

# Chapter 8

## ‘Morphogenesis Unbound’ from the Dynamics of Multilevel Networks: A Neo-structural Perspective

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### 8.1 Dynamics of Opportunity and Constraint in the Organizational Society

The double trend of *individualization* (created by increasingly open competition for the lower levels in terms of socio-economic stratification) and Weberian *rationalisation* (stemming from the bureaucratic search for control and efficiency) has constituted a society that Charles Perrow (1991) calls “organizational” and Ronald Breiger (1974) calls “dual”. This rationalization in turn imposes strong interdependencies between actors with many diverging interests, and simultaneously requires an unprecedented amount of coordination among them. In this organizational society, managing these interdependencies of all kinds (functional, symbolic, epistemic, normative, emotional etc.), which are of exceptional complexity, can marginalize or exclude, make or break careers, in part determine the distribution of power and status, as well as influence the social processes that produce or prevent change.

The organizational society is characterized by complex and rapid forms of organized collective action at the meso-social level that “absorb society” and externalize social costs (Perrow 1991). The sociology that I term neo-structural assumes that behaviour, in this context, is largely determined, on the one hand, by more or less conflicting categorical (macro and meso) affiliations, and on the other hand, by the system of economic and symbolic interdependences between these conflicting actors. The term “structural” refers here to the observed regularities in the relations and multiple socio-economical exchanges, formal and informal, between these individual and organizational actors with divergent interests and at the

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same time relations of multiple and multilateral interdependencies. Contemporary neo-structuralism is different from the structuralism of the 1960s because it relies on a theory of individual and collective action. I suggest here that it is quite close to Archer's brand of structuralism, co-evolving with agency and culture. As indicators of durable, multilateral interdependencies, relations are defined in terms of symbolic and moral commitment, as well as economic sources of resources. Actors are seen as members of socially organized settings that can be represented as webs of regular ties, as relational structures entailing both opportunities and constraints (White 1970; White et al. 1976; Donati 2010). Fundamental social processes (such as socialization, particularistic solidarity and discrimination, social control and conflict resolution, regulation and institutionalization, etc.) are, in part, the product of these regularities in the management of interdependencies by competing/conflicting actors (Lazega 2003, 2006, 2012).

From this perspective, a social phenomenon must be observed at several analytically different levels of action, which makes the analysis of individual relations and conflicts inseparable, but distinct, from that of organizational relations and conflicts. To take into account this vertical complexity of the social world, it is necessary to differentiate and articulate these levels and their respective dynamics. Sociology, in my view, is still struggling to combine multilevel and dynamic approaches to social phenomena at the meso-level. The perspective opened by neo-structural sociology is that of the study of the dynamics of systems of layered interdependencies. A first step in that direction (Lazega et al. 2007) was to propose a structural form of articulation of these levels that examines separately the systems of oppositions and interdependences pertaining to different levels; and that articulates them based on the systematic information on the affiliation of each individual at the first level (inter-individual) to one of the organizations of the second level (inter-organizational). This approach to examining interactions between the global and the local is only in its infancy.

The purpose of this chapter is to provide elements of this neo-structural theory and methodology that contribute to research on the specific processes characterizing the 'Morphogenic Society' (Archer 1982, 1995: 2013a). More specifically I will argue that it is possible to conceptualize and measure 'Morphogenesis Unbound' (MU) as a dynamic and multilevel – both individual and organizational – phenomenon. Archer's (1995) ontological dualism has long considered it crucial to incorporate the role of time in sociological theory. From the perspective of her analytical dualism (1995: 66), "the emergent properties of structures and agents are irreducible to one another... and given structures and agents are also temporally distinguishable". Because neo-structuralism comes from a brand of structural symbolic interactionism for which structure is not a suspect concept (Stryker 1980), it is, I believe, consistent with Archer's (1995: 43) conception of structures as sets of social relations, rules, and roles that are quite independent from individual interpretations – although both levels influence each other over time.

Elements of vocabulary are needed to reason in that way. In the following I will define structure as a stabilized multi-level system of interdependencies. Interdependencies are both economic and symbolic, i.e. inextricably combining

resources and commitments. Culture will be defined as a set of languages and norms that help actors stabilize or destabilize prior structures when trying to give meaning to actions and to defend their political/regulatory interests. Agency will be defined as action that mobilizes and combines both culture and structure, by relying on ‘appropriateness judgments’ guiding behaviour,<sup>1</sup> i.e. mobilizing reflexivity and culture to create new relationships, new opportunities, and sometimes new organizations. From this perspective, the essence of networks is, in part, to cut across pre-existing formal boundaries of organized social settings in which members are currently affiliated, sometimes to hoard these new opportunities.

In the context of the organizational society, individuals are seen as competing, but interdependent members forced to coordinate to get access to production-related resources. At the level of organizations as units, competition, resource dependencies and efforts to coordinate are even more obvious. Neo-structural analysis offers sophisticated measurements of resource interdependencies, status and power that rely on inductive reasoning, thus avoiding reification of the notion of structure. But looking at society as an organizational society also helps in focusing on its multilevel character. Multilevel refers to the fact that in a stratified society, there are many superimposed levels of agency, each of them characterized by horizontal interdependencies that sociologists can examine as sets of ‘local’ social systems. Individuals acting on their own behalf in a highly personalized inter-individual system of interdependencies constitute a specific level of agency, with its own resources, commitments and rules. This level of agency is different from that of organizations (a family, a company, a non profit organization, etc.), to which these same individuals are affiliated: organizations, in which hierarchy to some extent reflects wider societal stratification, are represented by their managers who act on their behalf. They interact with other managers from different organizations at an inter-organizational level of agency. At that level, interdependencies are much less personalized. Resources, commitments and rules are of a different nature from those characterizing the inter-individual level of agency.

Interorganizational networks are created most often by contractual agreements between organizations specifying the contributions, rights, and responsibilities of each organization in the pursuit of a particular objective. Interpersonal networks consist of individuals tied together within or across organizations through, for example, work, advice, and friendship relationships. The content of these relationships differs. The boundaries of interorganizational and interpersonal networks are defined by the relevance of the relation in facilitating individual access to resources that may be helpful in the pursuit of a particular objective; but also by the social space in which the specific social processes driven by these relationships take place in a meaningful way (Lazega and Pattison 2001).

