morphogenetic Project, based on an empirical illustration, in order to suggest that social processes driving the co-evolution of structure, culture, and

¹ Its main theoretical aim is to conceptualise a ‘Morphogenetic Society’ characterized by a historically unprecedented situation of ‘Morphogenesis Unbound’. In this situation, historic social formations disappear and—given accelerated and perhaps synchronized changes in ‘structure’, ‘culture’ and ‘agency’ for humanity as a whole—new formations, as new variety is introduced through generative mechanisms that remain to be fully specified.

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agency can be further specified and understood within such a dialogue. As will be further specified below, neo-structuralism² is defined here as a sociological approach that uses network analyses, combined with other methods, to jointly enrich both theories of individual action (based on specific definitions of social rationality and judgments of appropriateness) and organized collective action (based on modeling of social processes—such as solidarity, control, socialization, and regulation—that help members manage dilemmas of such collective action) (Lazega 2003a, 2011a).

As a first and necessary reflection on the link between network analysis and some of Archer's morphogenetic ideas, it is useful to remember that sociological network analysis has developed during the twentieth century as a method that describes and tests for simple and complex relational structures: simple ones formed around the actor (ego-networks) and the more complex at the 'global' level of the collective in which the actor is a member (whole networks). A distinct kind of structuralism has emerged in the 1960s from the systematic use of this method. This structuralism (for a summary, see Wasserman and Faust 1994; Wellman and Berkowitz 1988) maps and analyzes the systems of interdependencies that characterize individuals' relational life by looking at their structural characteristics (centrality, autonomy, constraint, etc.) and at the collective's structural characteristics (cohesion, and especially structural equivalence as theorized and measured by H. White and his students such as Scott Boorman and Ronald Breiger).

One of the advantages of this method is that its formalism is sufficiently flexible to allow sociologists who look for patterns at the level of the structure not to lose sight of individuals when using statistical aggregations. Recently, network analysts, especially methodologists who created 'network statistics' during the last 30 years, have been able to develop a dynamic and multilevel perspective on social structure. In this approach, the main focus is on the co-evolution of structure and behavior (see for example Snijders 2001; Snijders et al. 1999, 2007a, b). This development is independent but strikingly similar to the attention given by social realists such as Archer or Donati (2010) to structure and agency and to the principle of emergence in the (preliminary) idea of a morphogenetic society. In both approaches the two remain separate but co-constitute each other over time, thus exerting intertwined causal influences on each other. The main issue for network analysts today is to find robust methods for analytically disentangling these causal effects so as to measure, model, and understand them in real-life settings and to account for social phenomena, over time and across levels.

Such a method can be useful to the Morphogenetic Project if it is able to provide at least one possible and partial empirical measurement of the difference between morphogenetic versus morphostatic processes. In order to illustrate this programmatic perspective, I will use an example based on a network study of a

² The prefix 'neo' is meant to differentiate this brand of structuralism from that developed in France between the 1940s and the 1960s, for which individual agency did not matter much in explanations of social phenomena.

450-year-old French institution of social control of markets: the Commercial Court of Paris. The focus is on the surprising resilience of this institution as seen through the dynamics of the advice network operative among its lay judges and their judicial decisions based on normative, cultural choices. This case in point raises the question of when a change of network should be considered enough of a change to constitute a case of morphogenesis: Network dynamics can be both morphogenetic and morphostatic because changes in the structure observed can be real—thus discounting pure morphostasis—but also partly homeostatic, i.e., cyclical, driving the structure, after a strong perturbation, back to a state that has structural similarities with the point of departure—which also discounts pure morphogenesis. This illustration thus raises the need for further specification in theorizing morphogenesis.

9.1 Network Dynamics and Institutionalization

Network methods of analysis have been used by several theoretical approaches in sociology. As an example, a dogmatic program was started by H. White (whose contributions enriched network analysis well beyond Jacob Moreno's sociometry) in the 1960s as a form of structuralism for which—in strong reaction against Parsonian sociology—social norms and culture did not matter much in social life. In H. White's *Chains of Opportunity* (1970), a seminal book on vacancy chains in the labor market (i.e. models from which measurements and interpretations of the concept of 'structural equivalence' were later derived in the 1970s), culture is not included in the description and modeling of the labor market and access to job opportunities. But in a spectacular development, White's (1981) network model of markets brings culture back in. Culture re-emerges and plays a central role again, as the language in which quality schedules are created to evaluate resources exchanged. A cultural turn is thus initiated from within American structural sociology by White himself, developing original combinations of new forms of structuralism with forms of neo-institutionalism. For example, social roles in the division of labor regain a cultural dimension, even when defined endogenously, i.e., in a way that is specific to the social setting that is network analyzed. Breiger (2010) in particular (for example 2010) has explored the structural implications of this cultural turn and created new lines of research on the relationship between culture and structure. In many ways the developments of this form of structuralism converges toward a theory that mirrors Archer's analytical dualism.

