In this thesis the main features of Harrison C. White’s general sociology are studied. Since the 1960s White has played a crucial role in the development of the social network approach. He is well known for both the fecundity of the analytical tools he has developed over the years and for the original contributions he has made to several subfields of the discipline. White has also developed an unconventional and highly individual approach to social reality that, as the end-result of a sustained synthesizing effort, has grown out of a long and persistent endeavor. Yet, more than a decade after its publication, this general theoretical approach still remains largely unexplored.

The main argument of this study is that White’s approach represents one of the most persistent, elaborated and systematic efforts to enrich the analytical rigorous of the social network approach by adding the substantive theoretical insights that have been elaborated mainly within the symbolic interactionist perspective and the tradition of phenomenological sociology. In this study, first the premises of White’s approach are examined. It is demonstrated how White uses social networks as an analytical tool in order to obtain causal explanations of social phenomena. It is also shown how White re-conceptualizes the notions of social relationship and embeddedness. Furthermore, it is also discussed how White, on the basis of these conceptual innovations, develops a novel image of modern social contexts. This study proceeds by presenting the set of new basic concepts that are derived from this image, seeking to locate these concepts within the larger and more familiar context of theoretical sociology.

It is also demonstrated in this study that White’s particular image of modern social contexts leads him to pose new questions and to develop new modes of analysis to
answer them. White's view of modern societies radically alters the very nature and state of the question of social order as well as the premises of its answer. As White dismisses the conventional formulations of the problem of social order, he considers the issue to be a question of identifying the small enclaves of regularity within the social landscape that is dynamic, indeterminate and shifting. In more concrete terms, it becomes a question of identifying the limited, local and stable patterns or configurations of relationships that prove sustainable and thus observable, despite all the dynamics of embeddedness and connectivity.

Finally, the basic theoretical features of White's model of production markets are presented and discussed. Production markets is a topic to which White has devoted a great deal of interest. Ever since the mid-1970s he has produced a long series of work with the ambition of developing a sociological account of these markets. This account represents the most extensive application of White's general sociology, where he fleshes out his abstract ideas and arguments and where one finds a concrete case of his account of the emergence of social structures and local orders out of network ties and flows.

The main conclusion of this study is that, despite all its shortcomings, the general sociological perspective that White has developed is an important contribution. It provides sociology with a new foundation and shows the direction towards which the discipline should be moving.

**Keywords:** Harrison C. White, sociological theory, contemporary American sociology, relational sociology, social networks, social structures, structural analysis, economic sociology, production markets.
THE GENERAL SOCIOLOGY
OF HARRISON WHITE
Stockholm Studies on Social Mechanisms
Edited by Peter Hedström and Richard Swedberg
THE GENERAL SOCIOLOGY
OF HARRISON WHITE

Reza Azarian

Department of Sociology
Stockholm University
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G. R. Azarian
“Despite the continuous flow of ‘new developments,’ the social sciences appear to be in the doldrums, suggesting that the foundations of these sciences are not yet right.” So read the very first lines of Harrison C. White’s main theoretical work *Identity and Control* (1992). As this initial statement clearly indicates, in this book White launches a rather stern critique of much of existing social theory, and aspires to lay the foundation of a new sociology. Indeed, he not only accuses the dominant paradigms of the contemporary social sciences of being abortive and paralyzed but also calls into question their very claim of being scientific. Dismissing them forcefully, he exhorts the reader to abandon them and start afresh -this time building on a truly scientific foundation.

Obviously this is a bold and provocative claim, coupled with a grand ambition that, if substantiated, will pose a severe challenge with far-reaching implications for sociology, and for much of the rest of the social sciences as well.1 But the history of sociology abounds with

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1 White’s boldness is often expressed is his refusal to recognize the validity of any theoretical view solely on the basis of the weight of the endorsing authority behind it. This has been noticed by Steve Brint (1992: 195, footnote 1), for instance, according to whom one of “White’s strengths pertains to his iconoclasm, his willingness to take issue with powerfully constituted paradigms. He has been courageous enough to examine the conventional scientific wisdom in several fields and to show how it is based on faulty assumptions or faulty conceptualizations.” Several examples can be mentioned. In *An Anatomy of Kinship* (1963) White develops a new structural analysis of kinship systems with “little reference to existing theories and interpretations by anthropologists,” holding that “it may be as well to divorce a fresh look at old problems“ (1963a: 3). In his study of social networks, he begins by challenging the sociometric tradition prevalent at the time, and in his works on art he breaks away from the established sociology of art, starting afresh and approaching the field as if there were no such
ambitious enterprises that aim to remold the discipline on the basis of self-proclaimed, insightful or revolutionary ideas. And as the disappointing fate of many such attempts recommends caution, one may be justified in asking what makes things different this time.

There are several reasons for a serious and thorough consideration of White’s challenge. One is, of course, the credibility of his record of achievement. The bulk of his scholarly production extends across many research areas and covers a baffling range of diverse topics: from kinship systems and social mobility, to production markets, language and art. Looking at his numerous specialized contributions, one is impressed not only by the length and breadth of his bibliography but also by the originality of his approaches and the fecundity of tools he has developed over the years, rendering him a true pioneer in re-shaping the modes of inquiry in several sub-fields of the discipline.

In sociology, as elsewhere, personal prominence is based on the record of one’s achievements, and many claim that White’s record has two dimensions. Apart from White’s own writings, one of his major contributions has been his role in training a number of recognized contemporary sociologists, among them Peter Bearman, Ronald Breiger, Mark Granovetter, Barry Wellman, Christopher Winship (see Appendix).

Commenting on White’s specialized contributions, which have been highly influential within specific research areas, Andrew Abbott (1994: 895) argues that White deservedly enjoys the reputation of “a man who has started sociological revolutions [and] introduced new techniques.” This assessment is echoed by other observers. For instance, Canvases and Careers, written jointly with Cynthia White and published originally in 1965, is by now widely considered as a classical piece of empirical research in the sociology of art. According to Stephen Riggins (1985: 244) this work is “a precursor of the production of culture perspective” with a pioneering influence in analyzing the effects of institutional setting and its changes upon the aesthetic style shifts and professional artistic careers. Presenting a path-breaking approach to the analysis of social context of art production, Canvases and Careers is, according to Gordon Fyfe (1996: 772-773), “a modern classic” and the genius of its authors is “to show how aesthetic and institutional changes were interwoven.” Almost thirty years later, White surprises the sub-field of sociology of art by Careers and Creativity (1993), at a time when it appeared that there was no stone unturned. As the reviewers of Careers and Creativity, Gene Fisher and Robert Faulkner (1994: 881) maintain, the book “presents an original, comprehensive, and profound treatise on art worlds that puts the production of culture
In addition to the worthiness of White as a challenger, however, a more important reason for seriously considering his challenge has to do with the value of the theory itself. The theoretical perspective put forth in *Identity and Control* is an unconventional and highly individual approach to social reality that has grown out of a very long and persistent endeavor and is the end-result of a large and sustained synthesizing effort. As this study proceeds, it becomes clear that White’s dissatisfaction with customary approaches to social phenomena is not of recent date. White envisioned social science differently almost from the start, beginning quite early in his career as a sociologist to search for a solid basis for a fresh start.

It is the pursuit of this early objective that lies beneath the diversity of White’s interests, and ties together his apparently unrelated works. As the present study intends to show, there is a distinct set of basic themes and ideas throughout the kaleidoscope of perspective on a firm theoretical footing,” and that it does so just when it seemed “reasonable to conclude that not much more needed to be said about artists, audiences, and careers in art worlds.” To take another example, the well-known notion of vacancy chains, which first appeared in *Chains of Opportunity* (1970), has since its introduction been widely used for the study of mobility process within a variety of areas and, indeed, has “turned [this type of research] on its head” (Coleman 1990: 714) and “proposed a radically different way of thinking about labor and organizations“ (Stewman 1986: 214). Finally, and at the most profound level of his sociological thought, White is one of the most influential pioneers of the social network analysis and has played an indisputably crucial role in the elaboration and establishment of this tradition. His seminal articles from 1971 (with Lorrain) and 1976 (with Boorman and Breiger, and with Boorman) are all widely recognized as “the foundational work“ (Wasserman & Faust 1994: 14-16 & 349-350), each being a significant landmark in the development of the social network current.

4 Commenting on the “long gestation“ and “checkered past“ of this general theory, White (1992a: xv-xviii) dates his project in his early years at Harvard and credits many of his former students for their assistance along the way. He also maintains that he, “again and again, … stuffed and ordered years of bits and pieces into a draft chapter (White 1985) which convinced [him] that [he] had finally grown a vision adequate for a coherent and comprehensive book.“

5 Like many other modern theoretical enterprises, much of White’s endeavor becomes more understandable when seen in the context of the common opposition to Talcott Parsons’ long-dominant cultural-holistic and abstract approach. This is an issue that will be developed as this work unfolds.
White's production that do make up a coherent and durable core in his sociological thinking. It is this set of notions that White seeks to examine across various settings as he bounces from topic to topic. His scholarship crosscuts quite distinct realms of social life, not only to let insights gained in one setting inform another, but also to extract what is generalizable about these notions and to assess their generality. And, what is presented in *Identity and Control* is the general theoretical outlook that has evolved around this set of long-examined notions. It is, in other words, the outcome of White's persistent search for a new foundation for sociology. *Identity and Control* embraces much of his previous works, which now appear as constituent parts of a coherent whole, elaborated through rigorous empirical research that he and his students have carried out over many years across diverse fields and areas.

The final result presented in *Identity and Control* is by any standard a novel and insightful perspective that is built upon immense erudition and that weaves together threads from a number of various scientific disciplines and traditions. Yet, despite the relatively

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6 Quite early on White (1968: 5) declares his strategy by stating “a fruitful approach in every science has been the development of a few simple, abstract conceptual models, which are combined and permuted to explain observed systems in all their endless variety.” And more recently he (1993a: xiv) repeats this by saying that “to look for familiar social logics in apparently different situations is indeed the hallmark of the sociological vision.”

7 White's aspiration seems to be in accordance with a more commonly felt need for synthesis, for putting together, making explicit and general, what particular studies have brought out. Reflecting on the spirit of the late 1980s, i.e. the period when White was working on his general theory, Anthony Giddens (1987: x) observes that after the collapse of Parsonian dominance, “for a while it did seem that ... the theoretical frameworks of sociology ... stood in danger of complete disintegration amid a welter of divergent claims about their proper concerns. However today we can recognize that theoretical syntheses are emerging, sifting out what is valuable and closing off paths that have proved to be fruitless.”

8 Despite extensive criticism, almost all reviewers of *Identity and Control* concede that the general framework that White puts forth in this book does contain some very novel qualities and represents a severe challenge to much of the established stock of sociological knowledge. According to Marshall Meyer (1993: 309), the book “rejects both contemporary ideology of rational choice favored by economists, and the more traditional Parsonian norm-driven view of society as favored by many sociologists.”
enthusiastic reception that this book enjoyed initially, the theoretical approach that it contains has not yet received the attention it deserves. More than a decade after its publication, what is perhaps White’s most valuable achievement still remains largely unexplored and even unknown to many.\(^9\) Given this regrettable void, it seems only reasonable to take seriously the challenge posed by White, and to examine how his claims are substantiated. The present study aims to explore what the endeavor of developing a new foundation for social theory and a novel mode of theorizing has amounted to, and what contributions it may have to offer to some of the most fundamental questions of sociology.

For several reasons, however, the task is by no means an easy one. First of all there are formal difficulties associated with White’s style of authorship, which can make his work less penetrable and, at times, even impassable. As many have pointed out, White, as a writer, often appears impatient, more anxious to move on rather than taking heed of his reader. Nor is he particularly inclined to repeat what has been already accomplished elsewhere, and he often leaves out systematic overviews that might give the reader helpful background. Instead, White tends to offer only passing references to what he assumes to be established stock of knowledge, thus requiring the

instead of conventional thinking, there is to be found “a unique, brilliant and in some respects idiosyncratic theory of social action and structure.” Moreover, for Craig Calhoun (1993: 315), despite the regrettable lack of lucidity and theoretical systematicity, the book is valuable because of the “specific insights and conceptualizations” that it offers. Though very critical and hesitant to praise the book, Raymond Boudon (1993: 314) too maintains that the book “must be greeted as an intellectual achievement.” And finally, while Charles Tilly (1993: 308) is doubtful about the usefulness and adequacy of some of the main concepts of the book, he nonetheless admires it for “the disabused challenge it offers to almost all conventional social scientific wisdom” and appreciates the novel and “unconventional image of social life” it represents.

\(^9\) It is rather striking to notice that, despite the mounting popularity of the social network perspective during the last decades, there remains an almost total absence of reference to White’s general sociology in introductory books as well as in syllabi of courses on modern sociological theory. The same goes for the use of White’s general theory in teaching sociology and, finally, the volume of secondary literature on this theory is so far confined to Daniel Harrison’s recent doctoral dissertation, *Theory, Networks and Social Domination* (2001).
reader to fill in the gaps pretty much on his own. The numerous references to works belonging to distinct traditions and the juxtaposition of wide-ranging examples taken from various realms make White’s presentations seem unfocused, unsystematic and even incoherent, with ideas only marginally connected and arguments only elliptically pursued. When presenting his substantive insights in non-formal language, his prose often appears too abstract and too dense, as well as obscure and ambiguous, and generally prone to give rise to multiple interpretations.10

10 The special character of White’s writing style has been observed by many, especially by the reviewers of Identity and Control. Craig Calhoun (1993: 318), for instance, finds the book “badly written” and feels “a little annoyed” about it. For him (1993: 315) what the book offers is “not really a coherent theory of social structure so much as a more or less organized collection of concepts, propositions, and brief illustrations of each. ... The architecture of White’s book does not hang together ... [and] White’s vocabulary does not have the potential to organize so much of the sociological discourse.” The book also demonstrates, according to Calhoun (1993: 317-318), “White’s preference for puzzle solving and model building over Weberian scholarship,” probably one of the reasons making him rush “from idea to idea, seldom pausing to tell us enough to make his empirical cases meaningful or to enable us to judge whether his theory fits them better or worse than others.” For Marshall Meyer (1993: 311) the difficulty of the book “is partly a function of the high level of abstraction.” Raymond Boudon (1993: 311) finds the book “often allusive; the more than one thousands references to the sociological or historical literature are in most cases acknowledged in a only few words. The reader should be familiar with them all to master the book in details.” Charles Tilly (1993: 307) finds the book “obscure because of (1) its unflinchingly unconventional image of social life, (2) the sparseness of illustrations in the early defining chapters, (3) the abstractness of its definitions, (4) the terms left undefined, ... and (5) the lack of redundancy." And for Arthur Stinchcombe (1993: 334) the book is “very hard to read, partly because it starts in the middle. The first chapter defines the main terms of the book by their relation ... to the other ones that the reader does not understand either. As a result, however, such difficulties have by and large prevented application, discussion, evaluation and further development of the general theory that White offers in Identity and Control. Yet, such difficulties are not confined to this book alone but rather seem to present a general feature in White’s style of writing theoretical texts, as reviewers of his other major book, Careers and Creativity, make similar comments on the issue. See, for instance, Crane (1995: 1363), Fisher & Faulkner (1994: 881-882), Fyfe (1996: 775) and Jasper (1995: 231). At any rate, White (1992a: 15) himself is aware of the particular character of his style and admits that Identity and Control “is not easy to read, because it aims for the largest possible range, and yet it does so in verbal formulation which cannot be completely shielded from ambiguity of terms.” Commenting elsewhere on the criticism towards his style, White (1992d: 212) admits that his “rhetoric has usually been improved when bound up with networks of collaboration. The lucidity of the basic blockmodel paper, for example, comes more
As if this were not enough, one can also add White’s idiosyncratic terminology and eclecticism: he picks up anything insightful and intelligent from any source where he finds it, irrespective of the classificatory labels on the packages. Finally, another source of difficulty in grasping White’s sociology has to do with his initial training in physics and the impact of this schooling upon his perception of the social structures and processes that he sets out to study. This early exposure to, and continued contact with, the world of physics often finds expression in his recurrent reference to, and even borrowing from, physicists’ models. His works, especially the early ones, include abundant examples of his readiness to let himself be inspired by a physical imaginary that not many of his readers are familiar with.

Another kind of difficulty stems from White’s general reluctance to get involved in purely theoretical discussions, demonstrated by the absence of his explicit and direct engagement in from Ronald Breiger and Scott Boorman than from me.”