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<sup>1</sup>The micro-foundations of neo-structuralism are based on a structural brand of symbolic interactionism stressing identity criteria, precarious values and status as combined elements of a theory of appropriateness judgments guiding behaviour (Lazega 1992, 2011).

Needless to say, society is not made of two levels of agency only. There are many 112  
levels in actors' contexts, beyond the organizational one. However for the purpose 113  
of this chapter – approaching MU – I will stick to two, postponing the discussion 114  
of possible generalization of this reasoning to n or multiple levels. The main idea 115  
is that MU comes from ongoing interactions and conflicts between interpersonal 116  
and inter-organizational networks that generate each other. I argue that each level 117  
interacts with, and introduces change in, the other level, thus creating dynamics 118  
that may well be, as Archer argues, unprecedented in history. Under conditions that 119  
remain to be specified (no conflation), each level reconfigures the other in slow and 120  
irregular, but unstoppable, chains of reactions. 121

In this context, one way to understand MU is to use multilevel network analysis. 122  
Here I will refer to research in which this method is applied to a set of empirical 123  
data so as to generate a network translation of MU and observe its outcome. 124  
In this case in point, I report results in which actors use the resources of their 125  
current organization to create new relationships beyond the boundaries of the orga- 126  
nization to which they are affiliated, thus reshaping/expanding their own personal 127  
opportunity structure beyond the limitation imposed upon them by pre-existing 128  
structures. In this case, half the population of innovators observed (here: highly 129  
competitive scientists) deploy ‘independentist’ strategies, i.e. all their new personal 130  
ties are beyond the constraining perimeter predefined by their organization’s inter- 131  
organizational network. The kind of organization that they might create would 132  
not establish inter-organizational ties with their current organization. Over time, 133  
measurements suggest that this independence takes them close to Nowhere in terms 134  
of further achievements. Slightly more pedestrian forms of Morphogenesis, i.e. 135  
perhaps less Unbound, based on a relational strategy called here ‘individualist’, 136  
in which actors keep a strong foot in the organization in which they are affiliated 137  
so as to use its resources to create a new set of ties – and eventually a new 138  
organization – outside their current organization’s perimeter, seem to be of a 139  
more rewarding kind of networks to Somewhere, closer to the “prizes [that] go 140  
to those who will explore and can manipulate contingent cultural compatibilities 141  
to their advantage” (Archer 2013b). In this latter case, even if some of the 142  
opportunities that they could create for themselves are hoarded by their current 143  
organization (or boss). Such neo-structural measurements of Morphogenesis are 144  
used to understand upon situations in which the two situational logics of action 145  
identified by Archer (2013b), *competition* and *opportunity*, coexist; as differentiated 146  
from the situations in which the latter would replace the former. Creating new 147  
ties beyond the boundaries of one’s current position, and sometimes even new 148  
kinds of organizations, is a highly cultural form of agency. This suggests that 149  
Breiger’s notion of ‘weak culture’ helps explore actors’ capacity to innovate by 150  
reshaping opportunity structures and by reaching heterogeneous alters in spite of 151  
resistance from a rather stable, change-averse, tightly-connected organizational 152  
society promoting ordinary incremental innovation that will not challenge pre- 153  
existing entrenched interests. 154

## 8.2 Reshaping Opportunity Structures and Opportunity Hoarding in the Organizational Society

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Saying that structure reflects both opportunity and constraint is equivalent to 157  
saying that, over time, individual actors try to manage the constraints in order to 158  
reshape their opportunity structure in the context of the organizational society. What 159  
opportunities? Those of obtaining a job, funding for a project, an apartment, a place 160  
in kindergarten for the children, a place in good schools, a steady flow of business, 161  
etc. Individuals trying to reshape their opportunity structure can be represented as 162  
strategic but also interdependent actors who seek contexts in which they can find and 163  
exchange these resources at low cost. Once in such contexts, they can seek various 164  
forms of concentration of these resources – i.e. power – so as to be in a position to 165  
define the terms of such exchanges. 166

As a consequence, the contemporary definition of social class is more complex 167  
due to the growing importance of relatively invisible opportunity structures at the 168  
intra- and inter-organizational levels. In *Durable Inequality*, Charles Tilly (1998) 169  
proposes an organizational view of inequality-generating mechanisms. These are 170  
the organizational structures that allow for exploitation and that naturalise and 171  
stabilize it. In this perspective, contemporary social stratification also articulates 172  
exploitation (by the elite owners of much of the resources and power in society) and 173  
“opportunity hoarding” by intermediary classes, as two complementary mechanisms 174  
for creating stabilized inequality. By organizing themselves legally, socially and in 175  
such an inconspicuous way, less visible than the distinction between bourgeoisie and 176  
proletarians, the opportunity monopolists construct well organized communities; 177  
and this organization is the basis of their ability to capture these opportunities. 178  
It is not easy to see if someone has the opportunities that others may not have. 179  
These opportunities can be compared to the implicit or informal rights, often 180  
self-granted in an organized group, linked to the positions in the inconspicuous 181  
relational structure, which although traceable, is nevertheless very efficient (White 182  
1970). 183

Organizations, for example, help in aligning social cleavages to create a system 184  
of inequality in which these cleavages reinforce each other to achieve exclusion or 185  
exploitation. Tilly sees in the monopolizing of opportunities the key mechanism of 186  
reproduction of social inequality, articulating the meso-social level to the macro- 187  
social level. Organization and stratification mutually reinforce each other, even if 188  
the knowledge of the opportunity structure for the individual actors are not evident, 189  
if the modality and the yields of monopolization are not mechanical. They depend 190  
on the articulation of long term process at macro level, and the articulation of local 191  
organizations with their stabilized and specific social disciplines. The starting point 192  
proposed by Tilly is a complex socio-economical process that is at the heart of 193  
the neo-structural approach of relations between meso- and macro-social levels. 194  
Neo-structural sociology measures and models this monopolization using social and 195

organizational network analysis – a method that was developed for updating the 196  
 variable forms of both conflicts and interdependencies between actors and between 197  
 categories of actors. 198