Another recently developed neo-structuralist perspective (Lazega 2003a, 2011a) uses this method, combined with others, to contextualize actors' behavior by describing the structures of opportunity and constraints that emerge from regularities in relational choices by these actors. Its goal is also to further combine the existence of these relational structures with individual attributes (position of actors in the wider meso- and macro-levels of society), culture (in particular language and normative choices), and agency (opinions, decisions, capacities,

achievements, etc.), over time and across levels. Its specific focus is on modeling *social processes* facilitating coordination by helping members explore new solutions to the dilemmas of collective action. Such processes include solidarity, exclusion, and exploitation; social control and conflict resolution; learning and socialization; regulation and institutionalization; and many others. All social processes and phenomena have a relational dimension and, as such, are amenable to network analysis from this perspective.

Neo-structural sociology is based on a theory of ‘social rationality’ that is meant to articulate individual and collective action by combining identity, culture and authority in actors’ judgements of appropriateness (Lazega 1992, 2011a), i.e., the main elements of agency identified by symbolic interactionism (Stryker 1980). As in Archer (2007a, b), actors are endowed with reflexivity, creativity, reasoning, and a constrained capacity to choose. They are also endowed with a capacity to endogenize the structure, that is, to perceive power relationships, social differences, and inequalities, and act based upon these perceptions. Here, relationships are defined as indicators of resource interdependencies (both symbolic and economic) as well as commitments to exchange partners that are framed by cultural norms. Judgements of appropriateness also structure actors’ relational choices and, as such, trigger and drive social processes mainly at the meso-level. They shape collective action in the organizational society—a society where private corporate action has become a key level of exercise of power and influence (Perrow 1991).

Given such proximities between them, further dialogue is thus possible between morphogenetic and neo-structural perspectives on the emergence of social order or social formations. For example, it may be worth focusing on concepts common to both perspectives, such as that of institutionalisation. In the empirical illustration given below, social structure and discipline emerge ‘initially’ (analytically speaking) from the collective choice of norms, local and global, in a context defined in terms of power asymmetries inherited from previous structuration. This emergence can indeed be seen as the outcome of the combination of at least two dimensions of the same regulatory processes. On the one hand, the creation of individual task-related routines based on normative choices made at the local level; members of a social milieu make their own normative choices and follow their own practices without trying to impose them on others. On the other hand, the creation of explicitly collective norms, based on normative choices made for the more global or collective level; here members, as institutional entrepreneurs, seek status in order to participate in power games and try to control a political process imposing a hierarchy of norms, i.e., forms of bottom up and top down institutionalization transforming precarious values into priority rules for the collective (Selznick 1957; Lazega 2001). In other words, institutions emerge from two competing, intertwined, and eventually co-evolving normative choices in a dynamic regulatory process: locally created routines and globally imposed rules.

The combination of the two dimensions is an adaptation, by members, of their routines to the normative choices imposed by members with social status (i.e. elites with power), for example, as a resistance to their top down normative choices, or as forms of alignment with such top down choices. Collective level

normative choices also adjust to local routines, as in the case of laws that are modified because they are too far removed from the local routines—the archetypical case being the Prohibition. New practices emerge as the combined result of (1) new exploratory routines created by individual members, and (2) a new hierarchy of norms at the level of the collective. Creation of local routines and creation of global norms applying to all, are partly an effect and partly a cause of structural change, i.e., morphogenesis. Co-evolution of norms and routines is both driven and mediated (analytically speaking) by changes in the structure. The main assumption here will be that morphogenesis in a social milieu is better accounted for when taking into account this crucial and complex co-evolution.

This can be illustrated by an empirical study, which tracks the conflictual emergence of a common norm among judges in a courthouse. First, normative choices are observed as the outcome of a controversy among these judges. Second, the ‘struggle’ between competing normative choices is tracked by identifying the most influential judges in the court and in the controversy; this is done by measuring each judge’s respective centrality in the ‘complete’ advice network of this institution. Indeed for a majority of members of the collective, choices of norms are not immediate. They are driven by ‘deliberations’ that can take many forms, including routine peer influences. In our example, these influences will be approximated by regular advice relationships in the organization. These advice relationships reflect exchanges of appropriate information at the dyadic level and are themselves created by individual choices of advisors in an overall opportunity structure of access to advisors, i.e., a network. Changes in this opportunity structure, i.e., morphogenesis in this network, both at the dyadic and overall levels, can thus have an effect on changes in the regulatory regime of this milieu, as a reflection of the institutionalization process. The partly morphogenetic evolution of this network shows that structural changes, at both overall and dyadic levels, favor a minority of these judges (and the normative choice that they promote against routine choices of the majority), who can be seen as institutional entrepreneurs in the regulatory process, by increasing their centrality over time in structural dynamics that tend to be cyclical (Lazega et al. 2006, 2008, 2012).

9.2 Empirical Illustration: Network Dynamics and a Normative Controversy at the Commercial Court of Paris

The empirical case in point that is used here to examine the regulatory process and to illustrate these ideas on the relationship between morphogenesis and emergence from a neo-structural perspective, is the case of the Commercial Court of Paris, a 450-year-old ‘consular’ institution for ‘joint regulation of markets’ (Lazega and Mounier 2003) that handles 12 % of commercial litigation in France, including very complex cases. Its judges are not career judges, but rather experienced

businessmen and women who exercise their function as voluntary and unpaid lay judges mobilizing both the law and the customs of their business sector in order to find judicial solutions in these cases. An electoral body composed of sitting judges and the delegates of business sectors from the local Chamber of Commerce elects/co-opts these lay judges for 2- or 4-year terms, for a maximum of 14 years. Twenty general and specialized chambers, which deal with a great variety of commercial litigation and bankruptcies, make up the Court. A formalized rotation rule requires judges to change Chambers each year, a formal obligation that is meant to lower the risks of corruption, conflicts of interests, and institutional capture that plague this consular institution (Lazega 2011a, b).