11 On the eclecticism in his approach to theory White (1960: 10, also 1992a: xi) holds explicitly, “I mine the previous and current social sciences in a newly selective way.” The term eclecticism, however, is often associated with a kind of illegitimate ad hoc and opportunistic approach. Yet, it may also be understood as a rejection of dogmatism and as a sign of open mindedness towards ideas, irrespective of the guise they come wrapped up in. It appears that it is this kind of eclecticism that characterizes White’s sociological thinking, and in this regard he is in the good company of Andrew Abbott and Anthony Giddens who both confess their ‘eclecticist sins’ readily. Rallying against the petrified divisions in the social sciences, Abbott (2001: xii) holds that it is “a principled defense of eclecticism and indeed a certain form of relativism [that] is the personal aim of [his] book.” And Giddens (1984: xxii) defends his eclecticism by arguing, “the undeniable comfort” of established traditions and views “can easily be a cover for intellectual sloth.”

12 At the young age of twenty, White graduated in 1950 from the Massachusetts Institute of Technology (MIT) and five years later earned a Ph.D. in theoretical physics at the same university. Though he later shifted to the social sciences and received a Ph.D. degree in sociology in 1960, he seems to have maintained his ties with the natural sciences and never cut these off entirely. While at Harvard, for instance, he ran an interdisciplinary seminar for three years (1975-1978) on mathematical models across the social and biological sciences (see e.g. White 1990a: 82). In his works, White often makes explicit references to the natural sciences. See for instance White 1962: 155; 1964: 195; 1977a: 54; 1997a: 62-63; 1992d: 211; and finally, White & Lorrain 1971: 53.
the focal issues of classical and/or contemporary sociology. This causes some severe difficulties when one seeks to locate his theory within the familiar established context of sociological traditions by relating it to the classical works of the ‘founding fathers’ or to the modern currents of the discipline and their agendas. One cannot fail to notice the almost total absence of explicit attention paid to the classical sociological heritage.13

The same goes for White’s relation to contemporary sociology where, apart from a few book reviews, he remains largely aloof from the prevalent theoretical controversies: he almost never takes issue with contemporary sociologists or engages in what they enthusiastically debate.14 Nor does White offer any systematic

13 During his education, White was never trained in classical sociological thought, and in his doctoral dissertation in sociology from 1960 there is not a single reference to any of the founders of the discipline. Nor has he ever, during all his years in the profession, taught classical sociology (see Appendix). Furthermore, the absence of work on classical sociology in White’s body of production may be compared to the writings of other contemporary sociologists like Anthony Giddens and Randall Collins, for instance, who have paid much attention to the classical heritage of sociology (see e.g. Giddens 1971 and Collins 1986 and 1994). And, finally, if the number of references to the ‘great masters’ can be seen as a measure of interest or influence, it can be added that throughout White’s entire oeuvre Karl Marx is totally absent, and that there are only a few occasions where Max Weber and Georg Simmel are mentioned in passing (see e.g. White 1976: 730; 1990a: 85; 1990b: 787; 1992a: 75, 201 and 204; 1992d: 211). The situation however is different in the case of Emile Durkheim, references to whom are not only more frequent but also more specified (see e.g. 1971: 52, 1976: 735, 1976: 1385 and 1444, 1992a: 80). The main point here is that on those few occasions that White directly addresses the issue, he expresses a rather equivocal recognition of the value of the classical heritage. Apparently, in his view, the classical heritage offers too general views on social phenomena and lacks the sufficiently specific mode of analysis that he is interested in. Commenting on the influence of classical sociology on his approach, he (1992a: xi) explicitly maintains “the great masters took everything as their scene and thus do not provide me with densely specific insights on which to build.” And it appears to be for the same reason that White (1968: 5) rejects as “silly” the idea of beginning introductory undergraduate courses in sociology “with critical accounts and comparisons of the work of masters,” suggesting that such courses should instead “deal with substantive issues” like mobility and various approaches to it.

14 These are reviews of Fair Science by Jonathan Cole (White 1982b), From Student to Nurse by Ida Harper Simpson, et. al. (White 1982c), Foundations of Social Theory by James Coleman (White 1990b), Strategy and Choice by Richard Zeckhauser (White 1992e), The Rules of Art by Pierre Bourdieu (White 1997b), Making Markets by Mitchel Abolafia (White 1998a), and finally The Dynamics of Rules: Change in Written Organizational Codes by
exposition of where he stands on the central issues of the discipline. There are of course many fragments of explicit statements spread here and there in his body of writing, but elaborated articulations and systematic presentations of his ontological position and methodological standpoints are simply non-existent. When setting out to explore the basic premises of White’s sociological thought, one finds remarkably few explicit leads which themselves leave one with the impression of a jumbled mix of incompatible positions, lacking any apparent consistency.  

It is therefore easy to feel lost and confused; one has little chance of getting a firm hold of White’s slippery approach as it appears in its recent shape, unless one changes strategy. Placing a heavy burden on the reader’s shoulders, it appears hardly possible to do the job well without going all the way back retracing White’s footsteps through the long gestation process of his general theory. Essentially, one must become familiar with his main ideas and concepts in their earlier stages and closely track their gradual development over the years. It seems that it is only by pursuing this strategy that one can hope to arrive at a somewhat clear and coherent comprehension of White’s sociological mindset, of his critique as well.

James March, et. al. (White 2001a). In addition, there are also a couple of short replies to critical comments made by Siegwart Lindenberg and by Steve Brint (see Bibliography). In the course of the present study, however, it becomes clear that, far from being detached from the questions that have occupied the minds of sociologists for decades, White is indeed enormously sensitive to, and receptive of, modern achievements.

15 Whereas, for instance, he rallies against the false ontology that underpins much of the contemporary social sciences he never really makes the effort to elaborate his own view in any systematic fashion. The same goes for his methodology. A couple of pages of short, hasty comments in the Preface to Identity and Control is the closest he comes to a detailed and explicit account of his methodological view. While he repeatedly advocates a ”phenomenological” approach to the objects being studied, he also employs the notion of ‘social facts’ with clear references to the Durkheimian sense of the expression. Indications of a structuralistic approach that are associated with this expression are boosted by White’s outspoken ambition to develop a certain version of structural analysis and by his preference for structural explanations. And, while aiming for the discovery of general species of structures, processes and mechanisms that are valid across levels, scopes and realms, White (1992a: xii) adheres explicitly to ”an epistemology of middling level, in between individualism and cultural wholism.”
as his overall thrust, and promise, to deliver a novel general sociology. To my mind, it is only the adoption of such a strategy that can put us in a position to assess the coherence and strength as well as to appreciate the leverages and potentials of his theory.

In addition to White's published work, the material I have used to carry out this task includes some of his unpublished manuscripts as well as drafts, memos, working papers, preprints, working notes and lecture notes, including White's famous 'Notes on the Constituents of Social Structure,' and some other teaching material from the course 'Introduction to Social Relations' -which he taught in the Spring of 1968 at Harvard, together with Roger Brown- and the graduate course 'Markets in Networks', given at the Department of Sociology, Stockholm University in February 1999. In addition, much valuable information about the courses given by White during his years at Harvard (1963-1986) has been obtained through research in the Harvard Archives. Among the most useful archival material have been Harvard University Directory of Officers and Students (1962-63 until 1978-79), Directory of Faculty, Professional and Administrative Staff (1979-80 until now) and, above all, Courses of Instruction: Harvard and Radcliffe, Faculty of Art and Sciences. And finally, the doctoral dissertations of many of White's students, kept in the Harvard University Archives, have also provided a great deal of information and insights about the intellectual environment in which White worked for more than two decades.

Further sources also include a couple of tape-recorded sessions of a graduate course, 'Mathematical Models,' that White held at Columbia University in May 2000. Above all, however, the material that underlies the present work are the hours of personal interviews conducted with White himself as well as with a number of his former students and colleagues. The interviews with White took place in the two first weeks in May 2000 when we met almost daily for about two hours at his office in Fayerweather Hall, Columbia University. Among White's students and colleagues who have been interviewed either in

16 The famous 'Notes on the Constituents of Social Structure' are lecture notes from an introductory undergraduate course called 'Social Relations 10' (Spring 1965), which were put together by Michael Schwartz -then a doctoral student of White- and which since then have been in circulation among some of his students and colleagues.
INTRODUCTION

person or over the phone are: Karen Barkey, Peter Bearman, Matthew Bothner, Ronald Breiger, Eric Leifer, Peter Marsden, Michael Schwartz, Barry Wellman, Christopher Winship, and Michael Useem. Finally, some others have responded to a questionnaire sent to them through e-mail, among them: Andrew Abbott, Ronald Burt, Craig Calhoun, Randall Collins, Paul DiMaggio, Thomas Fararo, Charles Tilly, and Arthur Stinchcombe.

It should nonetheless be mentioned that these interviews were conducted at a very early stage of my research, when I had a less developed understanding of White's sociology and only a few, unfocused ideas about my own research questions. As the work proceeded, I increasingly came to turn my attention to aspects of White's theory which I had not thought of earlier and which I had failed to ask these people about. Although there are no direct references to these interviews in the pages that follow, they have been of indispensable value to my research. Without the help of these interviews I would never have been able to explore and orient myself in these fields previously unknown to me, i.e. the world of White's sociological thought and the academic environment in which he taught, conducted research and developed his ideas and insights.

The present work is structured in the following way. Chapter Two seeks to capture the overall framework of White's project, i.e. his critique of the contemporary social sciences, his thrust to reground them on a new basis, and the basic premises of his alternative approach. What is in focus here is the novel description of social reality that White offers by reconceptualizing many of the established views in terms of networks. Chapter Three is concerned with the presentation and exploration of the main concepts of White's approach. The focal points of this chapter are central concepts such as control, identity and agency. This chapter is mainly devoted to the later part of White's scholarly production, characterized by a phenomenological bent. Among other issues discussed in this chapter are White's critique of the current state of social network tradition and his ambition to take this tradition further by using some of the basic phenomenological insights.

Chapter Four explores some of the methodological dimensions in White's approach, with a focus on the central network notions of
social structure, *structural equivalence*, *blockmodels*, etc. The main issue in this chapter is White's version of structural analysis, i.e. his attempt to account for the emergence and maintenance of local social structures in the complex network webs of modern societies. This chapter also includes a presentation and discussion of the general types of network formations - *interface*, *council* and *arena* - that White identifies as the main species of social structure, each having its own particular structural properties and maintenance mechanisms. Chapter Five is about White's model of production markets seen as role structures - a topic to which he has devoted a great deal of interest over the years. This model is primarily seen as a special case where the most developed parts of his theory become more concrete as they are applied. And finally, Chapter Six represents a discussion and assessment of White's theory. It also includes a discussion of the possible implications and leverages for sociology as a general perspective. Other discussion points assess the relation of White's approach to the established sociological perspectives and the novelty of his enterprise. Moreover, some of the drawbacks of the various theoretical dimensions of his approach are also discussed in this final chapter. At the end of this work, the reader will find Appendix, which includes a brief account of White's academic life, an updated bibliography of his writings, and some other information.

It should be mentioned here that the present study has a specific objective and a limited scope, namely to pin down the basic characteristics of a theoretical endeavor that is claimed to have resulted in the foundation of a novel sociological perspective. While aiming to explore the very broad theoretical features in White's general sociology, it sets its focus on a selected set of substantial issues and neglects some important aspects of White's written work. With the exception of production markets, certain specific topics that White has studied - such as kinship structures, mobility processes, art production or language *per se* - are touched upon only to the extent that they have been considered relevant to the main objective of this study. Nor does the present study highlight any of White's technical innovations such as *vacancy chains* and *blockmodels* or any of the models developed by him, as these have been examined elsewhere and by
people far more competent than I in mathematical sociology and the
modeling of social phenomena.

Nonetheless, a brief comment on the role of mathematics in
White's sociology seems necessary. Like many other sociologists,
White regards mathematics as a precise and boundary-crossing
language, which can be used to produce both analytically more
rigorous insights into social phenomena and generalizations valid
across realms and scales.\footnote{The tradition of modern mathematical sociology, as Christofer Edling (2002: 198)
testifies, "was born in the late 1940s, to mid-1950s: classical texts include Karlsson (1958), Lazarsfeld (1954), and Rashevsky (1951) [but] the approach really gained
impetus in the 1960s, the classic being Coleman's (1964) Introduction to Mathematical Sociology" (italics in text). See also Lazarsfeld & Henry (1966), Sorensen & Sorensen
(1975), and Fararo (1978).}

White finds that mathematics is a "great help in developing ideas" (1975: 73) and "permits the sort of re­
construction, manipulation and measurement on which productive
insights depend" (1997: 65), as it is also crucial in extracting what is
common and general in apparently diverse phenomena.\footnote{Already in his study of kinship structures, White (1963c: 82) highlights the usefulness
of mathematics, holding "good mathematical science talks directly to some aspects of
reality; it does not just set up elaborate scaffoldings for future use. ... The concrete pay­
offs are a machinery which produces an unambiguous typology, a complete inventory
of the detailed examples of each type, and varied tools for systematically exploring the
correlates of each type and example." Furthermore, he argues that mathematics helps
us to go beyond the specific cases of any given social phenomenon and capture what is
general and common to these cases. To illustrate the generalizing power of mathematics
he (1963c: 78-79) compares three species of social organizations, apparently having not
much in common: "Quite a tangle: feudalism, decentralization, pluralism -different, yet
cousins. A historian generous enough to pick up this symposium and read the
affirmative articles may be shuddering at the wrenching of a few ideas about feudalism
out of context in order to develop these crude analogies. Without context, concepts are
not closely related to reality. But in their full context, concepts become descriptions,
with little power of unification. It is the art of science to reduce the fullest possible
appreciation of events in context to those core elements deemed essential and then to
adhere ruthlessly to the abstraction while matching these core elements with those
drawn from other contexts. Mathematics is the most incisive technique for such
abstraction and matching."} Given the

very central place that mathematics has occupied in White's produc­
tion right from the start, it is hardly surprising that his name is
primarily associated with the tradition of mathematical sociology,
while many of the substantive ideas he has developed have remained overshadowed by his technical innovations. This in itself offers a rationale for a shift of focus, away from the mathematical dimensions of White's work and towards the theoretically substantive ideas that lie beneath their formalized expressions.

Furthermore, as Richard Crowell and Ralph Fox (1963: 3) put it long ago, "mathematics never proves anything about anything except mathematics." No matter how sharp a tool mathematics is, formalization of social phenomena with the help of mathematics can at best only serve a higher purpose, namely, the search for and arrival at substantive insights about social reality. This point is best formulated by Randall Collins (1984: 353), according to whom words will always be with us. Formalization that takes place in sociology will always be dependent on a larger frame of words that surrounds it and makes sense of it. Formalization is always subservient to the larger purpose of argument. Words are not only more fundamental intellectually; one may also say that they are necessarily superior to mathematics in the social structure of the intellectual discipline. For words are a mode of expression with greater open-endedness, more capacity for connecting various realms of argument and experience, and more capacity for reaching intellectual audiences. Even mathematicians must lapse into words to show what are the most important things they are talking about. ... Verbal, qualitative theory, then, will always be more fundamental in sociology than mathematics is—even if we make progress towards the proper use of mathematics.19

19 The same point is expressed by Bernard Barber (1952: 41-43) who, like many others, rejects as fruitless the appeal to mathematical models at all costs and holds, "although mathematics is the essence of rational and logical thinking, and despite its close connection with science, mathematics is not substantive science at all. It is instead a language, a logic, of the relations among concepts, and extremely useful and precise language which has made possible great advance in many areas of science but which is not to be mistaken for scientific theory ... As such [mathematics] is extremely useful for science, but not to be confused with the conceptual schemes of science."
Another point needs to be made. White’s project of articulating a general theoretical approach is by no means the only attempt of its kind. Rather, seen in its historical perspective, White’s enterprise has a number of counterparts. Indeed, mostly in opposition to Talcott Parsons’ long-dominant cultural-holistic and abstract approach, many sociologists have sought to reform the discipline and to found or develop alternative paradigms. To name only a few, Pierre Bourdieu, James Coleman, and Anthony Giddens are sociologists who share with White the ambition to reground and re-shape sociology, each seeking this objective in a distinctive fashion and arriving at a highly individual, general theoretical framework. The existence of these other enterprises may offer a rationale for a comparative study, in which White’s theory can be contrasted with the general theoretical constructions elaborated by others. Yet, as long as White’s general sociology remains mainly unexplored and even inaccessible, comparison does not seem to be a plausible or fruitful study design. Indeed, what is needed more and is logically prior to any satisfactory, symmetric comparison is a relatively clear, accessible and coherent presentation of the essential features and overall structure of White’s sociological construction. Only then will the stage be set for comparative analysis, as a separate study to be undertaken within the frames of another project.