My main argument is that in the multilevel context of this organizational society, 199  
 individual actors can try to reshape their complex opportunity structure by creating 200  
 new ties, languages and organizations that use the resources and escape the control 201  
 of the organizations with which they are still affiliated. By doing so they reap 202  
 benefits that may incite them to move and set up new organizations that are meant 203  
 to protect access to these benefits and to hoard the new opportunities created by 204  
 breaking off the constraints that were imposed on them by their former bosses. Thus, 205  
 under specific circumstances, ongoing interactions between interpersonal and inter- 206  
 organizational networks create changes, as opposed to simple consolidation, at each 207  
 level. These changes may be strong enough to reconfigure the multilevel system if 208  
 they drive the creation of new organizational actors, i.e. new opportunity hoarding 209  
 collectives. In these dynamics culture plays a central role. No collective can be set 210  
 up without the language that is needed to formulate the conditions under which the 211  
 “synergy” (Archer 2012) is reached, and without institutionalizing the rules of this 212  
 synergy. Thus the major role of culture is both in providing the language for creation 213  
 of relationships with heterogeneous others and in the institutional dimension of 214  
 organizations that emerge from these efforts. 215

### AQ1 8.3 Meso-social Order and Agency in Superposed Systems 216 of Interdependencies 217

Thus in order to explore the meso-social order and the multi-level dimension 218  
 of social phenomena, we must observe two systems of superposed and partially 219  
 interlocked interdependencies, one inter-organizational, the other inter-individual. 220  
 Attempts at solving this problem of joint examination include Breiger’s “dual” 221  
 approach (1974) of bipartite or two-mode networks. When a fixed set of actors 222  
 belongs to a fixed set of organizations, it is possible to derive multiple memberships 223  
 from inter-individual networks (assuming that a connection exists between two indi- 224  
 viduals because they belong to the same organization), and from inter-organizational 225  
 networks (assuming that a connection exists between two organizations because 226  
 they share common members). The typical example is that of “interlocking” 227  
 connections, i.e. connections created between two enterprises when one or more 228  
 individuals simultaneously belong to the boards of both enterprises. The networks, 229  
 derived at two different levels, can also be reconstituted in a multi-level structure. 230  
 However, this structure provides relatively poor insights into social phenomena 231  
 because relationships are presupposed and are symmetrical by construction. 232

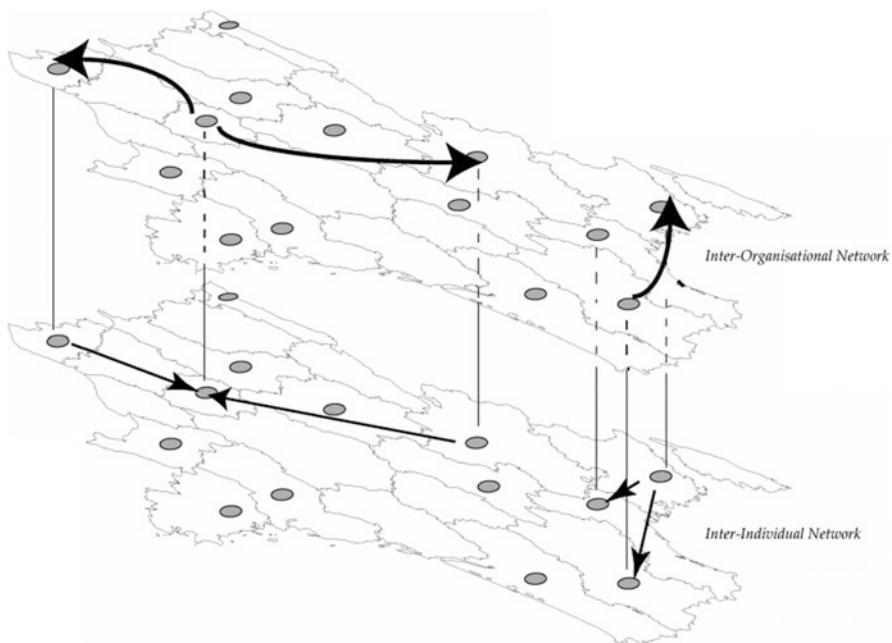
A second important contribution in multilevel network analysis is that of Fararo 233  
 and Doreian (1984). They generalize Breiger’s and Wilson’s (1982) formalisms 234  
 in order to craft a “formal theory of interpenetration” of distinct entities such 235

as individuals and groups. Seen from the perspective of their tripartite structural analysis, our approach uses a network (call it P) of relations among persons, a network (call it G) of relation among groups, and a network (call it A) of affiliations of persons to groups. Unlike in Breiger’s (1974) approach, only A is an affiliation network; P and G are networks of social relations and interdependencies (such as getting advice from a colleague, or agreements among organizations to share equipment, respectively). Fararo and Doreian’s article points out many kinds of relations among levels (consider, for example, AGAT, the network of ties between people whose laboratories have agreements to share equipment). Similar ideas are extended and used below, in particular to reconstitute “overlaps” between the two kinds of networks (P and G via A) and reconstitute individual strategies of management of resources originating from both levels.

Articulation of distinct levels of action can be partly accounted for, beyond bipartite structures, using a method called *structural linked design* (Lazega et al. 2007, 2008, 2013) that brings together networks of different levels using individuals’ (mono or multiple) affiliation ties. Our goal is to apply this multilevel approach and reason in terms of the dynamics of these networks because, as mentioned above, the temporal dimension of social processes and of the creation of organizations is a fundamental aspect of social reality in late modernity. At this level, actors attempt to structure the contexts of their interactions and have to manage the constraints that these contexts impose upon them by new attempts to redesign their opportunity structures.

In this approach, each complete network is examined separately, and then combined with that of the other level thanks to information about the membership of each individual in the first network (inter-individual) and to one of the organizations in the second network (inter-organizational). Work undertaken until now within the framework of this complex vertical architecture shows that dual/multiple positioning in superimposed systems of interdependencies makes it possible to formulate precise assumptions about the relation between members’ position in the structure and individual achievements. It is especially the case when this positioning is articulated with specifiable strategies of actors.

This form of dual positioning in the structural contextualization of action explicitly distinguishes two levels of agency (one individual and one organizational) and their co-constitution, but without conflating them. Insofar as each level constitutes a production and exchange system that has its own logic, it is important to examine them separately (as the literature usually does), but also jointly. To study the levels jointly means identifying, in particular, the actors who profit from a more or less easy access to resources circulating in each level and measuring their relative achievement. The term “strategy” refers to the fact that actors manage their interdependencies at different levels by appropriating, accumulating, exchanging and sharing resources, both with peers and with hierarchical superiors or subordinates. These strategies are observed by looking at the choices of inter-individual and inter-organizational exchange partners.