An explanation of the term 'consular' is in order. The *consulat* was a mode of urban government practiced in the Middle Ages in the southern part of the Kingdom of France by cities with a right to self-administration and self-defense. 'Consulatus' is formed from 'consul', meaning 'council'. The word referred to a community's ability to deliberate together in an assembly also called the *consulat*. Urban communities governed by a *consulat* could call themselves cities. All had markets and many had fairs. In a *régime consulaire* the community governed itself by way of consuls, who varied in number and qualifications. Merchants organized into socially distinct guilds occupied an important place in this *régime consulaire*. On the basis of the *lex mercatoria*, they managed to negotiate with the State a new (and theoretically unlikely) form of joint regulation of their business activities within the *consulat* framework. A major component of the 'consular regime' became the *tribunal de commerce* or commercial court, a private court that was turned into a truly judicial institution after this negotiation (in 1563), and whose content evolved over time. The merchants' local self-regulation was thus to be founded on the State's sanctioning power. The State, meanwhile, whose own administration was as yet embryonic, may paradoxically have seen this co-optation by local merchants as a means of further extending its central control over the country. This institution is an example of how Market 'exchange relations' and State 'command relations' have long been managed at the meso-level by institutions of joint regulation, i.e., participatory social forms based on both instrumental rationality and social engagement. It is one of the rare institutions from the sixteenth century that even the French Revolution tried, but was unable, to change.

In this first level judicial institution, judges add normative choices and interpretations to legal reasoning in order to make fast, pragmatic judicial decisions. They perform tasks that are multifaceted and that require multiple skills and bodies of knowledge, for example, legal, economic, and managerial. Indeed in the domains of both litigation and bankruptcies, judges often deal with very complex legal issues in which they have a large amount of discretion. Further, conflict resolution often depends on detailed knowledge of the business and specific industry in which the conflict takes place. In order to cope with such needs for specific knowledge, judges tap into the expertise and experience of their very diverse set of colleagues, by seeking out each other for advice intensively. The uncertainty inherent in the cases creates the need to call on numerous competencies and, in fact, many judges in large commercial courts justify this lay

institution with the argument that it brings together very diverse forms of expertise. The heterogeneity of judges, who come from a large array of businesses, is said to create a shared capital of knowledge and experience insofar as each can draw from the others' experiences and expertise.³

According to justifications for this truly judicial but lay institution, the selection of lay judges should produce a very diverse representation of economic sectors, particularly in large commercial courts such as that of Paris. At the time of the study, the judges indeed represented very diverse sectors in which they either had worked or were still working. Thus, in complex cases, information relating to a specific industry could be accessible to the court through judges from that field. Nevertheless, certain sectors and/or enterprises invest more than others in 'judicial entrepreneurship' and shoulder a greater share of the cost of social control of business because it is in their interest to do so. Theoretically all sectors can present candidates to the election of lay judges, on an annual basis, in order to fill the vacant posts resulting from a turnover rate of 10 % of the Court's personnel. But analysis shows that, in fact, all the sectors do not. Some participate more systematically than others; the largest is the banking/finance sector, contributing 29 % of the judges on average. In addition, a very high proportion of bankers have a legal education (unlike judges coming from other sectors, few of whom have a law degree). Yet the overrepresentation of finance amongst the lay judges does not represent an unchallenged dominance of that institution. In fact, a majority of judges coming from industry, construction, non-financial services, or other sectors do not always appreciate this dominance. As stated by a banker with legal education (quite dismissively), '*shopkeepers hate bankers*'.

From the perspective of the Morphogenetic Explanatory Approach, this context is the starting point, an instance of 'structural conditioning' of the social control of markets for what could be labeled an interesting case of 'homeostasis': an unbalanced form of morphostasis waiting to become morphogenesis, or structural dynamics that are not sufficient to trigger irreversible transformations. It permits observations of endogenous and cyclical transformations in this institution, and shows how both structure (here: network pattern), culture, and agency could be formally combined to understand a transition from morphostasis to morphogenesis.

The first type of data used in this illustration and associated analyses are a set of normative choices in a controversy that emerged among these lay judges in 2005. The observed controversy was about the extent to which they should be punitive in their judicial decisions on matters of unfair competition between companies. Indeed one of the areas in which judges have wide discretion is that of the assessment of damages, i.e., the assessment of the loss in monetary terms, notably when the loss is caused by unfair competitive behavior by the offender. This

³ An extensive report on our study of this institution and more in-depth description of the organization of the Commercial Court of Paris can be found in Lazega and Mounier (forthcoming).

description necessarily leads to inequalities in awards. Indeed, the fundamental question of the very meaning of restitution arises in business as elsewhere, insofar as the economic actors are often businesses, i.e., corporate entities. In business, is the essential, or indeed sole, purpose of damages to compensate for actual losses incurred by the plaintiff? Or are damages intended, at the same time, beyond compensation, that is, for a punitive effect—one usually reserved to criminal law?⁴ The story presented in this case is that of the emergence of non-punitive norms promoted by structural changes in the network of judges. This is a case of normative struggle in an informal regulatory process.