This does not prevent one, however, from trying to point at some of the similarities and differences between White’s theory and other comparable approaches. On the contrary, as this study unfolds, there will be a number of occasions where White’s notions are related to comparable ideas, the main purpose being to locate his approach within the familiar landscape of sociological currents; and as this study gradually shows, although the final outcome of White’s effort bears to a high degree his own stamp, it nonetheless is very much embedded in the larger context of classical as well as contemporary sociological traditions.

As already mentioned, White’s general sociology is virgin territory and in exploring it one faces many risks. The risk that looms the largest is that of simplification, i.e. of deforming and rendering into commonplace something highly subtle and original. Moreover,
what is dealt with in this study is a complex and multi-faceted theory that lends itself to many divergent interpretations, each of which is just one account among many other possible ones. The present work represents only an initial attempt and aims primarily at a coherent presentation of the main features of White’s general theory. Needless to say, the outcome includes no more than some essentially tentative suggestions, and anything resembling definite assessments remains yet to be worked out through further investigations.
To re-found sociology would require, above all, the redefinition of its subject matter, i.e. a wholesale reassessment of the constitution of the modern societies that it sets out to analyze and theorize about.¹ And this is where White’s endeavor starts. He dismisses, in other words, the common atomistic and cultural-holistic images of contemporary social contexts as inaccurate and even misleading conceptions of these settings. Instead, he turns to the middle level of analysis: the level of concrete social relationships. Going beyond using network merely as a research tool, White starts with the basic tenets of the social network approach in order to obtain a more realistic description of contemporary societies. He reconsiders the nature of modern social relationships and develops his own conception of the most basic unit of social network analysis, namely, the *tie*. On the basis of this revised conception of the social tie, White gradually develops a novel image of modern social settings. From this new description he then derives a novel conceptual apparatus and theoretical framework. In the absence

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¹ Since it is generally recognized that sociology is a science concerned with the facts of modern social life, the question of its subject matter presents no difficulty at first sight. Yet, ever since the birth of the discipline this issue has remained highly controversial, and the term itself is constantly given differing connotations within different sociological traditions, each associated with a different set of questions about what constitutes the central issues of sociology, its basic building blocks, its explanandum, etc. In his attempt to re-determine the subject matter of sociology, White exhibits a profound similarity with Emile Durkheim (1982: 74), according to whom “every scientific investigation concerns a specific group of phenomena which are subsumed under the same definition. The sociologist’s first step must therefore be to define the things he treats, so that we may know -he as well- exactly what his subject matter is. This is the prime and absolutely indispensable condition of any proof or verification.”
of any explicit, systematic account of the issue in White's own writings, this chapter primarily aims at exploring how social ties and networks constitute the foundations of White's regrounded sociology. It aims at finding out what, in his view, undermines the validity of the accustomed conceptions of modern societies. Finally, it will review how he conceives these social landscapes and what implications his new image may have for the sociological agenda.

**NETWORK AS AN ANALYTICAL TOOL**

White is an empirical sociologist. Although he never abandons his theoretical ambitions, the bulk of his work clearly demonstrates a keen interest in detailed analytical investigations of concrete and tangible social phenomena, just as it shows a persistent reluctance to engage in purely theoretical discussions. Though he is unarguably a model-builder, his theoretical models are firmly anchored in solid empirical work. They are analytical instruments that are developed on the basis of generalities, which are themselves extracted from systematic observations of tangible social phenomena across realms and scales. It is on this basis that White uncompromisingly discards models that are designed abstractly and lack proper empirical foundation.\(^2\) It is for the same reason that he strongly recommends

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\(^2\) Given the great variety of models used in the social sciences today, it is difficult to specify what exactly a model is. Even the use of statistical parameters can be considered as simple models used to specify the significant structural features of the data. Models, however, should be subjected to both exhaustive logical analysis and rigorous empirical examination. Moreover, although they should be “abstract enough to permit results from different settings to inform one another,” they must also be “close enough to empirical reality to have validity” (White 1992a: xi-xiii). Warning against the pitfalls attached to the use of mathematics in modeling social phenomena, White (1995c: 58) argues, “advance in social science requires the leverage and precision afforded by mathematical models, but only as disciplined by rigorous field investigation.” Only then can models be useful tools in taking both the theory and research further while, in contrast, omitting any of these conditions can turn models into an obstacle to the development of any science. See Chapter Five for White's critique of the absence of empirical foundation in the models adopted in contemporary microeconomics—a feature that, according to White, has caused this tradition to neglect the most basic facts about production markets.
students of social phenomena to maintain continuous and close contact with reality through proper fieldwork, frequently urging them to "get out and ask and watch" (1993a: 15), "to look at [reality], to study it, and then develop imaginative ways to conceptualize and measure it" (1990a: 91).

This emphasis on empirical work, however, is not simply an advocacy of pure empiricism. On the contrary, White (1968: 5) from the very beginning voices a stern critique against the kind of sociology that, void of any theoretical imagination, devotes itself to a mere fact-gathering business. He considers such an enterprise to be defaulted by an "evasion of [the theoretical] responsibility."³ Yet, beyond that, there is in White's empiricism a distinctive depth or inclination, that is, a consistent quest for replacing the vague and general with the concrete and specific on the basis of empirical observation. This quest

³ On the few occasions that he explicitly addresses the relation between theory and empirical research, White (1968: 5) writes, "to think data speaks for itself, simple empiricism, is an evasion of responsibility. One must develop a coherent structure of ideas to get at truth. Science is a direct descendant of theology. It is not ruled by data in any simple sense. Science is opposed to common sense, philosophically, the latter-day form of common sense being the discipline called statistical inference. A fruitful approach in every science has been the development of few simple abstract conceptual models, which are combined and permuted to explain observed systems in all their variety." On another occasion, he (1967: 11) maintains that what is needed is not further developments on statistical techniques but "substantive theory, out of which only can flow valid directives for handling data." Both in his critique and actual practice, however, White demonstrates an influence from some of the more or less contemporary sociologists with theoretical ambitions. Pitirim Sorokin (1947: xiii), for instance, opens his major theoretical work by holding "so much fact-finding sociological work has been done during the past few decades that the greatest need of contemporary sociology is not so much a further collection of facts as assimilating the existing data, presenting them in a sound, logical order and rebuilding the framework of sociology as a systematic science. Otherwise we are in a danger of being lost in a maze of intractable facts." Referring to the issue, John Rex (1961: 27) expresses a similar view and maintains, "what strikes one at once about most of the social research which one reads about today is the absence of any clear and specifically sociological frame of reference guiding the formulation of hypotheses." Finally, observing the regrettable "prevailing bifurcation of theory and empirical research" of the time, Robert Merton (1968: 138-140 & 151) argues, "a miscellany of [empirically observed regularities] only provides the raw material for sociology as discipline" and, lacking "theoretical pertinence" inherent to themselves, "such findings are not very useful unless they are integrated into a coherent body of substantive theory."
expresses White’s ambition to approach social reality directly and to examine its properties without any intermediate theoretical constructs, be they statistical constructions or theoretical abstractions. More concretely, this distinctive feature is expressed in White’s firm critical stance against the kind of theorizing that is primarily concerned with elaborating on imaginary or constructed entities and relations among them. White instead calls for a return to the empirical social world, i.e. to the actual social world that consists of real people who are invariably engaged in social interactions and relationships, trying to fit their actions with those of others.4

It is due to this quest that White finds social networks to be the most adequate methodological and conceptual perspective. In the course of the present study it becomes clear how White criticizes the common notions of social structure and role for being too vague and ultimately inadequate. Instead, he redefines these central concepts in network terms in order to give them concrete connotations. It also becomes clear why White (1992a: 8-9) rejects some of the most established concepts -‘individual as person’ and ‘society’- as unscientific constructions or “myths.” For now, however, it suffices to say that, in White’s view, such abstract constructions are invalid or illegitimate objects of theorizing simply because they do not correspond to any tangible, real phenomena. These are theoretical inventions designed in abstraction and, no matter how elaborate, they are void of scientific validity inasmuch as they lack proper empirical foundation. That is, such concepts are often used as current and

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4 In holding this position, White resembles Herbert Blumer (1969: 34-35) who, dissatisfied with the existing descriptions of social reality, maintains, “what is needed is a return to the empirical social world,” i.e. “the world of everyday experience” which “consists of what [human beings] experience and do, individually and collectively, as they engage in their respective forms of living.” What Blumer means is a reconsideration of the nature of social reality and a redescriptions of it in terms of ongoing social interactions, rather than through abstract cultural or psychological schemes. This ‘turn to the social reality’ is a characteristic thrust of symbolic interactionism. Erving Goffman (1974: 564) also considers the prime object of analysis to be ordinary, actual behavior, which occurs in the uninterrupted sequence of real social situations that make up individuals’ life-world, i.e. the world of their everyday experience. As this study proceeds, other important similarities between White’s approach and symbolic interactionism will be pointed out.
agreed-upon notions with unverified or unspecified empirical references. Therefore they must be abandoned, unless they are given sufficiently concrete and specified connotations, i.e. unless it is made clear exactly what kind of real phenomena they refer or correspond to.5

This quest for concretization and return to the empirical social

In his quest for giving concepts of social theory concrete connotations, White seems to echo George Homans who advocates a concretization of social scientific concepts, in polemic against the Parsonian type of theorizing that concerns relations among abstractly constructed entities such as system efficiency, adaptation ability, normative coherence, etc. Declaring his view, Homans (1950: 10) holds, “in sociology, we are devoted to ‘big’ words: status, culture, function, heuristic, particularistic, methodology, integration, solidarity, authority. Too often we work with these words and not with observations. Or rather, we do not wed the two.” He then urges his reader to “catch himself as he mouths one of the big abstractions and ask: What does this mouthful mean in terms of actual human behavior that someone has seen and reported? Just what, in human behavior, do we see? The question is devastating, and we do not ask it half often enough.” He (1950: 12-13) then asserts, “we do not directly observe status and role. What we do observe are activities, interactions, evaluations, norms, and controls. Status and role are names we give to a complex of many different kinds of observation. ... The great point is to climb down from the big words of social science, ... Then, if we wish, we can start climbing up again, but this time with a ladder we can depend on” (italics in text). White’s quest for a concretization of the social scientific concepts resembles also Herbert Blumer’s view, according to whom (1969: 33) “the overwhelming proportion of key concepts have not been pinned down in their empirical references in the proper sense that one can go to instances in the empirical world and say safely that this is an instance of the concept and that is not an instance.” He asks the reader to “try this out with such representative concepts as mores, alienation, value, integration, socialization, need-disposition, power, and cultural deprivation.” Furthermore, commenting on the disparity of theory and research in the social sciences, Blumer points at the vague and unclear character of the main concepts that are used in these sciences. In his (1969: 143) words, “theory is of value in empirical science only to the extent to which it connects fruitfully with the empirical world. Concepts are the means, and the only means of establishing such connection, for it is the concept that points to the empirical instances about which a theoretical proposal is made. If the concept is clear as to what it refers, then sure identification of the empirical instances may be made. With their identification, they can be studied carefully, used to test theoretical proposals and exploited for suggestions as to new proposals. Thus, with clear concepts theoretical statements can be brought into close and self-correcting relations with the empirical world. Contrariwise, vague concepts deter the identification of appropriate empirical instances, and obscure the detection of what is relevant in the empirical instances that are chosen. Thus they block connection between theory and its empirical world and prevent their effective interplay.”
world is not confined to the use of theoretical concepts; it is also reflected in what White considers to be the scientific method proper. For the same reason that White questions the validity of abstract and empirically unfounded concepts and theoretical schemes that build on such concepts, he also rejects the mode of analysis that instead of dealing with concrete social phenomena and processes, occupies itself with variables and relations among them. As early as his doctoral dissertation, White (1960: 11-14) expresses his dissatisfaction with conventional survey analysis and his preference for case studies. For him, survey analysis reduces the complexities of the social world to arbitrarily constructed statistical measures like variance and other inferences. Furthermore, this type of analysis lacks the kind of analytical strength that is needed if it is to provide us with insights about actual dynamic processes. At best, it only describes the final result of these processes. In his view, both concepts and causal accounts -the core of social analysis-, must be specified. That is, social analysis should not satisfy itself with arriving at vague assumptions about causal relationships between entities under observation, on the basis of the computation of some arbitrary, statistically constructed measures. Rather than a facile acceptance of such assumptions, the analysts must work out analytical tools that can offer detailed insights about the causal processes that actually take place and produce observable outcomes -a task at which statistical analysis has failed.6

It is out of this determined quest for detailed and dense causal

6 Reviewing the literature on social mobility, for instance, White (1963b: 14) pronounces his critique of variable-based mobility studies for lacking specifications with regard to the actual “processes that facilitate or impede social mobility.” He also holds, despite the existence of much valuable information about the social constraints on mobility, “there is little systematic quantitative knowledge of how these processes work in the lives of individuals of different sorts.” That is, such mobility tables do contain information about the origin and destination in men’s career lines and do report on biases in assignment of men to jobs but these tables often remain mute on the specific causal processes at work. In effect, what is missing in such descriptions of mobility processes is specified accounts of the myriad influences caused by complex interaction of social and economic forces. Some years later White (1970c: 307) repeats this point by maintaining “a focus on mobility [as a network process] protects one from facile acceptance of patterns discerned in data on social structure. It calls for some approach to specification and causal understanding of processes underlying the patterns.”
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insights into phenomena that White finds social networks to be the more penetrating analytical approach. White views it as a research instrument with greater potentials of capturing the dynamics of social reality and dealing with its complexities. White’s mobility studies come to mind immediately, where he conceptualizes mobility as a stochastic network process in order to obtain specified knowledge about causal mechanisms. In addition to their specific merits, what is important to recall is that one of the main underlying ideas in these studies is that mobility should basically be seen as process “enmeshed in a network of contingencies” (White 1970a: 1), i.e. as a complex network process that is generated by erratic arrivals and departures of people and jobs. Such a reconceptualization of mobility, according to White, helps us deal with the complex dynamics involved and offers specific insights about the causal mechanisms at work. As White (1968: 15) puts it, “only through examination of the networks in which people are imbedded can valid models … of replacement and mobility processes be developed.” That is, only such an approach can help us trace how strings of events chain together, crosscut one another and generate compound unforeseeable effects at the macro level; and what is “the core idea behind” developing the concept of vacancy chain is precisely to “trace social processes at microscopic level of social structure to obtain valid causal theory” (White 1970a: 328).

The basic conception that, explicitly or implicitly, underlies White’s mobility studies is an image of the segment of the social landscape under observation as a natural open system made up of a network of positions, with or without a central coordinating agent.7

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7 Natural open systems are characterized by the exchange of both energy and matter back and forth across the boundaries between the system and its surrounding. In the mid-1960s this conception became fashionable in the study of organizations to emphasize the importance of the wider environment that penetrates, shapes and constraints internal organizational processes (see Scott 1995). White, however, explicitly points out the notion of open systems as an appropriate image that can be used in dealing with complex mobility processes. In “Control and Evolution of Aggregate Personnel: Flows of Men and Jobs” (1969), an article based on Chains of Opportunity, for instance, White undertakes a critical review of the existing models used in labor market mobility studies and, for various reasons, finds each one of them insufficient. According to him (1969a: 5), although economic models incorrectly ascribe mobility process a hypothesized rationality that regards maximization of some overall goal, they
The investigation thus focuses on such a system when it is subjected to erratic arrivals and departures of the entities (i.e. people and positions) in and out, thus initiating the long chains of cause and effect that unfold within the system. These chains proceed from one node to another and intertwine in ways that are so intractable that only stochastic network models can capture the essential dynamics of the process. In *Chains of Opportunity* (1970) and some other related papers such as “Control and Evaluation of Aggregate Personnel: Flows of Men and Jobs” (1969) and “Stayers and Movers” (1970), White adopts this underlying image and treats people and jobs as two distinct types of entities that constantly enter and leave the system. Studying mobility and membership renewal within several American churches, White develops the concept of vacancy chain to analyze in detail the complex intertwining of network sequences of cause and effects that vacancies generate within the system, as they move from initial entries to their final destinations in the system.\(^8\) Such a train of moves is set in motion when an initial vacancy is created in the system, due to the retirement of a senior clergyman for instance. This vacant position is then filled by another church member who, in his

are nonetheless aptly “posited on continuous flows in a decentralized, open system, whereas career and assignment models are based on discrete units in a centralized closed system ... On the other hand, the stochastic models ... focus on the flow of men, with jobs represented as passive categories or attributes among which men move. Of all the models, only the economic ones emphasize the causal importance of flows to and from the environment, and only the stochastic models emphasize the inertial effects of the present composition of the system on subsequent changes. The dual-model proposed [by White] combines these two features.” Moreover, White (1969a: 9) holds, ”some future organizations may eventually have a planning staff with the technical expertise to deal with all [the mobility] effects over long periods in a centralized and rational way. At present it seems unavoidable that in a career frame governed by the dynamics of deficits, the numbers of jobs and men in various strata will evolve in complex and largely uncontrollable ways. Just as any central authorities will have little real control over personnel composition, so most individuals will have little real control over careers. At the level of aggregates, the flows of jobs and men may be determined within a quite stable causal structure, but it is the determinism of a natural system open to the environment rather than of a closed, rational, control system...”