**Fig. 8.1** Example of visualization of multilevel networks in French cancer research (1999)

### 8.3.1 Neo-structural Approach and Multilevel Analysis: An Empirical Case of Co-constitution Without Conflation

This approach can be illustrated using a case study in the sociology of science. In this case, the “elite” of French cancer researchers in 1999 was examined at both the inter-individual and the inter-organizational levels. In this context, we identified the systems of superimposed interdependencies, of the strategies of the actors who manage these interdependencies, and of their achievements measured at the individual level. No deterministic order is pre-supposed between position, strategy, and achievements, only an analytic one. This approach is particularly sensitive to the existence of inequalities between competing/cooperating actors because these inequalities can render a given strategy more or less “rewarding”, depending on dual positioning as measurement of opportunity structure.

Figure 8.1 illustrates the principle of structural linked design. The upper map represents the ties among laboratories carrying out cancer research in France in 1999, in which we interviewed the director. Arcs indicate the direction in which the resource flows and, in this example, the direction in which recruitment operated. For example a laboratory in Lille and a laboratory in Dijon recruited a researcher in cancerology coming from a Paris laboratory. Another example: a laboratory in Nice recruited a researcher coming from a Toulouse laboratory.

represents the ties among researchers whom we interviewed. Arcs indicate the direction in which recruitment-related advice was sought among researchers in these laboratories. For example, a researcher in Nice sought advice from a researcher in Montpellier and from another in Toulouse regarding recruitment for his/her research project. Likewise, a researcher in Dijon and a researcher in Lille sought advice from a researcher in Paris regarding recruitment. Finally, vertical lines linking nodes in the upper map with nodes in the lower map indicate that the individual researcher represented in the lower map belongs to the laboratory represented in the upper map (linked design principle). 298  
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Thus, the approach proposed here builds upon the idea of duality, but distinguishes itself by separately reconstituting systems of interdependencies at least at two different and superposed, partially interlocked levels of analysis: inter-individual and inter-organizational interdependencies. The flow of resources and the specific social exchanges at each level can be examined separately at first, and then jointly. This principle of the dual-positioning of individual actors (in the network of their inter-individual relationships and in the network of relationships between the organizations to which they belong) has two advantages. 307  
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### 8.3.2 Fish/Pond Relative Status

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Firstly, dual positioning constructs a new typology of the positions in the system, i.e. to characterize individuals and the organizations in which they work in the same “dual entity”. Dual positioning corresponds to a form of relative status, or a double structural characteristic of the individual. Here it is constructed by measuring both the centrality of the individual and the centrality of the organization (in inter-organizational networks) to which he or she belongs. The status of an actor is measured by his/her ‘indegree’ centrality in the advice network of the research elite. The types of centralities used here are ‘indegrees’ and ‘outdegrees’ because incoming and outgoing ties are important in our measurement of overlap between the relationships of the individuals and that of organizations, as shown further below. 316  
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This produces an endogenous partition of the population into four classes that are baptized metaphorically, for a more intuitive understanding of this dual positioning, big fish in a big pond, big fish in a small pond, little fish in a big pond and little fish in a small pond (BFBP, BFSP, LFBP and LFSP). In these metaphorical terms, the actors are identified, thanks to centrality scores, as big or little “fish”; organizations are identified likewise as big or little “ponds.” Belonging to one of the four categories locates actors in a meso-social space of opportunity structures, simultaneously inter-individual and inter-organizational. Carrying out this multi-level approach by measuring this relative status of actors and organizations provides a uniform basis for the interpretation of our results in the reconstitution of strategies of mobilization and articulation of heterogeneous resources at different levels, i.e. the dynamics in which we are interested. 326  
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### **8.3.3 Relational Strategies and the First Steps of Organizational Creation**

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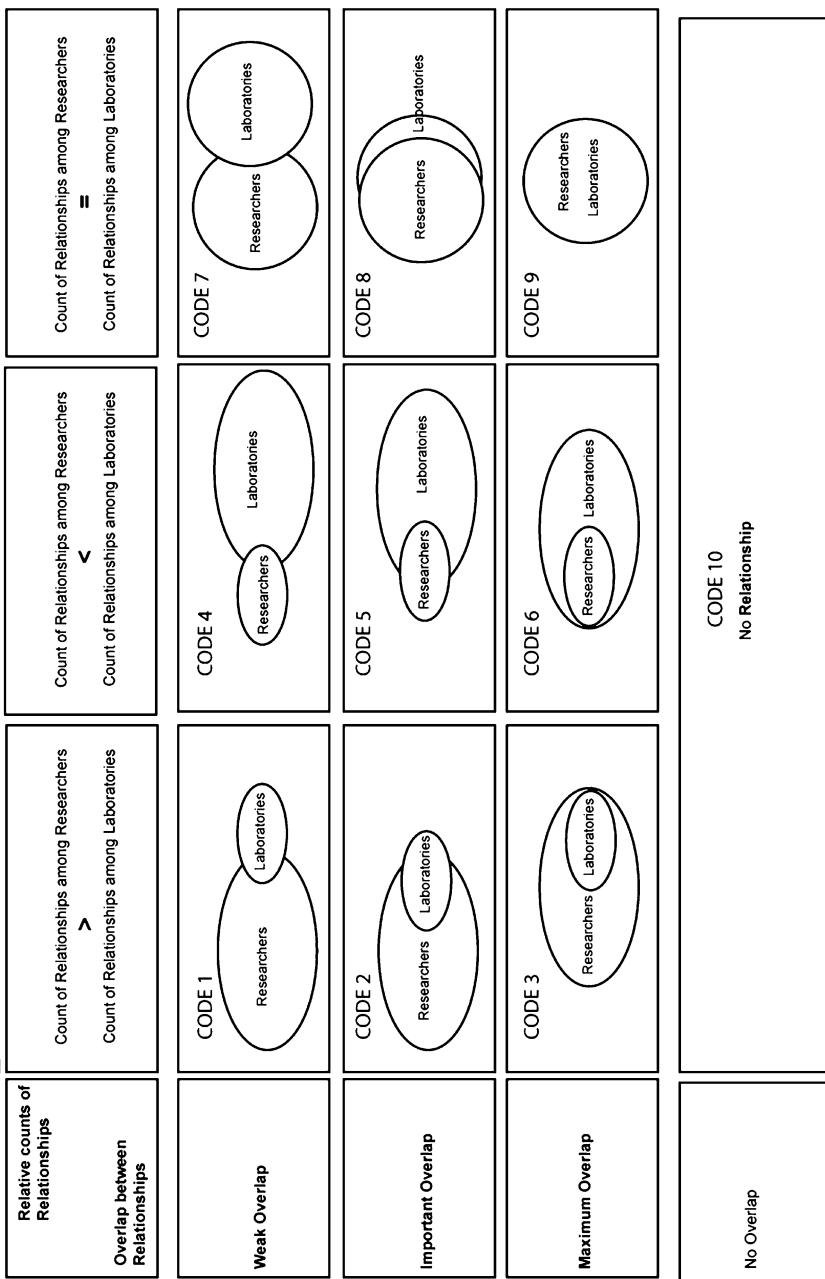
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Secondly, this localization allows us to identify the strategies that individuals use 340 to appropriate, to accumulate, and to manage both their own resources and the 341 resources of their organizations. Actors vary in their capacity to use organizations 342 as “tools with a life of their own”, to use Philip Selznick’s famous definition. 343 Certain actors use a great deal of the resources of their organization, others much 344 less. In particular, systems of interdependencies at different levels are controlled by 345 actors from different hierarchical levels. Likewise, we can measure the overlap of 346 relationships between individuals by those of their organizations. It then becomes 347 possible to articulate these relational strategies to the achievements of actors. It is 348 in this respect that the contribution of a structural linked design is most original. 349 As information about the relative status of individuals and information about the 350 relational strategies of these individuals are used concurrently, we can eventually 351 examine the achievement of individuals with explanatory variables different from 352 those used in classic ecological analysis – which, to our knowledge, rarely measures 353 the position of an actor in systems of interdependencies. 354