In order to approach the normative attitude of lay judges in this domain, we used a jurisprudential approach based on the case presented in [Appendix 1](#). Pragmatically, being punitive means—in French law—awarding the injured party not only ‘material’ damages (i.e. amounts of money that make up for the actual economic losses incurred due to the unfair business practices of the offender), but also awarding them ‘moral’ damages (i.e. amounts of money that are meant, as a pecuniary punishment, to teach a lesson and dissuade the offender from involvement in such practices again, given that these practices break the ‘natural’ circuits of markets).⁵

Judges do not all think in the same way when it comes to the assessment of “moral” damages, which we use as an indicator of their level of punitivity. The punitive approach to damages and the non-punitive approach are both present in the Paris Tribunal of Commerce. The non-punitive approach is popular in business because it suits the ideology of these lay judges of the necessity of re-establishing a link, or maintaining a working relationship between the offender and his victim. Indeed lay judges generally claim that they feel close to their fellow businesspeople, all of whom belong to a big business community with its rules, rhythms, and practices. But the punitive approach also has its supporters. The main idea is that the individual loss suffered in the test case goes hand in hand with collective damages because it implies the destruction of market circuits considered natural from an economically neo-liberal point of view—a conviction certainly held by the quasi totality of judges at the Court of Commerce. The question is posed then in terms of the responsibility of businesspeople. Punitive judges conclude from this

⁴ The limits to freedom of competition are inscribed in penal laws which sanction unfair practices such as counterfeiting, false advertising, deceit concerning merchandise, and selling at a loss. In civil terms, unfair competition is notably created by a deliberate confusion between an enterprise and its competitor (the use of distinctive brands belonging to the competitor, the imitation of its products and creations); the effort to disorganize a competitor (stealing clientele, abusively poaching employees, using fraudulent client lists, or confidential documents); slander; or parasitic practices. Counterfeiting laws sanction infringement on property rights, with unfair competition as a particular sub-category.

⁵ This case calls for the evaluation of both material and moral damages, and it raises the question of calling in an expert. The judge’s decision is notably supported by Article 420-1 (Code of Commerce), and more precisely on the §32 on predatory pricing, i.e., when “a product’s unit selling price is less than its variable unit cost.” For a detailed presentation and analysis of this controversy about judges’ punitivity, see Lazega et al. (2009).

that if blame and punishment are not present, there is a strong risk of ‘de-responsibilization’ and disorder in commercial practices and the economy as a whole (a view shared by Durkheim in his second Preface to the *Division sociale du travail*). Indeed, they often perceive their own role as a patriotic one: to prevent disorganization and chaos in the national economy.

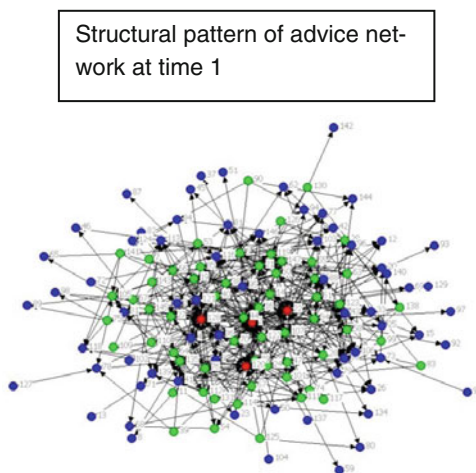
Data on the normative attitude and punitivity of each judge in this controversy was collected using qualitative interviews about their reasoning based on a real-life case (see the judgment summarized by the sitting judges and presented in [Appendix 1](#), on which each judge had to comment extensively). We found that a *majority of judges was routinely punitive*, but that a minority of judges—particularly bankers with legal education—was non-punitive. Indeed, claims for ‘moral’ damages often reach very high sums and plaintiffs try to reach into the deepest pockets by involving the defendants’ banks and other financial institutions in the case as co-defendants. Bankers with a law degree—whose influence within the Tribunal will be considered next—therefore have a tendency to minimize material damages (rallying to the same decision in the original case presented in the Appendix) and to dismiss punitive claims. As an example, the opposite trend is noticeable among judges coming from the Building and Public Works sector, who are more punitive than the average judge, and especially much less so than bankers (Lazega and Mounier 2009).

9.3 Homeostasis Between Morphostasis and Morphogenesis

After sketching these normative choices in the controversy among these actors (a minority of institutional entrepreneurs trying to impose non-punitivity and a majority of collectively pragmatic members following their own punitive routines), I turn to the identification of the most influential peers among these judges, and thus in the institutionalization process. This is done by looking at the advice network among all these judges, and by measuring their respective centrality in this network.