\(^8\) For a review and discussion of the literature on vacancy chain see Abbott (1988) and Chase (1991).
turn, leaves a vacant position behind him and thus creates a mobility opportunity for the next man who is qualified and mobile enough to move in and fill the vacancy. As men and jobs are processed within the system to match one another, they will produce long interacting sequences of cause and effect faring through the system, which keep it in constant change and need of adjustment, with delay and congestion problems sometimes as a possible outcome.9

An earlier case, known primarily for other reasons, is White and White’s study of mobility in the French art world of the eighteenth and nineteenth centuries. In “Institutional Change in the French Painting World” (1964) and Canvases and Careers (1965), the focal issue is the mobility within the career framework of the Parisian art world. This rather distinct segment of early modern French society is implicitly envisioned as a centralized open system of positions in which the entering professional painters from outside are ordered, forwarded and matched into the available positions, according to judgments made by a central arbiter of taste and quality, namely the Royal Academy. Apart from these basic similarities with other mobility studies, what is particularly interesting in this case is that the same underlying image is used to obtain causal accounts regarding the collapse of the system. In other words, what the authors report on in these art studies is basically the breakdown of a traditional order due to a congestion crisis. The case illustrates the collapse of the old career system and its replacement by a modern institution, more capable of dealing with the dynamic forces of the new era. Representing a failure, the French academic system proved, according

9 Marriage and housing markets are other examples of mobility that can be analyzed in similar fashion. As White (1970a: 1) puts it, “marriage provides a convenient paradigm. A job, no more than a woman can safely be considered as a passive, pliant partner in initial choice of a union or in decision to terminate a union. A society in which frequent divorce and remarriage is institutionalized would have a pattern of mobility parallel in form to that in a system of stable jobs.” Or, with regards to housing markets White (1971a: 90) holds “many of the details and much of the argument must be recast, but the essential dynamics of the systems seem the same. Men correspond to families, jobs to houses, and vacancies in jobs to vacancies in houses.” Here, too, there are two distinct flows, which together produce vacancies, “the flow of families out of the metropolitan area [and] the flow of new houses into the metropolitan stock” (White 1971a: 88).
to the authors, unable to cope with the enormous pressures caused by too large a flow into the system. During the period under analysis, the academic system, i.e. the organizational and economic framework, which was designed to handle only a few hundred painters, was faced with a constantly increasing number of professional painters. And due to its inherent inability and resistance to change, the system was eventually replaced by a new, more flexible institution -a kind of open market for art that was "coagulated ... into a few competing nuclei, stable enough to serve as efficient substitutes for government patronage" (White & White 1964: 267).10

NETWORK AS A THEORETICAL CONCEPT

The lengthy descriptions above should suffice to illustrate how social networks constitute the methodological foundation in White’s sociology and how network analysis is used to serve his ambition of arriving at detailed and densely specific causal understandings. But network is not only a general and more penetrating research tool for White, but also a conceptual paradigm that offers exceptional

10 Another model used by White in his mobility studies is that of queuing situations. In “Queuing with Preemptive Priorities or with Breakdown” (1958), which is a paper in theoretical physics, White puts forth an alternative model for specified analysis of priority assignments, congestions and delays in waiting line situations, in which the items that arrive into open systems with a central server are ordered and processed with respect to a hierarchy of priority classes. Some years later White (1963c: 87-89) argues that this model is of a general applicability, capable of opening a new avenue to the analysis of similar delay and congestion processes across various settings like “suits arriving at a court” or “traffic flow on highways,” and maintains, “what, for instance, is the meaning of ‘the irreducible number of un-employed in a given economy’ if it is not a statement concerning the irreducible minimum of congestion fluctuation?” Although there is no explicit reference to such a model, it is nonetheless obvious that White has this model in mind when he describes the breakdown of the French academy system in terms of a congestion crisis. This is also observed by Stephen Riggins (1985: 252), according to whom the authors of the book “document ... that one of the major causes for the breakdown of the Academic system in painting was the professional crowding of art institutions, both those of a strictly educational nature and those through which painter reached the public. There were simply too many painters in Paris for those organizations, planned earlier when the number of students and exhibitors was small, to function efficiently.”
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possibilities of more adequate description of the objects of sociological inquiry. As one of the pioneers of, and major contributors to, the social network tradition, he obviously shares the fundamental theoretical assumption that it is the connectivity of social actors to one another and their embeddedness in the webs of their relationships that constitutes the proper point of departure for sociology. Accordingly, connectedness through ties and embeddedness in the tangible and concrete networks of relations represent the fundamental conditions of human social existence and the most crucial features of social reality. Connectedness and embeddedness are, therefore, indispensable to any adequate conceptualization of that

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11 Social network analysis has very old roots and, in its emphasis on social relationships, can be traced to Georg Simmel (1971: 71) who conceives of sociology as “the science of the relations of men” and maintains that it is these “relations among men [that] constitute the subject matter of [this] special science.” Furthermore, he (1971: 172) also argues that the dynamics of social life stem from energies inherent to various forms of sociability, i.e. all the ties of “with-one-another,” “for-one-another,” “against-one-another,” etc. Historical roots of network approach can also be found in the current known as symbolic interactionism, developed by John Dewey, William James, Charles Horton Cooley, George Herbert Mead, James Mark Baldwin, Louis Wirth and Herbert Blumer, who all took as their point of departure the omnipresent and ever-ongoing interactive process among human beings. However, as John Scott (2000: 7) observes, three main traditions have been decisive for the more recent development of social network analysis: the sociometric analysis, the Harvard researchers of the 1930s, and the Manchester anthropologists. For an overview of the recent development of social network analysis see also Wasserman & Faust (1994). In its modern shape, however, the most distinctive feature of the social network approach is its focus on relationships among social entities and on the patterns and implications of these relationships for social action. This tradition proceeds from certain basic theoretical premises that, although not always systematically presented or universally embraced, are acceptable to most of those who identify themselves with this tradition. As summarized by some of the leading persons of this current, social network analysis of today is characterized by taking as its basic tents the following: 1) actors and their actions are viewed as inter-dependent rather than independent, autonomous units; 2) ties between actors are channels for transfer of resources of various kinds; 3) social structures are conceptualized as lasting patterns of relations among actors; and finally, 4) the structural location of a node has important perceptual, attitudinal and behavioral implications and has significant enabling, as well as constraining, bearings on its social action. See Knoke & Kuklinski (1982), Berkowitz (1982), Wellman & Berkowitz (1988), Wasserman & Faust (1994), and Wasserman & Galaskiewicz (1994) for various presentations of the basic assumptions of the social network approach, and see Emirbayer & Goodwin (1994) for a discussion of this approach.
realities and to any account of its constitution. In White's own words, "the main reality ... is the networks of interrelated social ties. Sheer connectedness, in Barnes' sense of network, is a prime aspect" (1986: 10); and networks offer the most apt representation of "[the] basic facts about men's social environment" (1968: 15).12 Defining his notion of "the social," White holds that the term "refers to natural networks of interrelated ties of kinship, domestic economy, neighborhood, age groups, friendship and the like" (1986: 3); it refers to networks which are the "by-product of chance linkages in a whirlpool of people and events" (1963c: 94), which "continue indefinitely" (1965a: 1), and which have only "naturally vague boundaries" (1986: 9). On another occasion, he (1993a: 14) maintains "ties between persons, and how they chain together and spread out in social networks, always prove the key, in [all] social formations." Furthermore, concerning the range of applicability of this conceptual framework, White (1995a: 59) asserts with confidence that network is a universal "key [with] which [one can] continue to turn across very different scales of action" in search for the essential properties of social reality and that "all social actors and processes can be construed in terms of nodes and transactions and their mutual patternings as networks over time."

Obviously, what these quotations suggest is the centrality of relationships in the constitution of social reality. They suggest the familiar view that network is not only an apt analytical tool or an

12 This is a reference to John A. Barnes (1954: 43) who declares "each person is, as it were, in touch with a number of people, some of whom are directly in touch with each other and some of whom are not ... I find it convenient to talk of a social field of this kind as a network. The image I have is of a set of points some of which are joined by lines. The points of the image are people, or sometimes groups, and the lines indicate which people interact with each other." In a very similar fashion White (1965a: 1) maintains, "a 'net' can be drawn as a set of points with straight lines connecting various pairs of points. In our usage the points represent persons, or social parties, and each line segment indicates a given kind of social relation between a pair of persons." Many years later he (1992a: 71) holds that a network of ties among children on the playground is "a set of nodes with connecting lines each representing a tie between a pair of children." White (1992a: 71, note 13), however, adds that as such a sociometric network is only an analytical abstraction that "is no more than an observer's coding or recording of a set of relations between pairs of people."
illustrative metaphor but also a key concept of fundamental importance to the description of social reality. Yet, although this is very much in line with the basic tenets of the social network approach, White does not stop here. He takes the matter further by problematizing the very basic unit of analysis in this tradition, namely, the concept of social tie. In other words, he gradually grows critical of, and distances himself from, the conception of social tie as it is usually adopted by the practitioners of the social network analysis. He ceases to regard social ties as ossified canals which either exist between two nodes or not. He also abandons the idea of social relationships as unproblematic linkages that remain the same once they are established, like solid bridges via which various kinds of resources are transported back and forth in discrete packages, from one node to another, and which never really allow these flows to transform anything but the distribution of the resources in question.

Rejecting this static and mechanical notion of social relationships, White instead builds on some of the fundamental and characteristic insights gained by symbolic interactionism, and tends to view social ties as dynamic constructions that emerge out of the interaction processes among real social actors. In this revised view, a tie is a complex phenomenon that is constructed and sustained jointly by those connected. Any pair-wise and apparently simple relationship is the concrete and unique outcome of the association of the actors and is the fragile product of the dynamic forces that are at work in that association. Its construction, as well as its continued existence, requires the matching of mutual perceptions and actions of those engaged. In a nutshell, matching is the core: what is a tie if not a match between two distinct sets of perceptions and actions? A social tie is a joint “accomplishment” (White 1992a: 68), and far from being anything mechanical and static, it must be actively and continuously maintained by the connected nodes.

This issue is to be explored in detail below in this chapter and in the next one but it will be useful to point out some of the familiar aspects of the notion of tie here. As an analytical entity, a tie is a theoretical construction, abstracted by the analyst from the bulk of largely erratic streams of affections, encounters and interactions between a pair of actors, be they human beings, informal groups,
formal organizations, etc. As White (1968: 16) defines it, a social tie “is an abstraction from the total, erratic confrontation of a pair in various contexts [and] its basic parameters are timing, intensity, symmetry and topic.” A tie may be perceived by the connected actors and/or it can be defined by the observer, on the basis of the existence of some sentiments, attitudes, and activity between the actors. It may also be conceived as a channel of exchange and/or diffusion, through which anything material or non-material like directional flows of goods, capital, information, rumors, etc. can pass. With regard to content, social ties obviously show an enormous variety. Depending on what is being transferred or exchanged in ties, these can reflect cooperation as well as competition, friendship as well as hostility, love as well as hatred, or “conflicts as well as solidarity” (White & Lorrain 1971: 78). Indeed, the abstract character of the concept of tie means independence from the particular content of any social relationship and allows for a formal treatment of all types of connections that may evolve among social actors of all kinds and at all levels. The construction of ties as analytical units, however, is not entirely unproblematic and requires the subtle act of deciding some threshold value or, as White (1992a: 71) puts it, “some cut-off ... on strength or persistence of relations in a dyad.”

Moreover, relationships may be simple and uni-dimensional. Yet, more often than not, a social tie is of a composed character with multiple dimensions. Any conjugal relationship, for instance, consists of and demonstrates several distinct dimensions such as emotional, social, economic, etc. In particular cases, each of these dimensions

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13 According to White, the “abstraction of relations as ties in a network is a commonplace” (1992a: 66) and “has always been true in reckoning kinship, as in ‘meet my cousin’s wife’” (1993a: 3). However, the parameters that White chooses for making this abstraction can be compared with those identified by others. Clyde Mitchell (1969: 24-29), for instance, identifies “reciprocity,” “intensity” and “durability” as the main properties of a social tie, whereas Homans (1950) distinguishes between three other dimensions of a social relationship, namely direction, frequency and intensity.

14 White (1992a: 71) is nonetheless aware of the measurement problems involved and adds in a footnote “one can get obsessed with measurement problems and prospects. Eye movements can be as reliable as utterance ... as indicators of ties.” See Goffman (1971) for an imaginative description of what he calls “tie-signs.”
may belong to a specialized, if not separate, sphere of life. However, it is relatively easy to imagine how complex the interplay and mutual influences among these various dimensions can be. It is relatively easy to see how interdependent and interlocked these dimensions are, so that what happens along one dimension impinges on the other dimensions. A multiplex tie then is an all-embracing kind of connection between two actors where undifferentiated connectivity is the issue. As such, to quote White (1992a: 79), an overall pair relation “sums across some scope of specialized relations” and is often a complex and indefinite amalgamation that is generally characterized by the complicated, uneasy and ambiguous interplay among its various dimensions. To make analytical distinctions among the various dimensions in a tie is yet another delicate matter, since the determination of types of relations in general poses a particular difficulty and requires some familiarity with the larger societal

15 The compound character of social ties in the real world and the potential ambiguities involved in the interplay among the various dimensions of these ties are recognized by Francois Lorrain, one of White’s early graduate students. In his doctoral dissertation, Lorrain (1972: 104) writes: “Commonly, there is no ambiguity as to the relation between two objects of a system [of relations]; either there is no link, or there is one, and then the objects are linked in a unique way ... However it is a manifest fact of everyday life that relations between two objects are generally multiple. The functioning of social systems even consists in large part of a constant interplay within the multiplicity of social relations linking together individuals or groups. This relational ambiguity can be a consequence of the cultural definition of certain roles, such as the role of parent, which in many societies includes both an authoritarian and affective role. This ambiguity can also be a result of chance or of purely localized causes.” Similar ideas are to be found also in the doctoral dissertation of Ronald Breiger, another student of White at Harvard. According to Breiger (1975: 9), “it has for long been a basic assumption of anthropology that where relations are multiplex, that is where the relations between two persons derive from their activities in several institutional fields, the different types of relations impinge on and influence the actors in the various roles they play. Indeed, it is a basic assumption of those subscribing to the network approach that behavior cannot be explained in terms of any one single activity field.” Moreover, George Homans (1950) offers a detailed illustration of the mutual dependence among various dimensions of social relationships. In what is now a classic study of interaction in small groups, Homans distinguishes three various dimensions in ties among men who work together in a bank wiring room, these dimensions being sentiment, interaction and activity. He then goes on to explore the mutual dependence among these dimensions (i.e. sentiment-interaction, sentiment-activity, and interaction-activity) and the ways in which changes in one dimension generate variations in the other two.
context.\textsuperscript{16}

More importantly, ties are not only often multi-stranded, they also tend to concatenate and chain together, involving more actors than just those directly connected. They almost always entail other relations, generate and warrant further ties. The infinite character of strings of ties and networks come from this natural tendency of ties to concatenate. It is also from this property of ties that the problem of boundary demarcation arises, both for the analyst and the actors. A familiar example of this natural tendency of ties is the emergence of relationships among parents due to the ties among their kids as playmates or classmates.