In our case in point, all the researchers in this elite population are high performers 355 in terms of the number of published articles. However when looking at the strategies 356 for the management of resource interdependencies at two different levels, especially 357 by actors in categories other than the BFBP (i.e. the BFLP and all the Little Fish) we 358 identify different strategies. The connection existing between membership in a class 359 and strategies for the management of interdependencies can be read in the level of 360 overlap between the researcher’s relationships and those of his/her laboratory, for 361 outgoing as well as incoming ties. Figure 8.2 illustrates these overlaps. 362

A researcher may be cited (in these advice networks) by colleagues belonging 363 to a laboratory that may or may not have inter-organizational ties with his/her 364 laboratory. The comparison of differences between these two types of relationships 365 provides indications about this level of overlap between the two kinds of networks 366 and about the behavior of these actors in their organization, thus offering indicators 367 for their strategies. We interpret choices received as indicators, for the laboratories, 368 of their importance from a functional point of view, and, for researchers, as 369 indicators of their prestige in terms of professional authority. We interpret outgoing 370 ties as indicators of access. In the case of the laboratories, outgoing ties can be read 371 as measures of access to exterior resources; for the researchers, they measure access 372 to sources of learning and of personal support. 373

Figure 8.2 shows ten types of overlap between ties of researchers and ties of 374 their respective laboratories. A researcher may have a set of contacts contributing 375 to his/her indegree (called here prestige), and another set of contacts constituting 376 his/her outdegree (called access to resources). In Fig. 8.2, codes 1, 4, 7 refer to 377 a weak overlap between the relationships of a researcher and those of his/her 378 laboratory. Code 10 refers to a situation in which there is no overlap at all: 379 choices received by the actor come from colleagues who do not belong to the 380



**Fig. 8.2** Members’ relational strategies as measured by types of overlap between interpersonal and inter-organizational networks

laboratories collaborating with the laboratory of this actor. For incoming choices, 381  
this is a situation in which the individual researcher enjoys a personal prestige 382  
relatively independent from the prestige of his/her laboratory. For outgoing ties, this 383  
is a situation in which the individual researcher has access to resources relatively 384  
independently from his/her laboratory. Codes 2, 5 and 8 refer to an important overlap 385  
and codes 3, 6 and 9 to a maximum overlap: the actor has access to advice related 386  
resources (learning) from sources offered by the collaborations established at the 387  
level of his/her laboratory. 388

### ***8.3.4 Levels of Overlap, Relational Strategies and Achievement*** 389

Using this typology, we can establish a correspondence between fish/pond cate- 390  
gory (identified above: BFBP, etc.), level of overlap understood as strategy, and 391  
achievement. Results show, firstly, that there are combinations that articulate little 392  
(or no) common prestige and little (or no) joint access to the same organizational 393  
resources: combinations 1 and 5 and combinations 4 and 8. One could call 394  
these combinations “independent” strategies. It is not difficult to imagine concrete 395  
examples of behavior that reflect independent strategies. For example, a researcher 396  
representing an entire discipline in a scientific council might negotiate, in the name 397  
of the collective interest that he/she represents, to obtain resources for his/her own 398  
individual projects. Second, there are combinations that articulate little (or no) 399  
shared prestige but many of the common resources: combinations 2 and 6 and 400  
combinations 3 and 7. One could call these combinations “individualist” strategies 401  
(benefiting from common resources but not sharing their prestige). Third, there are 402  
combinations that articulate a great deal of shared prestige but little (or no) common 403  
organizational resources: combinations 9 and 13 and combinations 12 and 16. 404  
One could call these combinations “collectivist” strategies (constructing common 405  
prestige by using resources different from those of one’s colleagues’). Fourth, 406  
there are combinations that articulate a great deal of shared prestige and common 407  
organizational resources: combinations 10 and 14, and also combinations 11 and 15. 408  
One could call these combinations “fusional” strategies. The reconstitution of this 409  
typology of strategies yields new insights into the relationship between position, 410  
strategy, and achievement. 411

Analyses show that collectivist strategies are used by big fish more often than 412  
little fish. In other words, the bigger the fish, the greater the overlap between the 413  
relationships of researchers and the relationships of their respective laboratories. 414  
Big fish know how, and are able, to use the resources of their laboratory. Among 415  
the LFBP, the majority have strongly independent strategies. On the other hand, 416  
for the LFSP, one finds a nearly complete separation between the relationships of 417  
researchers and those of laboratories, whether for outgoing or incoming ties. Their 418  
laboratories may also offer resources to which they do not have direct access or that 419  
they do not use. The LFSP have no fusional strategies. Big fish do not seem more 420

prone to use individualist strategies than the little fish. The only marked difference 421  
is the more frequent use of collectivist strategies, but also of fusional strategies 422  
(although in very small numbers). The difference in the use of independent strategies 423  
is not so much between the little fish and/or little pond, but between the little and the 424  
big fish. Little fish – perhaps because of lower access to laboratory/organizational 425  
resources – follow an independent strategy much more often (66 % compared to 426  
34 % for the big fish). Also it is not the BFBP that most often use collectivist and 427  
fusional strategies, but the BFLP; they are more often the directors who could easily 428  
use the resources of the laboratory for their own interest, sometimes, for example, 429  
grabbing credit for other members’ work. 430