The judges were interviewed about their advice relationships within the Tribunal. The network section of the study was carried out using a longitudinal design with three measures of the system obtained respectively in 2000, 2002, and 2005. The network was reconstituted using the following name generator: ‘*Here is the list of all your colleagues at this Court, including the President and Vice-Presidents of the Court, the Presidents of Chambers, the judges, and ‘wise-men.’ I will ask you a question and you need only indicate the colleagues concerned. Using this list, please check the colleagues whom you have asked for advice during the last two years concerning a complex case, or with whom you have had basic discussions, outside formal deliberations, in order to get a different point of view on the case.*’ A very high response rate (87 % on average for the three waves)

Fig. 9.1 Visualization of successive morphogenetic outcomes (comparative statics) of a cyclical process at the structural level. Colors identify actors based on their block membership. In this figure, network wave 1 measures three blocks: ‘core’ (red), ‘semi-periphery’ (green), and ‘periphery’ (blue)



allows for the reconstitution, at each measurement, of the complete advice network existing between the judges, whose number varied between 151 and 156 from 2000 to 2005.

Using a stochastic block modeling⁶ approach developed by Nowicki and Snijders (2001), i.e., looking at the outcome of structural analysis of the network as a whole, we find a morphogenetic pattern of cyclical centralization and decentralization of the network (Lazega et al. 2006, 2011b). Depending on the stage at which observers measure the network, the structure of the following networks is both similar and different. Figures 9.1, 9.2 and 9.3 present the ‘best’ possible, i.e., clearest, block model for each measurement of the network. The first wave shows three blocks, presenting a clear core–semi-periphery–periphery structure. The core block includes the most central actors in the network.

Over time the structure changes. This analysis shows an evolution of the overall structure from three to four to two positions. The four-position structure of the second wave shows a more centralized structure (with more members in the core than in the previous measurement), although more fragmented than the initial three-position structure. Transition from the first structure to the second shows increasing centralization: a new level of informal hierarchy emerges when the semi-peripheral position breaks down into two levels, one of which is closer to the core than the other. The picture of the two-position structure in the third measurement shows a simpler, less fragmented, less hierarchical, and centralized structure than the previous three- or four-position structures: this is confirmed by

⁶ For a methodological presentation of this brand of stochastic equivalence and block modeling in the study of network evolution, see Nowicki and Snijders’ (2001) extension of White et al.’s (1976) method, and for a detailed analysis of this case see Lazega et al. (2012). Block modeling identifies and tests at the structural level the outcome of relational processes (influence and selection) examined at the sub-structural level with methods that examine the determinants and effects of relational turnover in the network.

Fig. 9.2 Visualization of successive morphogenetic outcomes (comparative statics) of a cyclical process at the structural level. Colors identify actors based on their block membership. In this figure, network wave 2 measures four blocks: ‘core’ (red), ‘first semi-periphery’ (green), ‘second semi-periphery’ (yellow), and ‘periphery’ (blue)

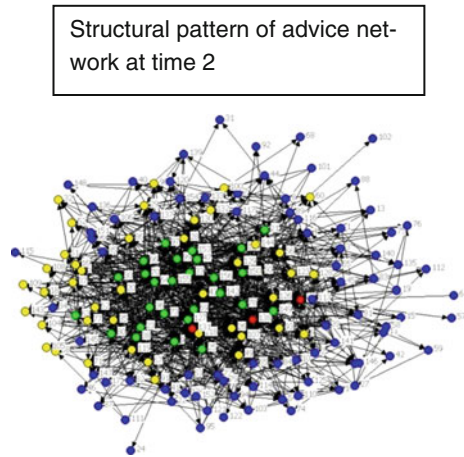
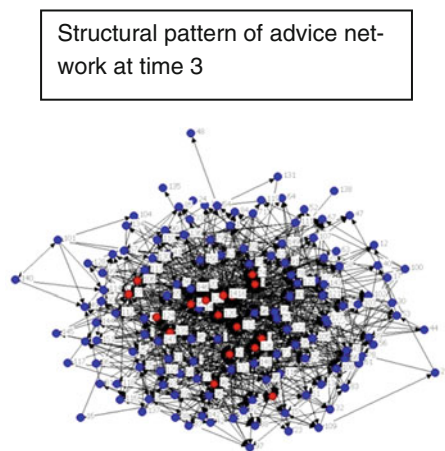


Fig. 9.3 Visualization of successive morphogenetic outcomes (comparative statics) of a cyclical process at the structural level. In this figure, network wave 3 measures two blocks, ‘core’ (red) and ‘periphery’ (blue)



the fact that the core in the third structure contains many more members than the core in the first two patterns. This second transition shows how the former informal hierarchy broke down: two levels of informal hierarchy have disappeared when the semi-peripheral actors now belong either to the core (these are judges who became increasingly central) or to the periphery. This view of the evolution of the structure confirms the existence of a relatively stable core-periphery pecking-order of judges in the courthouse, but also that of a process of centralization–decentralization of the advice network that reshuffles members from one level to the other within this stable core-periphery pecking-order.

What explains these dynamics? On the face of it, this process could be considered a morphogenetic process, representing an irreversible change. However, qualitative interviews and feedback from the judges suggest that this centralization–decentralization is cyclical. We interpret the underlying dynamics as the

outcome of a process balancing the overload of central advisors and normative conflicts between them (Lazega et al. 2006, 2011b). First, the number of members with 'epistemic status' varies over time (Lazega 1992). As stressed by our micro-political perspective on learning and knowledge claims, everyone here seeks status and believes that they will reach a higher status; access to advisors higher up in the ladder becomes in itself a sign of relative status. This implies that a member highly sought out during time t_1 becomes even more intensively sought out in time t_2 . Judges themselves can think of several reasons for why this number oscillates, i.e., increases and decreases over time. One reason is that members tend to choose advisors that they perceive to be the most popular (i.e. already chosen by a large number of colleagues). Senior judges—who are already central—tend to become ever more central in a form of Matthew effect. Increasing centrality of already central judges is the main effect produced by the formal dynamic force behind relational turnover in this organization between 2000 and 2002. Members sought out by many other members tend to build a reputation; selecting them is perceived to be safe and legitimate.