Sometimes, however, these secondary ties may grow strongly and find a rationale of their own. As in the case of kinship, any indirect tie of this kind, "might," as White and Lorrain (1971: 54) put it, "happen to be quite strongly institutionalized in its own right, so that if \textit{x [a middleman between a and b]} left the system in one way or another, \textit{a} would keep his ... tie to \textit{b}. This is important and relates to our argument that a relation involves more than just two persons (or three, for that matter)." Such concatenations often give rise to new, indirect social ties that are no less real than the original direct ones and, in fact, "everyone recognizes the reality of indirect ties, ties to one's boss' friend, or to one's roommate's relative, or to one's ally's"

\textsuperscript{16} As White asserts, "roles presuppose some common cultural context but so does the simple idea of type of tie" (1973b: 52); or "there must be a common culture to define a type of relation sharply and clearly, if there is to be a net defined by the presence or absence of that relation between pairs of persons" (1965a: 2). Addressing the issue, White (1973b: 57-58) holds, "types of ties' has been used as a basic concept without further explication. This development of relational [i.e. network] models has from the beginning been carried out in conjunction with specific analyses of data sets, and the 'types of ties' chosen by the observer have had to be accepted as a basis, perforce. Valid choice of types of tie is a subtle problem in any case and the observer's intuition is as good a beginning point as any in what must be a slow evolution playing back and forth between types of population, types of models, the institutional aspect of the social structure of interest, and so on. Some obvious points can be made. Like and dislike are not only a reasonable starting point for getting at some aspects of informal organization, at least in our culture, but also are so deeply imbedded in our culture that many ostensibly different types of tie, if interpreted by the actors themselves in responses to sociometric questionnaires, are all at least partly reduced to these two kinds, ... "

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enemy" (White & Lorrain 1971: 53).

An important implication of this is that any given social relationship is practically never isolated but, rather, is embedded in a larger system made up of other ties, so that what occurs is one relationship may spill over into the other ones. In this sense, any tie is more than a connection between the two participants; it may, and often does, involve other actors as well. One important effect of this embeddedness, to quote White (1968: 15), is that "one man's tie to another is always contingent on the ties each has to still others, and thence to latter's ties to others at a further remove ..." In other words, given the natural tendency of ties to concatenate, the nature of a given tie between two actors may be dependent, at least in part, on the relationships that each of these two have to other actors. This point can be illustrated by an example. In her classical study of urban couples, Elizabeth Bott (1957: 93) observes how the creation of a new mother-child tie affects the mother's network, and concludes, "after children are born, the wife will see less of her former girl-friends and more of her mother and other female relatives. The wife becomes deeply embedded in activities with kin. Her children bring her into a new and even closer relationship with her own mother, who now becomes the children's grandmother."

This dependency of the nature of a tie on other, neighboring ties is a very important issue and has some far-reaching implications for the conception of tie as a medium of action. Later in this study (Chapter Three) it will be discussed how such a dependency calls for some kind of buffering or de-coupling whenever an actor, let it be A, desires to keep his relationship to another actor, B, free from the influences that may come from the latter's, i.e. B's ties to others (C, D, etc.). The reverse may also be intended, for instance, when A uses B's ties to C and/or D in order to influence his direct relationship to B. This dependency becomes even more significant once its contingent character is realized, i.e. when it is realized that the

17 According to White (1971b: 3), "types of relations contingent upon relations to third parties may be recognized: for example, boss' secretary. In the case of roles, contingent relations may also be recognized in their own right—father's brother as uncle—and become the basis for new roles independent of third parties."
relationships that connect an actor indirectly to others are seldom, if ever, predetermined, regular and predictable. In other words, any direct tie of an actor is *contingently dependent* on his indirect relations.

Let us be more explicit. As said above, the relationship between A and B is in part dependent on the ties that A and B respectively have to others, e.g. A to C and B to D. Now, if the latter ties, i.e. A-C and B-D are institutionalized and known to A and B, the impact of these ties on the direct relationship between A and B will be relatively predictable. Both A and B are familiar with the kind of expectations and obligations that A-C and B-D both welcome and entail. Now consider the case when these ties are not conventionalized in any substantial way but are mainly contingent with regard to their content and conditions. In this case, the direct A-B relation becomes contingently dependent on A-C and B-D in the sense that the influences from the latter on the former become irregular, unpredictable and, thus, hard to handle. The implications of this fact for the actor's understanding of his overall situation, as well as for his agency potential will be discussed below. First, another property of social ties must be considered.

Among the various properties of a social relationship, *reciprocity* is perhaps the most fundamental one. A tie is by definition reciprocal, and this reciprocity is built into every social relationship, be it a relationship of opposition, subordination, competition, cooperation, etc. Like durability or intensity, reciprocity is an indispensable feature or attribute of any relationship, irrespective of the content or type of that relationship. Reciprocity is the tangible aspect of the matching of perceptions and actions between parties in a relationship. It means the existence of some measure of mutual interaction or at least mutual perception by which the parties in a relationship are tied to one another. It also implies that there is some mutual understanding on the part of the participant actors of the significance of each other's perception and behavior. Often this reciprocity takes the concrete expression of mutual expectations, i.e. the expectations that any of the connected actors has of the other one. These expectations concern primarily the kind of treatment that an actor feels entitled to receive from the other in return for the treatment that he feels obliged to deliver or is willing to offer to the other one. As such, these
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expectations are, to quote Erving Goffman (1971: 266), the "perceptions regarding mutual treatment, the obligations of one end being the expectations of the other."18

This reciprocity of expectations, however, is a crucial constituent element of connectivity and, indeed, a necessary condition for a relationship. It is justified to speak of the existence of a relationship between two actors only to the extent that there exist reciprocal expectations between the two in the sense that each one, in his action, takes into account the other's perception of, and reaction to, that action. Without this reciprocity, i.e. without mutual transaction or orientation of the nodes, there is no actual enactment of the relationship between them, nothing shared or held together by them. Proof of this is the fact that the continued existence of a tie between two actors requires some degree of sustained interaction between the two, which has to be materialized in one way or another. Although sometimes necessary, cultural prescriptions, formal descriptions or even biological rationales in themselves never provide a sufficient basis for a tie to exist and persist. It is an only too familiar experience of everyday life how a relationship must be continuously maintained through various activities, no matter how sporadic these may be. It is also a familiar fact of life that any relationship, irrespective of its basis, fades away gradually as such maintenance ceases. Apparently, it is these familiar observations that Erving Goffman (1971: 100) has in mind when he writes: "parties to a relationship may engineer a coming together because business, ceremony, or chance has not done so recently enough to guarantee the well-being of the relationship. It is as if the strength of a bond

18 A similar view is expressed by John Rex (1961: 51-52) who holds, "a social relationship is only said to exist when there is some evidence of A expecting certain behavior from B, over and above any evidence about A's purposes and B's actual behavior. Indeed neither A's purposes nor B's behavior are necessarily of any importance. A social relation between A and B may exist even when A has no ulterior purpose outside of the relation itself and it may be said to exist even if the actual behavior of B deviates from that which A expects. The key category in the definition of social relations is undoubtedly that of 'expectations' of behavior. If we can show that these exist, that is to say if we can show that any individual whom we observe plans his own action on the assumption that another individual will act in a certain way, we are usually justified in speaking of the existence of a social relation."
slowly deteriorates if nothing is done to celebrate it, and so at least occasionally a little invigoration is called for.”

**MODERN TIES**

As shown above, social ties and networks constitute the premises for White’s general sociology. It is on the basis of these premises that he takes a fresh look at the social contexts that have emerged out of what in very broad terms is referred to as the historical transition from traditional societies to the societal formations of the contemporary world. It is now the case that sociological literature abounds with accounts that take a macro perspective on this historical transition and, explicitly or implicitly, conceptualize it as a large-scale process of *social differentiation*. According to these accounts, traditional societies of the past have segmentary and relatively simple structures, and each of these societies can basically be seen as a juxtaposition of isolated, autonomous and self-contained social units that are very similar to each other in their internal organization. Durkheim’s notion of *mechanical solidarity* aptly captures the point: the segmentary organization of such societies consists of similar, homogeneous and self-sufficient units among which there is little interaction and exchange, so that any of these parts can break away without much loss to the remaining others. By contrast, structural complexity is regarded as the hallmark of the historical transition. The new societies are almost invariably defined in terms of the complexity of their structures and envisaged as highly differentiated and heterogeneous social systems, characterized by the density and complexity of interdependence and interactions among their various parts.19

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19 *Structural differentiation*, and the subsequent organizational complexity, is a phenomenon that is commonly regarded in social theory as “the structural characteristic of modern societies” (Aron 1970: 21). It is often understood as a process through which social units split apart into distinct units with more specialized functions. In a large number of cases, this increasing societal specialization is elevated into a sort of a universal master principle of social evolution. One of the most influential cases of such evolutionary conceptualizations is Neil Smelser’s (1959, 1963) theory of structural differentiation. Although the language used is that of American functionalism of 1950s, the main substantive idea can be traced back to Herbert Spencer’s notion of social evolution, defined as gradual progress from relative
Moreover, what is often assumed to be the benchmark of modern societies is the cultural heterogeneity and diversity of perceptions that emerge as the old and largely uniform value and belief systems weaken, and as the stiff resistance of traditions against change softens. It is widely held that what melts away during the course of this transition are the neatly arranged structures that in traditional societies envelop social relations and interactions. What dissolves, in other words, are the tidy and all-inclusive systems of prescribed social roles generated by a few partition principles such as kinship and status. Indeed, what is most often taken to be the key expression of the historical transition is the dissolution of traditional social categories coupled with fixed sets of obligations and expectations, together with a weakening of the authorities that endorse the traditional order of things.20

simplicity to rapidly advancing complexity. According to Smelser’s theory, however, the process of social differentiation means a breakdown of simple unspecified structures into many separate specialized parts so that, rather than all functions of society being fulfilled by one single structure [e.g. the family], they are performed by many structures, each of which is highly specialized for that particular function. In the same evolutionary vein, Talcott Parsons regards social differentiation as a master principle of social change and assumes that as society evolves it differentiates, and more specialized subsystems develop. In his (1966: 22) own words, “if differentiation is to yield a balanced, more evolved system, each newly differentiated sub-structure ... must have increased adaptive capacity for performing its primary function, as compared to the performance of that function in the previous, more diffuse structure” (italics in text). For a more recent study where social differentiation is held up as the prominent feature of evolutionary development see Luhmann (1982).

20 This is exemplified in Emile Durkheim’s account of the dissolution of one of the most central and persistent social categories of traditional societies, namely the craft guilds. According to this account, under modern conditions the long-established and rigorously moral character of these organizations, specially with regard to professional ethics, is strongly undermined, and their eventual dissolution leaves the economic life in a state of anomie where no clearly defined relations exist between various economic actors. In Durkheim’s (1984: xxxii) own words, “if we attempted to express in somewhat more precise terms contemporary ideas about what should be the relationship between employer and white-collar worker, between the industrial worker and the factory boss, between industrialists in competition with one another or between the industrialists and the public, how imprecise would be the statements that we could formulate! Some vague generalities about the loyalty and commitment that employees of every kind owe to those who employ them, or about the moderation that employers should manifest in exercising their economic superiority, a certain condemnation of any
When White tries to explore the nature of this historical change and the constitution of the kind of social contexts that emerge out of this transition, he focuses on social ties. Using the network premises as his point of departure, White seeks to examine the concrete and tangible implications of this event for the nature of the connectivity and embeddedness of social actors and the ties among them. What is of prime interest to him, in other words, is to determine what this societal change means, not as expressed in abstract words or vague notions, but rather in terms of the concrete, fundamental changes that it causes in the nature of actual social relationships and networks. In this sense, White tries to trace this large-scale process down to the middle level of analysis in order to gain a firmer analytical grip on it.

This special treatment of the question, of course, is very much in line with White’s general and determined quest for the concrete. By focusing on changes in the nature of social relationships, in other words, White seeks to make concrete and empirically more accessible that which the great masters took on a much broader and largely unspecified view. Moreover, this treatment of the issue shows, once again, how White’s adherence to the social network approach serves this quest. That is, by applying a network perspective and setting the focus on the more tangible dimensions of this macro-historical event, White hopes to penetrate deeper into the constitution of modern societies and to arrive at a description that better corresponds to the real nature of these settings than the accustomed ones. However, White’s choice to focus on changes in the nature of social ties can be read in one of the few explicit reference to this historical transition when White et. al. (1976: 732-733) argue that

perhaps the major thrust of classical social theory was its recognition of the historical dissolution of categorical boundaries for social relations, whether the change was perceived as a transition from status to contract (Maine), from Gemeinschaft to Gesellschaft

competition that is too blatantly unfair, or of any too glaring exploitation of the consumer; this is almost the sum total of what the ethical consciousness of these professions comprises.”
(Tönnies), from mechanical to organic solidarity
(Durkheim), from traditional to means-rational
orientation (Weber), or from ascribed to achieved
status (Linton) (italics in text).21

Let us now recall some of the familiar implications that this
macro-level process has for the character of social ties, in order to see
how they underpin White's new image of the emergent type of social
contexts. Basically, the structural changes generated by this historical
macro-scale process mean that an ever-growing number of social
relationships in new contexts have a profoundly different basis and
character that is induced by the unprecedented advancement of
division of labor and specialization. Whereas many of the social

21 Generally speaking, White's emphasis on the changed nature of social relationships in
modern societies is in accordance with, and reflective of the core point in what
Ferdinand Tönnies (1957) labels 'the loss of community,' i.e. the profound changes in
the nature of social relationships brought about by modern urbanization. For Tönnies,
the old type of society is characterized by the relative homogeneity of the community,
which is maintained through efficient enforcement of rigid cultural codes and moral
custodians. More importantly, however, the old Gemeinschaft-type of relations are
intimate, enduring and largely immobile, both geographically and socially, as there is not
much mobility from place to place or along the social scale. By contrast, the weakening
of the traditional barriers to social mobility gives rise to the Gesellschaft-type of ties,
which are mainly impersonal, calculative and contractual in their character. The
emergence of this new kind of tie that is very much associated with the rise of modern
urban life, is observed by many scholars, among them Louis Wirth. Indeed, the focus
on the radically different nature of social relationships is a core observation of the
Chicago School, of which Wirth is a main founder. Like Tönnies, Wirth, in his detailed
investigations of urban life in 1920s and 1930s, tends to conceive of urbanization as a
process, which changes the structure of social relationships. The main thrust of these
studies is that there is something intrinsically different about the social relationships in
modern urban areas compared to those in the traditional settings. The growth of
modern urban areas, caused by the expanding division of labor, means a fundamental
break with man's "natural" situation and brings about "profound changes in virtually
every phase of social life" (Wirth 1938: 1-3) which eventually "wipes out completely the
previously dominant modes of human association" (Wirth 1938: 16). Similar
observations have also been made by Durkheim, who more systematically than any
other classical thinker theorizes his observations concerning the profound changes in
the nature of social relationships that occur in the course of the historical
transformation of traditional societies (see below).
relationships in traditional societies rest on similarities and likenesses among those connected, in modern societies ties are mainly derived from the functional differences among social actors, each of which is embedded in a distinct setting within the larger and differentiated context. It is primarily from these functional dissimilarities rather than from similarities of sentiments and perceptions that the overwhelming majority of social relationships in modern societies arise. In other words, the main basis of connectivity in these societies is more often than not the complementary differences that are produced by the distribution of tasks among the actors. Therefore, social relations in these contexts frequently imply interdependence among those connected. Ties among social actors stem largely from such differences, and it is the need and pursuit of matching these differences that primarily motivates social actors to establish and sustain their ties. Put differently, as the basis of connectivity in modern societies changes, the nature of reciprocity, which is inherent to social relationships changes too: it consists increasingly of a matching between the complementary expectations, demands and claims of the connected nodes.

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22 All this is observed by Durkheim (1984: 132), for whom the structural transformation of traditional societies means that the more complex and "entirely different" structure of the new type of society "relies upon principles so utterly different from the preceding type that it can only develop to the extent that the latter has vanished." In societies with organic solidarity, it is no longer kinship that is the governing unifying and/or classifying principle, but occupation and profession, or in Durkheim's (1984: 136-137) own words, "as segmentary organization vanishes, organization by professions covers it ever more completely with its network." That is, in the new type of society, "individuals are distributed within it in groups that are no longer formed in terms of any ancestral relationship, but according to the special nature of the social activity to which they devote themselves. Their natural and necessary environment is no longer that in which they were born, but that of their profession. It is no longer blood relationship, whether real or fictitious, that determines the place of each one, but the functions he fulfills" (Durkheim 1984: 132). But above all, in these new societies social ties are constituted differently and rest on a different foundation, appealing now to different sentiments than the attraction of like for like. As Durkheim (1984: 101) puts it, in these contexts "the ties binding us to society, which spring from a communality of beliefs and sentiments, are much fewer than those that result from the division of labor." These new ties that increasingly replace the old ones do not have their source so deeply in men's hearts any longer. They do not derive from the feeling of sameness, the feeling of sympathy that springs from perceived similarities. Rather, they are ties that arise from "the continuous distribution of different human tasks [and societal
Another important consequence of this, and a paramount feature of modern contexts, is the enormous increase in the diversity and density of social relationships among people. As the self-contained and isolated segments of traditional societies become integrated parts of the larger and differentiated organization of modern contexts, a new social landscape emerges. This new landscape is essentially characterized by an ever-growing complexity of the system of ties in which people, directly and indirectly, are connected to one another in a variety of ways. As a result, not only does the number of ties increase dramatically, but also does the diversity of their content. If in the past practically all relations were enveloped in a kinship frame, now they are increasingly dispersed over many distinct and often incomparable frames of kin, peer, neighborhood and, above all, work.