Finally, we measure the way in which actors’ strategies are associated with 431  
achievement levels for researchers who are not BFBP, i.e. who are endowed with 432  
less social resources. The examination of the evolution of the impact factor scores of 433  
all the researchers, and more specifically of those catching up, over five consecutive 434  
years following the study, allows us to identify “long-term catching up”. Among 435  
researchers with increasing impact factor scores who were LF, the individualist 436  
strategy is by far the most efficient, mostly for those in a big pond, in order to have 437  
a chance to catch up. The same individualist strategy seems to be counterproductive 438  
for the BFSP. The latter can attain very high levels of achievement (measured at the 439  
individual level) if he/she is the only one in the little pond to be able to appropriate 440  
the necessary resources and enter competition with the BFBP. The collectivist and 441  
fusional strategies are also efficient for these BFSP. Following an independent 442  
strategy does not seem to benefit anyone, especially not the junior researchers. One 443  
may explain this catching up by the fact that some LF, whether in big or small ponds, 444  
have learned, over time, to use the resources of their organization more efficiently. 445  
This means that the LF benefit from building an individual network outside of the 446  
domain established by the network of their boss or laboratory – exactly the first step 447  
in the creation of new organizations. 448

This specific result deserves to be highlighted for our purpose. Younger 449  
researchers try to create ties outside the relational “territory” of their organization 450  
and of their boss in order to gain autonomy in their work. Asking to what extent 451  
this is still possible today without losing access to resources needed to innovate 452  
is equivalent to asking to what extent science is still an “independent” profession. 453  
Individualist strategies are rewarding in terms of achievement for the researchers 454  
who are not BFBP. They break free of organizational constraints to reshape their 455  
opportunity structure and eventually build their own organizational context. 456

### 8.3.5 *Dual Opportunity Structures, Asynchronies and Emergence*

This case in point could illustrate in part the situational logic of action called 459  
opportunity: “The prizes go to those who will explore and can manipulate contingent 460

cultural compatibilities to their advantage" (Archer 2013b). MU can be seen as the 461 result of a succession of such disjunctions and asynchronies created by relational 462 strategies, here mainly "individualistic" ones, in the sense defined above, that allow 463 some actors to combine structure and culture in new ways before they set up 464 new organizations, and the cycle starts afresh. But affiliates choosing fusional and 465 collectivist strategies and values seem to do less well in this context. Exploration 466 of new opportunities creates asynchronies, and exploitation of new opportunities 467 created by this exploration seems to benefit only the established organization and 468 its leaders. A process takes place, by which these established organizations bring 469 "wayward" affiliates back to good order. The "synergy" of both is what we can call 470 synchronization or alignment that increases overlap: the organization catches up 471 with its fusional and collectivist members and is able to hoard the new opportunities 472 that they created, thus preventing MU. 473

If synchronization is necessary for the organization to benefit from the individual 474 actions of its entrepreneurial members, especially from individual action that takes 475 place outside the organization, creating asynchronies is sometimes what helps 476 individuals break free. Thus collective action at two vertically interdependent levels 477 of agency is also a story of "emancipation" from the influence of the other level, 478 and either catching up with this other level as it stands, or creating a new emergent 479 structure (or more modestly, a new sub-structure). The lag between the two can 480 be considered the main source of morphogenesis and the generalization of lags the 481 cause of MU: structuration at one level drives structuration at the other in mostly 482 conflicting, chaotic, and unequal ways. Time to adjust and adapt are not always 483 available; enormous waste and disorganization may characterize the multilevel 484 structuration process.<sup>2</sup> 485

When agents emancipate themselves and create their own organizations, structure 486 and culture can be brought together as status and rules by which opposed 487 parties "collaborate with the enemy". The form of synergy described above between 488 employers and their scientists "depended upon the swift succession of positive 489 feedback cycles ... all of which led to new variety fostering further variety" 490 (Archer 2013a: 14). In the multilevel system, actors try to take advantage of 491 spatial and temporal gaps between agency at different levels. In our empirical case 492 culture, structure and agency work together because some (young) scientists try to 493 challenge their seniors' or colleagues' scientific and vested interests by creating new 494 organizations as "tools with a life of their own". 495

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<sup>2</sup>Since this creates dynamics of multilevel networks with different levels of agency, a new family of models is needed to account for such dynamics. We think this family of models is a multilevel extension of Snijders (2001) model of dynamics of networks, using characteristics of level 2 network as set of exogenous factors in the evolution of level 1 network, and the other way around. The coevolution of both level networks is added to the coevolution of behavior and relational choices. In terms of model specification, new 'independent' variables from inter-organizational networks operate at the inter-individual level, and vice-versa.

## 8.4 Weak Culture in the Creation of New Relationships and Organizations?

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Multi-level network analyses, asynchronous dynamics and emergence are thus 498 relevant for the research agenda on Morphogenesis Unbound. But in order to 499 reshape opportunity structures by creating new relationships and new organizations, 500 individuals must also create and use new languages and rules that help them hoard 501 these opportunities and defend their regulatory interests. This is related to the 502 fact that, in effect, creation of new relationships with heterogeneous alters often 503 mobilizes what Breiger calls “weak culture”. Indeed Breiger (2010) and Schultz and 504 Breiger (2010) propose that the tie that binds an actor to a cultural taste, for example, 505 “might be strong (purposive, intensive in time or commitment, fostered by a tightly 506 integrated community bounded by social symbols and representations) or weak 507 (banal, non-instrumental, non-demanding, non-exclusive)”. They find that weak 508 culture can be efficient in several different respects, for example “by bridging across 509 otherwise disconnected social groups, or by bonding actors to a wider collectivity 510 than is possible on the basis of strong-culture commitments”. They report research 511 findings indicating that weak culture, that requires no strong commitment from 512 actors, tends to span preferences and does not need strong approval. In spite 513 of being weak, “weak culture has a strong and significant impact on shaping 514 attitudes about (...) values”. Their reasoning is that, with its capacity to help create 515 heterophilous ties, weak culture regenerates structure by bridging across diverse 516 social milieux. In our view this process can help actors in recreating a hierarchy of 517 allegiances and bringing together competing reference groups. Each new collective 518 requires secondary socialization (Lazega 2014). Increased levels of creation of new 519 organizations signals the increased importance of secondary socialization to these 520 organizations. 521