Second, however, this behavior creates an overload of requests for advice from a small number of highly central advisors with high epistemic status. Measurements of network evolution for the second period capture an oscillation between increasing and decreasing centralization of the advice network. A downward tendency in the second period shows that many central members lose some of their centrality as many new members become more central than they were before, thus joining this elite of judges with epistemic status. According to the judges, this is due to the fact that highly sought out advisors often manage this overload by delegating, i.e., referring the advice seeker to other advisors. But this management of overload threatens the stability of the pecking order in the sense that it brings in new central advisors and requires coordination among the elites in order to avoid destructive status competition and conflicts of definition of the situation between 'too many cooks' (Lazega 2001). In turn, this strategy triggers either formal efforts of coordination among the elites or normative conflicts that are handled not so much by consensus building among leaders but by a new reduction in the number of advisors with high epistemic status through withdrawal of central advisors who become unavailable (due to retirement or delegitimation).

These are not simple processes underlying institutionalization. Centralization of advice networks can either remain stable, or increase over time, or decrease over time to reach a balance between elite overload and normative conflicts among the elites. Thus, although previous work has shown that there is always a pecking order in advice networks, the pecking order is not necessarily stable over time. Stability is not automatic; it is fragile and threatened, by expansion, turnover, or normative conflicts among the elite themselves. Centralization of advice networks oscillates, i.e., increases and decreases over time as members of the elite of advisors either leave (and are 'replaced' by new members) or try to reach a balance between high individual status and overload on the one hand, and consensus on

Table 9.1 Key (most central) players in the advice networks among lay judges at the Commercial Court of Paris in 2000, 2002, and 2005

	2000		2002		2005	
	Parameters	S.E.	Parameters	S.E.	Parameters	S.E.
Intercept	-3,54	1,02	-1,11	1,65	1,08	1,61
Seniority	0,67	0,08	0,80	0,12	0,72	0,13
'Noblesse d'Etat'	1,13	0,90	3,04	1,42	1,67	1,57
Professionally active (vs. retired)	-0,61	0,63	0,12	0,92	-0,26	1,02
Bankers with law degree	1,33	0,71	2,93	1,09	3,14	1,32
Participation in social functions	2,36	0,92	0,23	1,30	1,80	1,31
Seeks advice <i>from business sector</i>	1,61	0,62	0,05	0,92	-1,43	1,14
Seeks advice <i>from career judges (CoA)</i>	4,49	1,42	5,09	1,93	2,56	1,85
Seeks advice <i>from district attorney</i>	-1,72	0,63	-1,70	1,12	-0,25	1,22

Linear regression model measuring the effect of lay judges' characteristics on their centrality in the advice network. For an effect to be considered significant, the associated parameter must be at least twice the value of its standard error (S.E.)

norms on the other hand. Periods of centralization of advice networks are followed by periods of decline in this centralization, then by periods of recentralization. This process is cyclical; it is captured in our 'spinning top' model of advice network evolution (Lazega et al. 2006). This cyclicity questions any morphogenetic trajectory in this case. It suggests a homeostatic process fuelled by normative conflicts and kept in check by the role played by key actors in the structural or network dynamics.

This cyclical view of the evolution of the structure is confirmed by the characteristics of the relatively stable hierarchical pecking-order of judges in the courthouse. Given the key role of bankers with a law degree in the institution and in the regulatory process sketched above, it is important to locate them in this changing structure. Table 9.1 provides linear regression models (one per measurement of the network) measuring the relative effect of selected attributes of these judges on their centrality in the network, thus confirming that this subpopulation of judges manages to be on top almost permanently.

These figures reveal the informal and indirect influence of senior judges and of bankers with a law degree over their fellow lay judges in this controversy. The effect of 'coming from the banking industry and having a law degree' is significantly and positively associated with being central in all three models. Bankers are overrepresented at this court, and among them bankers with a law degree exercise strong indirect influence through premise setting in judicial decision making. In sum, the underlying social process, collective learning through networks mobilized for normative choice, is driven by relational turnover, centralization then decentralization of the advice network, strategies of stabilization and creation of consensus among the 'elite' of advisors, and the central place of a subgroup of senior bankers with a law degree in this elite.