Seen from a network vantage point, every modern social landscape thus appears as a huge and dense texture of interlocking networks. These networks are made up of numerous long chains of pair-wise ties of varying content that extend in all directions, without any clear-cut boundaries. No longer stemming primarily from similarities of sentiments, these ties are sustained largely through the interdependence of the connected nodes: they bridge diversified and heterogeneous chunks or regions of this huge landscape. Indeed, as the observations regarding the ‘small world’ phenomenon and ‘weak ties’ suggest, diverse relationships concatenate endlessly. The resultant strings continue across, cut through, and connect many apparently separate and remote realms or regions within modern social landscapes.23 Indeed the overall connectivity is so dense and

functions] which constitutes the principal element in [the new type of] social solidarity and which becomes the primary cause of the scale and growing complexity of the social organism” (Durkheim 1984: 23).

23 The phrase ‘small world phenomena’ refers to the results of a series of experiments carried out during the 1960s by network analysts like Stanley Milgram, Antal Rapoport and others. The general research question addressed in these experiments is the degree of connectivity in social networks, and it is done by estimating the number of intermediaries between two people—a starter and a target person—who are selected arbitrarily from a large population. The results suggest that social networks are surprisingly dense and interwoven, full of unexpected strands that link individuals seemingly far removed from one another in both physical and social space. See
widespread that it seems justified to speak of one single global or total network, in spite of the actual unevenness of this landscape and the fractures and gaps among its heterogeneous regions. At any rate, given the density and prevalence of connectivity, modern contexts can be described as “a mesh, [but] mush might be a better word than mesh, for it is hard to see clear and stable form and process in these ties” (White 1963c: 94) (italics in text).24 And given the heterogeneity

Rapoport & Horvath (1961), Milgram (1967), and Travers & Milgram (1969). Commenting on these experiments, White (1992a: 84) maintains, “much insight about connectivity was derived in pioneer network studies ... and small-world studies... Some of it derives from parallels to models for epidemics ...” On another occasion he (1992a: 76) holds, “the basic finding [of this experiment] on chains was that an arbitrary pair could connect in about half a dozen steps, this within a hundred million persons. The basic finding for phenomenology is that in our [modern] society ordinary people were acute sociologists who made sense of and carried out what to peasant societies might seem a bizarre task.” Also relevant here is the notion of ‘weak ties’ (Granovetter 1973). White (1992a: 75) takes this phenomenon as further evidence of widespread connectivity, arguing that ties, which are “intrinsically weaker, more casual, [yield] higher connectivity across the network: Weaker ties are strong. That is, the way weak ties spread themselves around, they connect a larger fraction of a world together than do the same number of strong ties spread out in their way. Strong ties ... are weak in the broader context because they do not bind as large a fraction of a world into a corporate whole in connectivity.”

24 In this quotation White is referring to John A. Barnes (1972) who uses the term mesh to convey his notion of the dense texture of social networks. The idea of one global or universal network context, that White seems to share, is one adopted in the classical social network approach. Clyde Mitchell (1969: 12) for instance, conceptualizes the “total network” of a society as “the general ever-ramifying, ever-reticulating set of linkages that stretches within and beyond the confines of any community or organizations.” Furthermore, criticizing sociologists’ uncritical use of the notion of ‘society’ as a discrete and easily distinguishable entity, Alfred Radcliffe-Brown (1952: 193) too asserts that the difficulty of defining such entities is that they have to be abstracted from a universal network of social relations - a universal context which, according to him, “at the present moment of history ... spreads over the whole world, without any absolute solution of continuity anywhere.” Finally, Ronald Breiger explicitly envisions a global, omnipresent and all-inclusive network that, accommodating or embedding all, leaves nothing social outside, above or below. He (1975: 4) draws on the “programmatic statement” of Leopold von Wiese who asks his readers to imagine what they would see if “the constantly flowing stream of inter-human activity” were halted in its course for just one moment. Breiger then goes on and quotes Weise (1941: 29-30) saying, “we will then see that it is an apparently impenetrable network of lines between men. There is not only a line connecting A with B, and B with C, etc., but C is directly connected with A, and, moreover, A, B, and C
produced by social differentiation, each of these contexts can be envisioned as a juxtaposition of only partly coalescing realms or chunks, or in White’s view, each can be seen as an uneven, differentiated and “inhomogeneous gel” (1992a: 12) or “polyglot” (1992a: 72).  

Modern social landscape, however, is not marked only by the dense and diverse connectivity among its inhomogeneous regions but also by the dynamism of this connectivity. Above everything else, the historical transition of traditional societies entails a profound shift from institutionally fixed relationships of these societies to the much more flexible and often contingent ties of modern contexts. Reconsidered from a network vantage point, the new social setting is characterized by an unprecedented enlargement of the possibility of loosening up and/or unraveling social relationships hitherto unbreakable or at least very costly to break. As ties in modern contexts are no longer primarily generated by binding traditions and sentiments, they are more fragile and volatile than the traditional

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25 The matter is nowhere more obvious than in the case of modern urban areas. Therefore, it seems suitable to pause here and share the observations made by Louis Wirth in his classical article, “Urbanism as a Way of Life” (1938). According to him (1938: 11), in modern urban settings, the bonds of kinship, of neighborliness, and sentiments arising out of living together for generations under a common folk tradition are likely to be absent or, at best, relatively weak in an aggregate the members of which have such diverse origins and backgrounds.” Such settings often represent a mosaic of social worlds, i.e. a compact juxtaposition of settlements, each having its own, and more or less distinct, character with regard to the type of population and modes of life. As Wirth (1938: 10) expresses it, a city is a “melting-pot of races, peoples, and cultures,” where individual differences are “not only tolerated but also rewarded” and where “people are brought together from the ends of the earth because they are different and thus useful to one another, rather than because they are homogeneous and like-minded” (italics in text).
bonds. This flexibility of modern ties, and the entailing temporality of group memberships, are the prime sources of the dynamism of the contemporary social contexts: the connected nodes are constantly driven towards and away from each other by a variety of forces of attraction and repulsion, of attachment and detachment, no longer fully harnessed.

The functional complementarity and interdependence not only provide a new basis for connectivity and for establishing ties in modern settings, but also yield a new logic for breaking these ties and for mobility. That is, the flexibility of ties and temporality of membership in social groups induce mobility processes that are fueled primarily by actors’ pursuit of the optimal matching of their complementary differences within many major areas of life such as occupation, residence and marriage. As a consequence, there is in modern contexts a high geographical and social mobility of actors, which entails a rapid turnover in group membership. Perhaps against this background one can better see how White’s studies of mobility of various kinds fit in within his overall aim of obtaining a more specified and detailed understanding of this central and characteristic feature of the modern social landscape.

Given this flexible nature of modern ties, contemporary social settings can, on the whole, be conceived as dynamic contexts, which are never fully at rest. Rather, they are better characterized by the profound liveliness that they host, as the constellations of their constituent ties are ever changing. Since ties are subjected to constant change, never fully and/or permanently settled, the modern social landscape can be regarded as a restless universe. It is kept in ceaseless motion by the dynamic forces of connectivity and interaction among numerous uncoordinated agents, by ties continuously being broken, recast or reformed. And it is on the basis of these observed mobilities that, in White’s view, this landscape increasingly comes to resemble a fluid mass or a vivid goo, always changing shape and hue. Or as Nitin Nohria and Robert Eccles (1992: ix) report on White’s basic image of modern social landscape, it is no “crystalline grid [but] a repeating polymer,” which always resists being reified or crystallized.

Yet, modern ties are not only flexible in the sense of being breakable. For one thing, modern relationships are also flexible with
regard to the selection of the particular actors to be tied together. Given a few and long-established principles of connectivity that prevail in traditional societies, it is generally possible to predict who will belong to what social association and who will associate with whom in almost every relationship of life. On the contrary, in the case of modern ties the issue is highly contingent and unpredictable. More important, however, are the variable contents and conditions of social relationships in modern contexts. In such settings there are no preordained schemes with enough authority to spell out and instruct actors how they should be connected to one another, what their relations should look like, which legitimate expectations and obligations are on each side of the relation, etc. In other words, with regard to their content and conditions, modern ties are initially indeterminate, and the terms of any relationship are to be negotiated and settled jointly by the actors on a case-by-case basis.

Indeed, modern ties can be broken because they can vary in their contents and conditions in the first place, and thus give rise to disagreements and mismatches in mutual expectations. Along with the dissolution of traditional roles and institutionalized relationships, the predictability of flows of expectations and behaviors is also undermined. In consequence, in contemporary social settings the ties in which each actor is engaged are increasingly unspecified in advance. They are variable along a number of dimensions such as their duration and strength as well as the type of sentiments, perceptions, expectations and claims that they contain. In societies that are characterized by the fluidity of social categories and fuzziness of boundaries, social ties no longer have their previous permanency and stability. They are no longer mainly designed and maintained in accordance with preordained schemes and prescriptions about membership in various social categories and about the relations among them. Modern social ties, in other words, cease to be preceded and accompanied by commonly agreed-upon perceptions and lack their previous clarity of definition and meaning. Since they increasingly become ambiguous, the flows of expectations that each node produces cease to be predictable. In short, in modern social settings, an ever-growing portion of relationships turns flexible, as the previously institutionalized or conventionalized relationships fall
“everywhere in decay,” to paraphrase Goffman (1971: 89). The less a social relationship is conventionalized or formalized, the less predictable it is and the more it is liable to be contingent with regard to both the choice of nodes connected and the terms of the relationship, i.e. the content, strength, durability, and the perceptions and expectations attached to it.26

Given the inherent mobility and contingency of the great portion of modern social ties, any relationship that is persistent enough to be observed as a tie represents some degree of settlement between the participants. It represents some stable balance, some settling down of the mutual control efforts of the nodes, which aim to determine the conditions and terms of the tie between them. In other words, it represents the outcome of their struggle over the character of the tie, although this may be only temporarily stable. However contingent a tie may be, some settlement is required for it to be durable. What is needed is some degree of mutually recognized perceptions and interpretations of the terms and conditions of the tie.

26 The increasingly contingent nature of modern social ties has been noticed in many different sociological traditions. In their analysis of social interaction, Parsons and Shils (1976: 16), for instance, argue that any interaction is always ‘doubly contingent’ in the sense that it is not completely determined by the motivations of one of the parties alone. The establishment of an interaction thus requires a matching between the actions of one party with the expectations of the other. This matching, or mutual fitness of expectations and behaviors, however, is not always achieved. The reason is that modern contexts do not represent any complete institutionalization of all the elements of social action any more (see also Chapter Three). Another sociological current that takes into account the contingent nature of social ties is symbolic interactionism. A prominent representative of this current, Herbert Blumer (1969: 17-18) defines ‘joint action’ as “an articulation of lines of action,” i.e. the matching or fitting among the courses of action of participants in any interaction. According to Blumer (1969: 17-18), “a joint action always has to undergo a process of formation; even though it may be a well-established and repetitive form of social action, each instance of it has to be formed anew. Furthermore, this career of formation through which [a joint action] comes into being necessarily takes place through the dual process of designation and interpretation … ” He then continues, “repetitive and stable joint action is just as much a result of an interpretative process as is a new form of joint action that is being developed for the first time. This is not an idle or pedantic point; the meanings that underlie established and recurrent joint action are themselves subject to pressure as well as to reinforcement, to incipient dissatisfaction as well as to indifference; they may be challenged as well as affirmed, allowed to slip along without concern as well as subjected to infusions of new vigor.”
Since none of this is given beforehand, matching between the actors becomes the central issue in any social relationship. That is, given the attributes of modern social ties that have been presented so far, reaching a viable settlement between any pair of actors over the terms and conditions of the tie between them becomes the focal and critical issue in the process of formation of any tie. Diverse, heterogeneous and often conflicting perceptions of the actors about what the reasonable, legitimate and acceptable conditions and terms of the relationship between them are must somehow be fit together and reconciled. As such, a tie thus becomes increasingly a feat of social skill and competence. It becomes a joint construction, the accomplishment of which takes a certain amount of effort regarding negotiation and adjustment of mutual perceptions, expectations, claims, etc. It is against this background that White (1992a: 68-69) maintains that even

an apparently simple pair-tie can be seen to be a considerable social accomplishment. A context and onlookers persist in recognizable fashion, which means that some substantial interest obtains concerning the ‘simple tie.’ There also must be ambivalence and complexity built into a tie, since it is a dynamic structure of interaction in control attempts. It is this structure which is being summed up as ‘a tie,’ and interpreted in stories, both by its members and by onlookers.

The contingent nature of modern social relationships has several important implications for social action. One such implication is the control efforts that are inherent to, and never absent in, any relationship, i.e. the efforts carried out by the parties in determining the conditions and terms of the relationship.27 Moreover, in the

27 In White’s (1992a: 65) own words, “projects of control underlie creation of ties” and “it is the [control] attempts that survive and concatenate which can be represented by ties in networks.” White (1992a: 85) also holds, “the simplest formation is the pair, which nonetheless defines subtle processes when both in the pair relation are actively
absence of any valid and legitimate preordained schemes or guidelines, the parties in a relationship are mainly left to their own devices to work out the conditions and terms of the tie between them. These issues will be discussed more in the next chapter. For now, another property of modern social ties should be mentioned before this chapter ends— a property that stems from the contingent nature of these relationships.

**STORY**

One of the novelties introduced by White is the conception of *story*—a concept whose help White seeks to vitalize and enrich the social network approach with insights borrowed from symbolic interactionism and phenomenological sociology. Through the concept of story White, in other words, seeks to take into account the subjective dimensions of social ties and to include in the network analysis the *intersubjective meanings* that are constructed in interactions. The term refers to the accounts developed and reported by each party in the tie concerning the nature, character and state of the relationship. A story, in other words, is a description of how a tie is perceived by the actor who is engaged in that tie. A story is a certain interpretation of a tie that an actor has of that tie; it is the particular definition or meaning that he assigns to that tie.

Such a story includes the actor’s account of the history of the tie, i.e. the narrations and valuations of past interactions between the actors, now accumulated as the history of the relationship. Such a story also includes a report on what is going on in the relationship and what prospects it has, i.e. how the relationship is expected by the actors to unfold in the future. In short, such a story is a construction made by any party in a relationship out of his experiences and recollections about the existence, conditions and terms of the tie. As such, stories thus “describe the ties in networks” (White 1992a: 65); contending for control.” On other occasions, he maintains that a tie is where “the control struggle ... has settled into a stand-off” (1992a: 65), or “each tie encapsulates struggles for control, the ones, which persist. Each of these ties is a meta-stable equilibrium of contending control attempts” (1992a: 67).
they “represent ties” and are “perceptions about particular ties and interconnections of ties” (White 1992a: 66). Reporting on the state of the relationship, past and present, stories include accounts of all kinds: friendship or enmity, attraction or repulsion, cooperation or competition, etc. Stories include accounts of interactions going on between the parties or, as White (1992a: 83) has it, they “cite ... actions on specific occasions.”

Above all, however, the participants in a relationship use stories in order to justify and legitimize their expectations, demands and claims. They often draw on valid cultural schemes, normative conventions, dominant principles of action, etc. in order to give acceptable accounts or representations of their expectations, claims and demands. In this sense, stories provide the actor with a rationale for his expectations and claims, and help him to create a maneuvering space for himself. Therefore, as White (1992a: 84) puts this latter point, “stories are vital to maintaining as well as generating social spaces for continuing actions.”28 Such legitimizing accounts or representations involve of course a selection of what is to be included or excluded, celebrated or rejected. Such reporting may include rational arguments and/or cultural glosses for interpretation or justification according to the context. At any rate, any such report represents an attempt on the part of the narrator “to weave that recounting out of stories familiar to the hearers” (1993a: 47).29

28 The point is clear in the reference that White (1992a: 84) makes to the notion of ‘adaptive local action,’ developed by John Padgett and Christopher Ansell (1989). According to White, this notion resembles his own idea of how control is sought and obtained in networks. White then quotes Padgett and Ansell (1989: 4) who hold, “‘rationality’ for us does not mean subjective expected utility theory, it means adaptive local action ... Leaders (as well as all others) carefully analyze their own particular situation, and intentionally scheme to improve it, in terms of the cognitive categories or continua laid down in the dominant culture.”