The recognition of the cultural dimension of affiliation in (and creation of) 522 relationships and organizations has implications in terms of supporting the idea of a 523 fundamental difference between Archer’s logics of action (competition and opportu- 524 nity). Under specific historical circumstances opportunity could become generalized 525 and variety could induce further variety because the process of consolidation and 526 ‘recuperation’ of agents does not work. Established organizations do not always 527 succeed in hoarding the opportunities created by their members.<sup>3</sup> 528

But could that last for very long? If organizations can link opportunities created 529 by members outside of their reach with, for example, promises of career advance- 530 ment, then individuals can be lured by the prospect of becoming king/queen fish 531 without creating new organizations and structures. This issue is equivalent to asking 532 to what extent these mechanisms (reshaping one’s opportunity structures, creation 533

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<sup>3</sup>Moreover, the chains of interactions between tie generation at different levels are not necessarily centred around subordinates. Sometimes cooperation between superiors and subordinates facilitate or hinder the development of such chains and restructuration (Lazega et al. 2013).

of new relationships outside of the perimeter of one's organization, alignments 534  
or disaffiliation, desynchronization, boundary spanning and opportunity hoarding) 535  
can be disentangled from competition as a generative mechanism. Secondary 536  
socialization has become a central process in contemporary organizations because 537  
of increased flexibility of labor markets that puts members in increasingly open 538  
competition and imposes upon them increasingly frequent mobilities and bifurcating 539  
trajectories. The existence of strong secondary socialization processes, constantly 540  
nurtured and updated, is often perceived in organizations as an essential process 541  
mitigating the destructive effects of competition, not replacing it. Perhaps the two 542  
generic mechanisms (competition and opportunity) are combined in a multilevel 543  
and dynamic perspective, in the sense that co-evolution of levels of agency 544  
needs both. 545

## 8.5 Unmeasured Social Costs Dumped on the Weakest and on Society as a Whole

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It is suggested here that one way to understand the notion of Morphogenesis 548  
Unbound is to focus on the meso level of society where evolution takes place, i.e. to 549  
look at society as an ‘organizational society’ and to think about the co-evolution 550  
of structure, agency and culture – the three dimensions of Archer’s sociology, 551  
analytically speaking – in that context. This co-evolutionary vision happens to be 552  
very close to the research program of neo-structural sociology. In a study exploring 553  
multi-level networks of superimposed and partially connected interdependencies, 554  
the first being inter-organizational, the second inter-individual, a method of struc- 555  
tural linked design articulating the two levels of agency was proposed. First, we 556  
examined separately the complete networks at each level. Second, we combined 557  
the two networks in relation to one another using systematic information about the 558  
affiliation/membership of each individual in the first network (inter-individual) to 559  
one of the organizations in the second network (inter-organizational), as in bipartite 560  
networks – but without conflation of the levels. This dual-positioning, or the linked 561  
design approach, was carried out in an empirical study examining achievement 562  
variations within the “elite” of French cancer researchers in 1999. By looking at 563  
measures of centrality, we identified the actors that these top researchers consider 564  
as central or peripheral at the inter-individual level (the big and the little fish 565  
among the elite), and the laboratories that the research directors consider as central 566  
or peripheral at the inter-organizational level (the big and the little ponds among 567  
all the laboratories conducting cancer research in France at that time). We used 568  
measurements of scientific achievement to identify “catching up” strategies that the 569  
little fish use in this system in order to reach a level of performance similar to that 570  
of the BFBP. 571

Based on an organizational perspective and paying attention to the connection 572  
between separate individual and collective forms of action, this neo-structural 573  
approach helps in modelling the co-evolution of structure, culture, and agency. 574

In this case the most efficient form of action seems to be individualistic, defined as weak overlap between the network of the affiliate and that of his/her organization. This strategy helps individuals reshape opportunity structures by creating new ties and new organizations. Attempts to generate new ties and create new organizations beyond the established organization, i.e. emancipation from this established organization’s attempts to hoard socioeconomic opportunities and grab potential returns offered by such strategies. This strategy helps individuals reshape opportunity structures by creating new ties, and new organizations. The dominance of this individual strategy and disjunction corresponds to a process of change that triggers chains of creation of new organizations. This form of structural emergence could perhaps be part of what Archer considers to be the generative mechanism accounting for Morphogenesis Unbound.

Thus in this approach, the logic of competition and the logic of opportunity are difficult to disentangle because they come together both theoretically and analytically. Opportunities are created culturally as “pools of contingent complementarities” (Archer 2013a: 8) imagined, for example, by founders of new organizations. This does not mean that such opportunities are left unorganized and unhoarded by the pre-existing social organization of interdependencies at the meso level, and eventually at the macro level. In this struggle, innovation is often culturally “weak”. Conservative recuperation may be much more difficult with a new religious belief or even with a new style in painting, in movies or in popular songs, than with a new product protected by a challengeable patent. Indeed, there are many more examples of the latter than of the former.

This study has explored a new direction for research on MU based on investigation of mechanisms of social change in multiple levels of agency and their interactions in network dynamics. This neo-structural approach to MU does not entirely confirm the “deviation-amplifying morphogenetic processes that are *decreasingly* held back by negative morphostatic ones”, or Archer’s new generative mechanism at work for “*variety to induce further variety* (new knowledge, new technology, new occupations, new organizations and new social relations) through the production of an ever enlarging pool of (as yet) unconnected but complementary cultural items by a relational order oriented to innovation.” However, we believe that it provides a way to specify and test, within the structure-culture-agency framework, the interplay between the generic mechanisms.