Table 9.2 Non-punitive bankers with a law degree become increasingly central over time in the advice network of voluntary lay judges at the Commercial Court of Paris in 2000, 2002, and 2005

Effects	Model 1	Model 2
Rate parameter period 1	25.80 (6.35)	25.79 (5.95)
Rate parameter period 2	21.74 (2.37)	21.93 (2.27)
Density	-2.08 (0.04)	-2.1 (0.05)
Reciprocity	0.47 (0.10)	0.49 (0.1)
Transitive triplets	0.19 (0.02)	0.19 (0.02)
3-cycles	-0.29 (0.06)	-0.27 (0.05)
Chamber (centered)	0.62 (0.05)	0.62 (0.05)
Seniority <i>alter</i>	0.05 (0.01)	0.05 (0.01)
Seniority <i>ego</i>	-0.05 (0.01)	-0.05 (0.01)
Punitive <i>alter</i>	-0.08 (0.06)	-0.06 (0.06)
Punitive <i>ego</i>	0.04 (0.05)	0.02 (0.05)
Punitive similarity	0.04 (0.05)	0.05 (0.05)
Non-punitive Supercentral <i>alter</i>	0.61 (0.08)	0.63 (0.08)
Punitive Supercentral <i>alter</i>	0.67 (0.14)	0.65 (0.14)
Banker-lawyer <i>ego</i>		-0.31 (0.08)
Banker-lawyer <i>ego</i> × Non-punitive Supercentral <i>alter</i>		0.58 (0.20)
Banker-lawyer <i>ego</i> × Punitive Supercentral <i>alter</i>		0.53 (0.32)
Banker-lawyer <i>ego</i> × Punitive <i>alter</i>		0.25 (0.16)

Two *Siena* models based on (Snijders' 2001) approach to the evolution of network structure, from Lazega et al. (2008, 2012). For an effect to be considered significant the associated parameter must be at least twice the value of the standard error (in parenthesis)

9.4 Network Dynamics and the Promotion of Dominant Norms

Finally I now turn to statistical confirmation of the effect of these cyclical dynamics on the emergence of a normative order, i.e., an invisible distribution of routine choices versus an official and institutionalized norm. *Siena*⁷ models 1 and 2 in Table 9.2 confirm this statement by looking at who are the judges who become increasingly central over time in this network and thus whose normative choices in the controversy (i.e. punitive versus non-punitive) are likely to become dominant over time. Is it the punitive routine of most lay judges or the non-punitive choices of institutional entrepreneurs such as the bankers with a law degree? The evolution of this network is now analyzed by combining the two kinds of data collected in this study (structural and cultural). It shows that changes in this network, at both overall and dyadic levels, favor bankers with a law degree and their normative choice: the 'Non-punitive Supercentral alter' effect, for example, is significant in both models, and so is the 'Banker-lawyer ego × Non-punitive Supercentral alter' effect in model 2. In this case, routine decisions are thus likely to give way to

⁷ The so-called *Siena* models (Snijders et al. 2007a and 2007b) test for the relative weight of influence and selection effects describing the co-evolution of networks and behavior.

decisions influenced by institutional entrepreneurs whose increasing centrality over time, in particular in structural dynamics that tend to be cyclical, is a strong indicator of an alignment of the first on the second.

In effect, these models take into account the heterogeneities between actors who are bankers with a law degree, the majority of whom are non-punitive, a sub-group at once increasingly more central (attracting higher and higher numbers of requests for advice, including those from judges who are not bankers) and cohesive (with stronger and stronger relationships between members than between members and non-members of this sub-group). The majority of judges' adherence to the norm adopted by the 'elite' super-central opinion leaders reinforces the latter's centrality, and assigns to them a potentially significant role in the determination of a solution that is officially considered legitimate to the controversy about punitivity. Most judges in this system, whom we know are punitive, increasingly turn to non-punitive colleagues for advice; again the latter happen to be mostly bankers with a law degree. Most judges would have granted moral damages in this case, but they also show an increasingly stronger sensitivity to what the Tribunal's elites would have done in that particular case. In our opinion, this sensitivity, and the social alignment that it generates, explains in part the weakening of routine normative choices by concerted changes introduced by institutional entrepreneurs.

Thus, the very high proportion of bankers in this court reflects a presence that can only be interpreted as a form of damage control by the banking industry, if not institutional capture of a specialized jurisdiction by its very 'clients'. Judges coming from the financial sector are clearly potential levers of that industry. In addition, they turn out to be the only group who manages to permanently dominate epistemically and normatively in such an institution. Their leadership relies on their multiple forms of status: including knowledge of the law, centrality in the advice network, and intermediarity in joint regulation and 'shared' government of markets more generally. In short, as long as they are in charge, they are structurally and culturally in a position to convince colleagues hesitating between a punitive and a non-punitive attitude to select the latter. The 'consular regime' thus undergoes homeostatic morphostasis rather than morphogenesis (Lazega 2011b).

This look at the evolution of the relational structure in this case in point helps in understanding the dynamic maintenance of a social order or of a dominant, even discreet, institutionalized form. The effect of structuration (i.e. changes in the pattern of relational structures) on the normative controversy, i.e., the spread of non-punitivity in the Tribunal, is an outcome, in part, of the evolution of epistemic control among peers within the organization. In the case of this hierarchical organization, structural changes end up reinforcing epistemic dominance of the elite and a form of collective learning by a weaker majority via its alignment on the elite's normative choices. These homeostatic, endogenous dynamics may explain, at least in part, the resilience of this 450-year-old institution.

Combining cultural and structural changes show how institutions resist morphogenesis: through inertia created by combined cultural plus structural domination. For this to become morphogenesis, structural changes would have to occur: weakening of the power of bankers with a law degree (i.e. lowering of their

numbers and centrality), perhaps under the pressure from exogenous higher order socio-cultural changes, such as the use of new laws (2009) allowing French citizens to challenge the constitutionality of an institution or the use of ‘new’ standards such as Article 6 of the European Convention of Human Rights on the basis of which the impartiality of this first level court could also be challenged (Lazega 2003b, 2011b).