29 To get a better understanding of the notion of story White (1992a: 68) urges his readers to “go listen to stories on the playground, or read stories. ... A story includes everything from the simplest line heard on the playground — ‘Ernie loves Sue, ... true ... true’ — through artful excuses and basic daily accounts and on through recondite nuggets of professional gossip.” Apparently, for White even naming of an actor can be a part of a story told about that actor, and perhaps even of great significance in the construction of that actor. He (1992a: 68) continues, “actors have no problem in recognizing other actors, other effective social identities. Likely they name any and all of these various
What matters most for the purpose at hand is the place of this concept in White's conception of modern social ties and in his overall image of contemporary contexts. The fact that in modern settings relationships are contingent implies that their definitions and conditions are open, unsettled questions. Such ties remain largely undefined with regard to the contents and terms of connectivity. In consequence, the mutual treatment of the parties to a relationship becomes a matter of negotiation that has to be settled jointly. In this view, any social tie becomes a site of struggle, a force field in which each node seeks to gain, sustain, expand or reinforce its control over the character of the relationship.

Against this background, stories are constantly, and more or less skillfully, used by each node to define the relationship, i.e. to determine the conditions and terms that are to be valid for the tie between them. It is in this sense that White (1992a: 68) asserts that “stories come from and become a medium for control efforts: that is the core.” What is necessary for a tie to be sustained is the matching between the stories that each part of a relationship has on his or her side. Such a matching of stories, or fitting together of accounts, is a necessary condition for the parties to reach a settlement and for the control efforts to find a viable resolution. In short, such a matching of stories is a necessary condition for a tie to be established and persist. Stories are inherent to such negotiations and control efforts to the degree that, according to White, “a tie becomes constituted with bodies, somehow, if not with a proper name. And without hesitation, stories are told.” Furthermore, it appears that, in White's view, actors' accounts or “raw reports” can accumulate and become stereotyped, built-in to the relationships. In other words, given the dynamic nature of social ties, the parties never cease to produce new accounts and “induce chronic reports” (White 1992a: 67). Yet, with established stories and frames of interpretation, any new turn of the tie, i.e. any new account of the relationship, tends to “fall into [these established] patterns [which are] perceived as stories” (White 1992a: 67). It is with this in mind that White maintains, “a set of stories can go with or come from a tie in a social network. Conventions, sets of stories, emerge over time” (1992a: 69), or “ties are stories so that stereotyped stories are constituents of a network” (1992a: 68) and, finally, “a special sort of tie has become equated with particular behaviors and attitudes as reported in stories of relations so that the elements of networks are stereotyped stories —such as acquaintance, enmity, dependence. Network becomes a verb, and we tell stories in network terms” (1993a: 3, see also 1992a: 66).
story” (1992a: 67) and “all ties are defined by, and induce and respond to, stories” (1992a: 88).30

**CONTEMPORARY SOCIAL CONTEXTS**

Let us now return to the issue with which this chapter started. Out of his determined quest for the concrete and specific, White aspires to develop a conception of modern societies that, instead of building on abstract constructs, is derived from empirical observations made from a network vantage point. As he reconsiders and empirically examines many well-known features of modern societies in network terms, White gradually develops a novel image of modern social reality—an image he metaphorically conveys by holding that “there is no tidy atom and no embracing world, only complex striations, long strings reptating as in a polymer goo, or in a mineral before it hardens” (1992a: 4).31

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30 Time and time again White emphasizes the close relation between story and control or, rather, the idea that it is through stories that control is exercised, i.e. the conditions and terms of ties are defined and determined. Here are some examples of the statements that refer to this idea: “A story is at root an authority, a transfer of identity, which explains its close correspondence to network tie” (1992a: 68); both “the tension [among identities] and their overcomings induce stories and require sets of stories. Contentions for control, if they settle down, become told as stories” (1992a: 69); “Stories and their rhetorics emerge within social networks from interacting control projects. Seeking control is the source of the energies of identities spinning out social networks and coping with each other and ecology. Stereotyped stories emerge as part of relations settling down enough to yield any social network” (1993a: 116).

31 A good example of White’s unconventional style, this statement is also another example showing how physical imaginary still influences the way he envisions social reality. Used in the natural sciences as a synonym for macromolecule, the term polymer means ‘many parts’ and designates a large molecule made up of smaller repeating units, monomers, which chain together through bonds between specified atoms (see Rudin 1999: 2). Polymer materials are often divided into two groups: elastomers and plastics. Whereas elastomers (such as natural rubber) have a network structure that is made up of cross-linking chains of repeating units, the cohesion of plastics is mainly due to the physical attraction among the chains. Plastics are of two main types: amorphous and crystalline, depending on how regular their chains are (see Brydson 1995: 54). While at lower temperatures, plastics, and all polymer materials indeed, transfer into a glassy, hard and brittle material with fairly stable structures, at higher temperatures they soften and turn into a shapeless goo (see Sperling 1992: 159).
This is obviously a network vision of modern contexts, seen as something essentially complex, vivid and indeterminate, as something that can be described neither in terms of isolated individuals nor in terms of well-ordered totalities. In an overall view, rather, where everything described so far converges, the social landscape out there appears as a vast and dense texture of overlapping and multi-layered networks that extend endlessly in every direction. It is a complex texture that emerges as ties of various kinds concatenate into numerous strings. These strings intertwine and weave together in such complex ways that is practically impossible to keep track of the individuality of any of them. Yet, there is more to it. Given the particular properties of the constituent ties, the overall landscape appears to be not only intractable but also a dynamic, variable and vivid one. It is a landscape kept in constant motion by the dynamics of connectivity and interaction among the uncountable independent actors who are hardly ever embedded within a rigid constellation of ties. Moreover, it is a confusingly complex landscape where events and actions spill over into one another, chain together and culminate in highly intractable and indeterminate ways.

This complexity stems from the enormously increased density and diversity of connectivity in modern social contexts. This is a well-known kind of complexity that is generated through the disorderly interactions of multiple, distinct causal chains that weave together in highly intractable ways and cumulate into unintended effects. It derives from irregular intertwining of numerous long chains of cause and effect that, at any given point, cross each other and interfere with one another. It comes from the erratic interplays of actions of numerous autonomous actors, so that what happens to one node at one point in time and space affects others at other points in time and space.\textsuperscript{32}

\textsuperscript{32} Nonetheless, sociology, according to White (1972b: 1), can help us to make sense of this confusing complexity. Not only it is possible for sociology to demonstrate that social reality can be made intelligible, it is indeed the very task of sociology, its “central idea.” “Sociology”, White continues, “can take [our] puzzlement … and move it into the center of [our] attention, show [us] how to take a grip on thinking in an organized way about the social worlds around [us].”
As shown in the case of mobility studies, the interlocking and congestion of the numerous independent causal processes are so extremely complicated that in many cases, specially within larger populations, it may be justified to use stochastic models in the analysis of social processes. Yet, for White, this complexity does not represent a mere technical problem: it also has crucial theoretical implications for the way that he understands and describes the constitution of modern contexts. For one thing, this complexity gives rise to a profound sense of confusion in the actor who, located in the intersection of several distinct networks, is constantly bombarded with erratic flows pouring down on him from every corner. Very early on, White (1972a: 1) expresses his amazement over "the enormous complexity of interplay among different lives, the fascinating unpredictability of how different actions, perhaps of millions of persons, cumulate into chains of unintended consequences." He (1972a: 1) also expresses his awareness that the interplays of numerous distinct perceptions, intentions, and conditions are so overwhelmingly complex that they make us perceive life as unpredictable and indeterminate, and that they lead us to find the various worlds we live in and near puzzling, "erratic and often pointless."

White, in other words, is aware of how the unexpected break-ups of the routinized daily normality, the cracks and fractures of everyday life, constantly remind us that contingency or chance holds an "awful grip ... on human affairs" (White 1990b: 783), making us feel that we "live in a world where disorder is around every corner and improvisation the only means of survival" (White 1992a: 3). Moreover, due to the complexities generated by the interdependence of so many lives and fates, we are also forced to realize the limitations of our capacities to create and maintain orderliness in our lives and to have control over the sequences of events that our actions set off. As White (1971b: 1) puts it,

33 It is dealing analytically with this complexity that constitutes the sustained interest that White devotes to the study and development of models of stochastic processes. Among the produced works in this line are "Cause and Effect in Social Mobility Tables" (1963), "Simon out of Homans by Coleman" (1970) and "Everyday Life in Stochastic Networks" (1973).
each of us in our own small worlds has learned how impossibly complex it is to understand developments even in small, apparently homogeneous groups in which we think we know most of the ties operative among members. We see in a few instances how indirect chains of relations have induced changes in direct relations, how the existence of relations to third parties interacts with direct relations, how an incident here triggers sequentially other incidents across the group, how in general the enormous array of circuitous paths of relations transforms familiar inputs into surprising results.

This confusion, induced by the complexity of the social world and the subsequent limitations of action, together with the partial view that any actor has of the social landscape around him, are indeed some of the basic premises for White’s theory of social action: agency is basically seen in terms of actors’ control efforts. This is, however, the topic of the next chapter. For now, it shall be mentioned only that this complexity leads White to go so far as to recognize chance not only as a subjective perception but also as a fundamental characteristic of modern life. This is an integral part of the contemporary social universe that induces a radically different social logic with far-reaching implications. Indeed, what is distinctive to White is his conception of contemporary societies as worlds of confusion where contingency or chance is a normal condition.

Against this, White is led to dismiss the conceptions of society that refuse to recognize such basic characteristics of modern social life, and that instead continue to build on unrealistic assumptions about harmony and orderliness stemming from either consensual or authoritarian value establishments. He is led to reject descriptions that, perhaps due to a desire for more manageable subject matter, eliminate contingency and thereby distort the object of their theorizing. Images of this kind typically assume a neatly designed and coherent social totality that is largely well coordinated and well integrated. But, as seen above, the dissolution of traditional categories
and the associated fundamental changes in the nature of social relationships have given rise to a social landscape that is too vivid and too messy to fit neatly into such descriptions.

The image of an all-embracing world where harmony, order and inertia prevail may possibly be an adequate description of the segmentary societies of the past, but as far as modern societies are concerned it is surely inaccurate and even misleading since it omits much of the essence of these contexts. Despite the significance that such conceptions ascribe the historical transition, they do not match the existing social reality of our time, and are still caught in outdated images.34 Instead, according to White, sociology must recognize contingency and make room for the spontaneous and hazardous in our descriptions of social reality. That is, sociology must recognize chance as a factor of life in its own right and go beyond its treatment as a merely technical issue.35 Or as White, et. al. (1976: 733) put it, sociologists must pay due attention to the compelling fact that,

in contrast to the standard wisdom, there is a growing list of empirical findings regarding the effect (and frequency) of ‘accidents’ and ‘luck’ in the actual functioning of societies... findings [that] force us to ask whether the

34 In his main thrust that sociology needs to update its basic ontological foundation White receives some support from Anthony Giddens (1987: 26) who argues that “the most common ways in which we seek to understand the trajectories of development of modern societies have been strongly influenced, -and limited- by the contexts of their origin in the nineteenth- and early twentieth century Europe. ‘Classical social theory’ has continued to hold sway well beyond the circumstances of its first formation [...] and throughout most of its history in the current century sociology has borne the stamp of the contexts in which its outlines first took shape.”

35 White’s criticism regarding the omission of chance and contingency in social theory is not confined to the cultural holistic ontologies of the Parsonian type. For the same reason White also criticizes James Coleman. Reviewing Coleman’s major theoretical work, Foundation of Social Theory (1990), White (1990b: 783-784) accuses Coleman for his Parsonian “obsession” with order and control and for his “disdain of uncertainty” -two interrelated features that are “tied to rationality” that, according to Coleman, prevails and sways the social reality. Or, in White’s words, Coleman commits the error of “shrugging off the awful grip of chance and the arbitrary on human affairs in this massive tome [where] evil has no place.”
stuff of social action is, in fact, waiting to be discovered. 36

How is social action to be conceived if one starts with such a basic conception of social reality and human social conditions? Surely, with the image of social reality as something essentially fluid and indeterminate, the pursuit of control becomes a fundamental concern. The need for control is also reinforced by the fact that the modern social landscape is not only fluid and indeterminate but also a web of causal interdependence, where the terms and conditions of the interdependencies among actors can only be settled through uneasy and fragile agreements, and where such agreements are more the source of contingency than predictability. In other words, given the overall character of the contingent and intractable network goo of modern social contexts, the need for control seems overwhelming; hence the centrality of it as a basic concept of social theory on which to build further.

36 This recognition of chance as an inherent and fundamental element of life is by no means to be taken as a denial of causality. What is meant is merely the unpredictable interaction of numerous distinct causal orders. The point can be illustrated by the following example of Randall Collins (1984: 333). Consider the situation when you are walking on the street by a building and, suddenly, a rock falls down and hits you on the head. “The fact that you are walking by the building when the rock fell off the roof is ... the product of a series of causes. ... There need be nothing uncaused about any aspect of the situation, ... But the two causal orders are unconnected. There is no relationship ... between your walking there at the time and the rock falling when it did. It is this unconnectedness of different causal orders in the universe that gives rise to the phenomenon of chance” (italics in text). However, in White’s emphasis on introduction of chance as an integral feature there seems to be an influence of similar insights won by the natural sciences. One of the pioneers of the quantum mechanics and the winner of the Nobel Prize in physics in 1954, Max Born (1951: 1) opens his famous book on modern mechanics, The Restless Universe, by holding “it is odd to think that there is a word for something which, strictly speaking, does not exist, namely, ‘rest.’” Then, answering those who are worried that such a recognition of randomness and chance would surely mean a denial of the strict accuracy of the laws of nature he (1951: 17-19) maintains, “as a matter of fact, the most recent development in physics, quantum mechanics, ... shows that we must drop the idea of strict laws” and recognize “that all laws of nature are really laws of chance, in disguise.”
In accordance with the basic tenets of the social network approach, White’s point of departure assumes the connectedness of social actors to one another through varied types of ties. According to this view, social actors at all levels are embedded in systems of various relationships. They are seen as connected to one another and tied down through these relationships, rather than being isolated atoms that hover freely in some state of social weightlessness or vacuum. Central as it is, this notion of embeddedness lies at the root of White’s approach. It constitutes the basis for the two main concepts or, as he (1992a: 16) calls them, “the two primitives” of [his] theory,” i.e. identity and control. The rest of White’s conceptual apparatus and theoretical construction is also derived from this notion of embeddedness and its implications.

Although the idea of embeddedness is quite familiar and widely used, White’s understanding and conceptualization grant it a rather distinct character.1 This distinctiveness comes from the particular

1 The widespread use of the network notion of embeddedness has its origin in Mark Granovetter’s famous article from 1985, “Economic Action and Social Structures: The Problem of Embeddedness.” In this article, Granovetter (2001: 52-53) rejects what he calls the “over-socialized” and “under-socialized” views of man because “despite the apparent contrast between [these] views, we should note an irony of great theoretical importance: both have in common a conception of action and decision carried out by atomized actors.” He (2001: 55) then maintains, “a fruitful analysis of human action requires us to avoid the atomization implicit in the theoretical extremes of under- and over-socialized conceptions. Actors do not behave or decide as atoms outside a social context, nor do they adhere slavishly to a script written for them by the particular intersection of social categories that they happen to occupy. Their attempts at purposive action are instead embedded in concrete, ongoing systems of social relations.” Both the double-edged criticism and the suggested approach rest on what
properties of social relationships in contemporary societies. Therefore, let us start by trying to explore in detail White’s conception of social embeddedness in modern contexts.

**Multiple Embeddedness**

As interaction among various spheres of the modern society intensifies, any social actor increasingly becomes a member of widely divergent groups. The actor becomes involved in multiple social circles that belong to wide-ranging and distinct realms of the differentiated society. Both multiple membership in various social groups and the subsequent plurality of roles taken by any single actor are the familiar facts of modern life -facts that are recognized and well-theorized within different sociological traditions; the same goes for many of the implications of these facts. Among these, for instance, is the commonly observed diversity and, at times incompatibility, of the expectations and behavior profiles attached to the multiple roles enacted by each single actor. Other known implications regard an actor’s constant switching among his various roles, as well as the skills that are required to handle such shifts and possible complications.2

Granovetter (2001: 51) puts forth as “the argument of ‘embeddedness’: the argument that the behavior and institutions to be analyzed are so constrained by ongoing relations that to construe them as independent is a grievous misunderstanding.” In White’s view (2002a: 210), “in his influential, Mark Granovetter presents a convincing account of social extension and involvements as the gist of embedding. Yet this is, as it were, a two-dimensional portrayal, one that neglects any emergence of levels of actor from embedding.” For a presentation of White’s notion of the emergence of identities out of embedding contexts see below and Chapter Six.