Finally, why bother with all these measurements? There is nothing spontaneous and egalitarian in the new kind of ‘morphogenesis unbound’ that the organizational society has created. Collective emancipation of organizational entrepreneurs cooperating with competitors, and often violent deployment of their organization, take place in a society that encourages complex, sophisticated, invisible and collective opportunity hoarding. Beyond generating new theory, the issue is also ‘Who shall pay for the costs of synchronization and/or asynchronies in the evolution of multilevel networks and thus of opportunity structures in MU?’ Separate dynamics at different levels of analysis raise new research questions about invisible effects, in terms of achievements, of agency and culture at different levels. Mutual adaptation of the evolutions at each level of social reality (inter-personal and

inter-organizational) happens in relational adjustments and turnover required, for 620  
 example, by mobility and increased flexibility in labor markets. Adjustments with 621  
 invisible costs that are not well measured at the meso level still generate additional 622  
 inequalities at the micro and macro levels. It will be hard to measure the effects of 623  
 one level of agency on the other without positioning actors in multilevel structures 624  
 and without introducing the kinds of formalism that are needed to account for 625  
 the co-evolution of culture, structure and agency, and for the consequences of this 626  
 co-evolution. These consequences include – as characteristics of the morphogenetic 627  
 society – the cascading creation of new organizations, systematic redefinition of 628  
 class based on opportunity hoarding, and dumping of the social costs on the weakest 629  
 and on society as a whole. 630

## References

631

- Archer, M. S. (1982). Morphogenesis versus structuration: On combining structure and action. *British Journal of Sociology*, 35, 455–483. 632  
 633
- Archer, M. S. (1995). *Realist social theory: The morphogenetic approach*. Cambridge: Cambridge University Press. 634  
 635
- Archer, M. S. (Ed.). (2013a). Introduction. *Social morphogenesis*. New York: Springer. 636
- Archer, M. S. (2013b, January 16–18). The generative mechanisms re-configuring late modernity. 637  
 Paper prepared for 2013 Lausanne workshop ‘*Morphogenetic Society*’ as a potential new social 638  
 formation?’. Centre for Social Ontology, Ecole Polytechnique Fédérale de Lausanne, Lausanne, 639  
 Switzerland 640
- Breiger, R. L. (1974). The duality of persons and groups. *Social Forces*, 53, 181–190. 641
- Breiger, R. L. (2010). Dualities of culture and structure: Seeing through cultural holes. In J. Fuhsse 642  
 & S. Mütszel (Eds.), *Relationale Soziologie: Zur kulturellen Wende der Netzwerkforschung* 643  
 (pp. 37–47). Wiesbaden: Springer. 644
- Donati, P. (2010). *Relational sociology. A new paradigm for the social sciences*. London: 645  
 Routledge. 646
- Fararo, T. J., & Doreian, P. (1984). Tripartite structural analysis: Generalizing the Breiger-Wilson 647  
 formalism. *Social Networks*, 6, 141–175. 648
- Lazega, E. (1992). *Micropolitics of knowledge. Communication and indirect control in work-groups*. New York: Aldine-de Gruyter. 649  
 650
- Lazega, E. (2003). Rationalité, discipline sociale et structure. *Revue française de sociologie*, 44, 651  
 305–330. 652
- Lazega, E. (2006). Capital social, processus sociaux et capacité d'action collective. In A. Bevort & 653  
 M. Lallement (Eds.), *Capital social* (pp. 213–225). Paris: La Découverte. 654
- Lazega, E. (2011). Pertinence et structure. *Revue Suisse de Sociologie*, 37, 127–149. 655
- Lazega, E. (2012). Sociologie néo-structurale. In R. Keucheyan et G. Bronner (Eds.), *Introduction à la théorie sociale contemporaine*. Paris: Presses Universitaires de France. 656  
 657
- Lazega, E. (2014, forthcoming). Coevolution of appropriateness and structure in organizations: 658  
 Secondary socialization through dynamics of advice networks and weak culture. In D. J. 659  
 Brass, Giuseppe (Joe) Labianca, A. Mehra, D. S. Halgin, & S. P. Borgatti (Eds.), *Research in 660  
 the sociology of organizations* (Contemporary perspectives on organizational social networks, 661  
 Vol. 40, pp. 377–398). 662
- Lazega, E., & Pattison, P. (2001). Social capital as social mechanisms and collective assets: The 663  
 example of status auctions among colleagues. In N. Lin, K. Cook, & R. Burt (Eds.), *Social 664  
 capital: Theory and research* (pp. 185–208). New York: Aldine-de Gruyter. 665

- Lazega, E., Jourda, M., Mounier, L., & Stofer, R. (2007). Des poissons et des mares: l'analyse de réseaux multi-niveaux. *Revue française de sociologie*, 48, 93–131. 666  
667
- Lazega, E., Jourda, M., Mounier, L., & Stofer, R. (2008). Catching up with big fish in the big pond? Multi-level network analysis through linked design. *Social Networks*, 30, 157–176. 668  
669
- Lazega, E., Jourda, M., & Mounier, L. (2013). Network lift from dual alters: Extended opportunity structures from a multilevel and structural perspective. *European Sociological Review*. 670  
doi:10.1093/esr/jct002. 671  
672
- Perrow, C. (1991). A society of organizations. *Theory and Society*, 20, 725–762. 673
- Schultz, J., & Breiger, R. L. (2010). The strength of weak culture. *Poetics: Journal of Empirical Research on Culture, the Media, and the Arts*, 38, 610–624. 674  
675  
doi:10.1016/j.poetic.2010.09.002#http://dx.doi.org/10.1016/j.poetic.2010.09.002. 676
- Snijders, T. A. B. (2001). The statistical evaluation of social network dynamics. In M. E. Sobel & M. P. Becker (Eds.), *Sociological methodology – 2001* (pp. 361–395). Boston/London: Basil 677  
Blackwell. 678  
679
- Snijders, T. A. B., & Bosker, R. (1999). *Multi-level Analysis*. London: Sage. 680
- Stryker, S. (1980). *Symbolic interactionism: A social structural version*. London: Benjamin/ 681  
Cummings. 682
- Tilly, C. (1998). *Durable inequality*. Berkeley: University of California Press. 683
- White, H. C. (1970). *Chains of opportunity: System models of mobility in organizations*. 684  
Cambridge, MA: Harvard University Press. 685
- White, H., Boorman, S., & Breiger, R. L. (1976). Social structure from multiple networks I. 686  
Blockmodels of roles and positions. *American Journal of Sociology*, 81, 730–780. 687
- Wilson, T. P. (1982). Relational networks: An extension of sociometric concepts. *Social Networks*, 688  
4, 105–116. 689

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