9.5 How Much Change is Real Change?

Network analysis, when combined with other methodologies, can help develop and specify the morphogenetic project by exploring morphostatic and morphogenetic processes at the meso-level of social reality. In addition, the use of network analysis—unless it remains at a purely descriptive level—is sociologically fruitful when it is framed by a theory of the generic social processes that drive the co-evolution of structure, culture, and agency, but also that flesh out the content of social change. This is where neo-structural sociology, which looks at networks from this perspective, can contribute to the Morphogenetic Project.

As a case in point, the transitions described in the empirical illustration provided in this chapter do not constitute morphogenesis. They constitute homeostatic dynamics that manage to prevent morphogenesis. More generally, the co-constitution of structure, norms and agency, as measured by models of co-evolution of network and behavior, do not necessarily confirm a priori that social forms undergo radical changes in contemporary societies. But network analysis makes the claim testable. Morphogenesis here might be prevented or slowed down by processes that can be homeostatic as much as an elaboration of a new social form. In our example, the norm that is constructed and becomes taken for granted in these actors’ decisions never loses its champions who never lose their position of authority. The sociocultural system of this organization is modeled as the decisive factor influencing whether morphogenesis or morphostasis—elaboration or maintenance—is at work in this institution. Agents are both cultural and strategic in the relational and normative choices that they make in their everyday problem-ridden situations (Archer 2007a, b), whether or not such patterns of socio-cultural interactions lead to slow or rapid change, or no change at all.

This is made visible by the fact that network analysis as a method is used here to look at a generic social process, i.e., the institutionalization of a norm, in an institution for the joint-regulation of markets. The effect of structural changes on various forms of conflict, competition, and sometimes balance, between intertwined and eventually combined dimensions of the regulatory process, i.e., locally created routines and globally institutionalized rules, is key to the emergence and maintenance of social structure and discipline. Unlike theories of emergence that ignore either the invisible creation of small routines or the more theatrical and heroic politics of institutional entrepreneurs, neo-structural sociology assumes that both are needed to understand the regulatory process. Without both dimensions, it

is not possible to understand the distance between the norm and the law, whether large or small, or how actors succeed in promoting their regulatory interests and in transforming precarious values into priority rules (Selznick 1957; Lazega 2001).

Thus, without neo-structural framing of the use of network analysis, co-evolution of structure, culture, and agency can hardly be measured and modeled to account for social stability and change. Even if this empirical case is not a case of morphogenesis it is sufficient to show that network analysis and statistics, when combined with other methods, such as discourse analysis, can bring to light these intertwined and dynamic structural and cultural effects provided that it is broadly conceived from a neo-structural perspective focusing on generic social processes.

Although both approaches are rooted in different bodies of literature, this illustration suggests that further exploration of the relationship between neo-structuralism and the Morphogenetic Approach can be mutually reinforcing. Contemporary work in neo-structural sociology can show how cultural factors find their way into the structural domain, and of how structural factors find their way into the cultural domain (Archer 1988; White 2008). Neo-structural sociology, that combines both interdependencies and conflicts in the definition of the system and its dynamics, is most creative at the meso-level of social reality. One of its limitations lies precisely in the articulation of the meso-level and the macro-level (otherwise called ‘politics’). This suggests that network analysis, as framed in neo-structural perspective, provides measurements of both systems and processes. Adding information about actors’ attributes, behavior, languages, beliefs, and achievements gives these measurements a dynamic edge by making co-evolutions analytically accessible.

There is nothing mechanical in this articulation. Together with a morphogenetic outlook, neo-structuralism can help bridge this divide between the meso- and the macro-levels. A combined approach would make both theories’ assertions empirically testable even if they are not presented at the same levels of conceptual specification and generality.

A.1 9.6 Appendix 1

Moral Damages and Punitivity

With Respect to the Assessment of Damages in a Case of Unfair Competition

An anonymous company whose capital is held entirely by the State (from hereon designated “Company G”), is active in the weaponry sector, particularly in combat tank construction. Company G has been sued by a competitor (from hereon designated “Company M”) on the allegation that Company G used “predatory prices” in the market for speed reducers.

In its complaint, Company M asks that the Tribunal fine Company G the sum of 10 762 900 euros in damages. In addition to the subsidiary claim, they ask that an expert be appointed to calculate the loss.

Using its discretionary authority, the Tribunal did not call in an expert to evaluate the loss.

After an examination of the profit rate and the basis for the turnover maintained by the plaintiff, as well as an analysis of moral and material damages and the loss of competitive capacity, the Tribunal evaluated the loss as equal to less than 3 % of the sum initially asked for.

Similarly, on the subject of profit rate the Tribunal declared that “in heavy industries, where competition is fierce, producers apply a profit margin of 10–20 % to the production costs of the materials they order.” The Tribunal declared a rate of 10 %.

Concerning the basis for the turnover, the Tribunal stated that Company M did not provide proof of its allegations, and considerably exaggerated the alleged loss.

In the end, the Tribunal declared the absence of all moral damage, notably reasoning that “the risks of litigation are inherent to business and may always arise during the life of a company.”

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