2 Multiplicity of roles is a central theme in sociology, well known enough to obviate any further comments here. So are the associated accounts of role conflicts, i.e. the clashes among disparate role expectations. For instance, within the classical ‘role theory,’ originally developed by Ralph Linton (1936), the individual actor is conceived as the holder of a collection or an ensemble of various social roles. The central notion of this theory is that the actor should be viewed as divided among these roles, so that each part of him belongs to a distinct role system. Consequently, the challenge that the actor faces is to hold together his many parts or ‘selves,’ and to sustain some degree of coherence. As Erving Goffman (1972: 90) observes, the basic assumption of this classical perspective is that “each individual will be involved in more than one system or
Recast in a network perspective, the general increase in both the number and diversity of interactions in modern social contexts means that each actor is engaged in an ever-growing bundle of ties of widely divergent characters that connect him to different regions of contemporary society. As the actor's relationships become more numerous and diverse, he increasingly becomes a convergence point of, or a link between, many different social spheres. He increasingly becomes, and can be conceived of as, a node that is located at the intersection of several distinct, often heterogeneous networks.

Several important aspects of this intersecting position should be noticed. First, it follows that each actor has a unique topological position within the modern social landscape. He has a unique "immediate action locale" (White 1986: 1) in the sense that his individual ensemble of network memberships and ties make up a unique constellation. It is a unique configuration that consists of a specific group of other people connected to the actor by various sorts of ties. It is also a unique constellation of indirect relationships by which these others are joined to one another and to still others through the actor. The matter is put clearly by White (1973a: 45) when he maintains,

in societies with which we are familiar - as opposed to the segmentary societies of the anthropologist - each person is effectively unique. No two [persons] share an identical topological position in the full networks they live in. Even in direct ties two persons differ, in the number and attributes of friends, their demographic position in the family, their ties in organizational contexts, and so on.3

pattern and, therefore, perform more than one role. Each individual will, therefore, have several selves, providing us with the interesting problem of how these selves are related. The model of man according to [this perspective] is that of a kind of holding company for a set of not relevantly connected roles.” For a review of different versions of role theory see, e.g. Jonathan Turner (1986). Below, this issue will be taken up again to see how White's concept of identity can be seen as a network reformulation and concretization of these classical insights. For now it suffices to point out that in his (1992a: 89) view, “role theory is a general perspective ... which as yet encompasses networks and embeddings only in a latent fashion.”

3 "Everyday Life in Stochastic Networks” (1973), the source of this quotation, is an
This unique embeddedness of the actor, however, is hardly a condition of isolation. On the contrary, it is precisely the site where the actor confronts all the dynamic forces that influence him as a social actor. Let us recall that mutual expectations and obligations are inherent to any social relationship. It is true that, in contemporary social contexts these expectations and obligations are no longer derived from rigid cultural prescriptions. It is also true that modern relationships no longer enjoy in any substantial way the sanctioning support of traditional authorities. But this does not mean that modern social ties cease to generate sentiments, expectations, demands, etc. that, in different styles and to varying degrees, claim the connected parties’ commitment. On the contrary, as common observations in daily life easily confirm, the expectations and obligations that modern social relationships imply do not seldom put significant constraints on the interconnected ends; no matter how flexible and negotiable these constraints may be, they never fail to make themselves felt through various types of reward and punishment.4

With this in mind let us now turn to another aspect of the important paper where one can find some of White’s central ideas about control and identity, while still in their early stages of elaboration. In this work White examines Kleinrock’s models for technological networks, i.e. networks in which messages that arrive in an erratic fashion are forwarded through a set of interconnected nodes in order to reach the target node, i.e. the intended final receiver. The core issue in this article is to study how the system operates in dealing with the congestions and delays that occur during the processing of the messages. Still within a physical imaginary, White (1973a: 43) explicitly, although only in passing, maintains that these models can “be used to guide investigation of informal social networks” and can help us extract insights about the “hidden benefits of congestion.” To show the validity of this transposing he (1973a: 43) adds, “the world is a network of congestion points. One’s plane may have had to circle waiting for a clear runway, because an earlier plane had had to wait for a fuel truck. ... In the hotel to which one goes, are not only bars and restaurants, but a registration desk, phone booths, elevators, and so on.”

4 As Durkheim (1982: 51) points out, the constraining forces of social obligations and duties are mostly invisible under normal circumstances. These forces mostly make themselves felt when they are resisted, i.e. when there occurs a deviation from the actor’s obligations, which are the other party’s expectations. These constraining forces are most clearly seen when the actor is replaced in a different context, where familiarity disappears and where he needs to be instructed about what is perceived as the proper attitudes and behaviors in these new contexts.
multiple embeddedness of the actor in modern social settings. Being positioned at the intersection of multiple networks means being engaged in a whole set of various relationships. Since each relationship brings along a bundle of particular expectations and obligations, this embeddedness means being simultaneously subjected to a number of specific constraining forces. Since these relationships belong to distinct networks and to different contexts, the constraining pressures that these generate are inevitably heterogeneous, each pulling the actor in a different direction.

Furthermore, due to the uniqueness of his topological position, each actor's constraints are different from that of everybody else. In other words, unique multiple embeddedness means being at the intersection of a unique set of heterogeneous constraining forces. It means being bombarded by a unique set of flows of different sentiments, expectations, claims, etc. with which the actor has to deal continuously. Pouring down on the node from different directions, each one of these flows originates in a distinct realm of modern social reality and demands some portion of the actor's attention and commitment in a specific way and with a particular intensity. To illustrate the situation, White (1973a: 45) draws on a comparison between actors in modern social contexts and nodes in technological networks, and asks the reader to

turn now to networks of humans. Both as social scientists and as everyday people we tend in talking about social organization to adopt very quickly some particular abstract cultural perspective in which [real] people are replaced by actors in a role frame. Instead consider the activities of concrete persons in real time—let these be the nodes. ... Focus on their nature as receivers, processors and transmitters of messages to close contacts and thence indirectly to distant persons in large populations. 'Messages' include official messages, rumors and gossips, but also moods and sentiments. ... Typically, a person is vastly overloaded in real time with messages of various sorts to which he could give attention. ... It follows from the nature of the network context that a
person receives message of a given sort in quite erratic and unpredictable fashion, as well as being enormously overloaded if one considers all active and latent messages of all sorts accepted by at least some of that society’s members as real and relevant. Each of us lives under erratic bombardment of all kinds of messages in a large and complex web, which yet is different from, though tied to, the web of any neighbor.

The quotation above touches on yet another crucial feature of multiple embeddedness, namely the erratic character of the bombardment to which the social actor in contemporary societies is subjected. This randomness stems from the distinctive features of social ties in modern contexts: the fact that they are breakable and that their conditions and terms are increasingly indeterminate. As mentioned in the previous chapter, an ever-growing number of relationships in modern contexts are no longer institutionalized, and they can thus be broken at much lower social costs than before. The flows of claims and expectations that these relationships generate are no longer prescribed; they are negotiable and, thereby, changeable. Whenever these ties exist, in other words, they prove capable of producing an unforeseen array of mutual expectations and obligations with undetermined and unpredictable constraining effects on the interconnected actors. As mentioned earlier, the absence of fixed conditions and terms of social relationships accounts for both the contingent nature of these relationships and the erratic character of the bombardment that White speaks of.

Against this background, the social context in which each actor is embedded can be seen in a different light. Given the uncertain character of the ties and the contingencies and ambiguities that they transfer, the environment around any actor ceases to be fixed. Instead, the unique territory surrounding him becomes changeable in ways that are too complex to predict. That is, the embedding context becomes variable as the constituent ties become variable, both with regard to their constellation and to what they bring along. The more numerous, diverse and ambiguous the constituent ties, the more
changeable the embedding context will also be. Consequently, the topological position of each actor, as well as the character of his environment, keep changing as the constellation of the constituent ties vary, now connecting him to one particular cluster of other actors, then to another cluster; and since the contents of ties are negotiable, the actor faces one set of expectations to fulfill at one moment, and another set at another moment.\(^5\)

Furthermore, there are also certain limitations to the actor’s cognitive abilities when handling the situation. For one, “the huge social terrain out there,” as White (1986: 2) puts it, “is too vast and uneven to be knowable by [any] particular person.” It is also, as already pointed out, so complex that the actor faces severe problems in his attempts to make sense of what is going on in his surroundings. The intractability of the network context where the actor is embedded is so high that it allows him to have only a circumscribed horizon and a partial view. In addition, the variability of the surrounding landscape further reduces his chances of having any clear picture that is valid

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\(^5\) As in White’s approach, the fluidity of the social landscape surrounding each actor in modern environments is a main issue in Zygmunt Bauman’s sociology. It is relatively easy to see some basic similarities between, on the one hand, White’s conception of the embedding context of social actors within the changeable and fluid modern mush and, on the other hand, Bauman’s notion of habitat, i.e. the particular limited territory in which the actor is enmeshed and operates. As Bauman (1992: 193) describes, habitat “appears as a space of chaos and chronic indeterminacy, a territory subjected to rival and contradictory meaning-bestowing claims and hence perceptually ambivalent. All states that habitat may assume appear equally contingent (that is, they have no overwhelming reasons for being what they are, and they could be different if any of the participating agencies behaved differently).” Constantly changing, habitat is the actor’s site of action, and as such it is both a constraining and enabling context, both offering freedom to, and imposing dependency on, action. In Bauman’s (1992: 191) own words, habitat is “the territory inside which both freedom and dependency of the agency are constituted (and, indeed perceived as such). ... [It] neither determines the conduct of the agents nor defines its meaning, it is no more (but no less either) than the setting in which both action and meaning-assignment are only possible. Its own identity is as underdeveloped and motile, as emergent and transitory, as those of the actions and their meanings that form it. There is one crucial area, though, in which the habitat performs a determining (systematizing, patterning) role: it sets the agenda for the ‘business of life’ through supplying the inventory of ends and the pool of means” (italics in text). Similar ideas concerning implications of the fluidity of the embedding context for social action are developed by White (see below).
long enough to serve as a reliable basis for his decisions and actions. This lack of a broader view and clearer vision means that each actor is able to scan the field around him only up to a limited extent, while the rest of the embedding context remains beyond his horizon and quite opaque. The actor thus normally will not be able to trace the sequences of actions and events more than just a few steps away in either direction. The actor will have only a slight chance of discerning the intractable territory around him where these actions or events originate, or what outcomes they will generate a few moves ahead. This can only diminish the actor’s chances of having any overall understanding of what goes on around him and what is happening to him, just as he will have only a small likelihood of predicting the outcome of his own action.

Nor does the actor have many other resources to rely on when making his environment more knowable and/or manageable. To the contrary, the actor is pretty much on his own in coping with the erratic bombardments to which he is subjected. Indeed, according to White (1973a: 45), to conduct the business of everyday life in the face of these bombardments “only limited concrete guidance on choice of message to handle can be found from imitation, much less from accepted norms and rules.” On the one hand, the uniqueness of each actor’s topological position means that their social environment consists of a highly individual constellation of ties, flows and constraints. Any actor’s baggage of past experiences and current challenges will, as a result, be very different from that of any other actor. This, in turn, strongly undermines the usefulness of imitation as a strategy in handling one’s particular situation.6

6 On another occasion White (1988a) rejects explicitly imitation as the cause of social facts, i.e. the observable social regularities uncovered by sociology. In his (1988a: 226-227) own words, “a ‘social fact’ is one that is created by the joint action of many individuals but that is inexorable for any one of them. Social facts are the basis of sociology, but most of our methods establish and examine them only elliptically. … Ross (1921), following Trade (1895), identifies ‘imitation’ in custom or conventions as the fundamental aligning process that produces social facts. Ross sharply distinguishes, however, between the social psychological dimensions of the establishment of social facts —through the creation of ‘planes’ of communality via imitation— and those growing out of the groups and structures that men devise and into which they unite. Ross leave vague, however, how the former contributes to the latter. … Furthermore, he neither posits a general theory of role frames nor explains how they relate to one another. Most
On the other hand, as discussed above, the dissolution of previously institutionalized relationships entails a radical increase of the indeterminacy and unpredictability of the conditions and terms of the relationships that make up the actor’s environment. This indeterminate character of actual relationships makes them correspond poorly to the typical descriptions found in any prevailing cultural scheme. One of the consequences of this is that available cultural guidelines or manuals are too general to provide the actor with specific guidance on how to cope in real life with the concrete and unique mixture of constraining forces that bombard and push him in different directions. Instead, the actor is largely left to his own devices, when selecting among the various cultural elements at hand. That is, the actor is mainly left to his own capacities to sort through the various expectations and obligations he faces, and to develop ways to respond to them.\(^7\)

**CONTROL**

This particular version of embeddedness constitutes the bedrock of White’s general theoretical construction. As the description above indicates, the starting point is an image of the social actor located at

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\(^7\) This is one of the central ideas in Alfred Schutz’s phenomenological approach that is taken up by White and applied within a network paradigm. According to Schutz, each man’s stock of knowledge is ‘unique’ and ‘biographically’ determined. It is a knowledge that is generated through his individual life experience and shaped by the concrete physical and socio-cultural environment in which he is embedded. Therefore, this knowledge has a strong individual component, although it is not an entirely private kind of knowledge (see for instance Schutz & Luckmann 1973: 111-112). As this work proceeds we shall see how White departs from this point and tries to develop a phenomenological account of how social actors can identify other actors who, on the basis of their similar structural positions, have largely similar baggage of immediate experience and stock of concrete, local and practical knowledge.
the intersection of multiple networks. It is the image of an actor who is embedded in an intractable and changeable environment made up of relationships that lack clear definitions and conditions. It is the image of an actor who has to carry on the business of his everyday life under the erratic bombardments of various flows that constantly make his environment uncertain and ambiguous, and who cannot hope for much external guidance on how to conduct his life. It is from this basic image that White's main concepts, i.e. control and identity are derived. White's call for a reconsideration of the nature of intentional social action and elaborate decision-making in modern settings also stem from this particular conception.

Some of the implications of this basic image have already been mentioned in the previous chapter. Confusion arises because the complexities involved appear too overwhelming to the actor; in the absence of any clear vision, chance emerges as a governing condition of existence. Moreover, the uncertainties inherent to such a situation tend to produce in each actor a profound sense of lack of control over, and power to affect, his surrounding to any significant degree. Since his plans of action frequently are overridden by the unpredictable interplay of factors out of his control, he is forced to realize the limitations of his agency, and finds himself relatively powerless to influence his environment.

An even more important implication of this basic image for the conceptualization of social action, however, regards the actor's need for and actual exercise of control. White's concept of control essentially describes a familiar phenomenon. In a general sense, the term control is used to designate the whole array of attempts undertaken by the actor to reduce the uncertainties and contingencies in his social environment. It is a label for the actor's efforts to anticipate and respond to the overwhelmingly unpredictable changes in the context in which he is embedded and operates. It refers to the ways that the actor tries to shield himself against the unforeseeable eruptions that constantly jumble this context.

As such, the concept represents a fundamental property of agency at all levels. But White's treatment of this familiar phenomenon is somewhat novel, namely his re-articulation of the issue within a network theoretical framework. As shown in the
previous chapter, a re-articulation in network terms embodies White’s
determined quest to make social phenomena more concrete, and
thereby subject them to more specified analysis. It has already been
demonstrated how White recasts the inherent uncertainties and
contingencies of contemporary social settings in network terms by
locating them in properties that are characteristic of modern social
relationships. Along the same vein, White conceives of control -i.e.
the responses to these uncertainties- in terms of the actor’s strategic
efforts to handle and manage the attributes, conditions and terms of
his ties, according to the purpose at hand. Control, in other words, in
White’s conceptualization boils down to handling one’s relationships,
with the primary aim of reducing uncertainties as far as possible.
Control is therefore part and parcel of any relationship.

Let us try to unpack this observation. Within the revised
network perspective adopted by White, the unsettled and basically
contingent character of social relationships lies at the root of the need
for and pursuit of control. Social relationships, in other words, are
seen to be prone to produce uncertainties of various kinds. Given the
interdependencies that often underpin relationships among actors,
such uncertainties can have disturbing implications for the actor’s
planned projects. If the actor is to protect his planned actions from
this type of contingency, some kind of shield is required. This
protection can be achieved through the actor’s efforts that target the
very source of uncertainties. In other words, the actor can obtain an
effective shield against contingencies in his environment by trying to
exercise some degree of control, in one way or another, over the
contents and conditions of his relationships.

In more specific terms, the core issue for the actor is to raise
his guard against, and command over, the various flows of contingent
contents to which he is constantly exposed. The central, urgent task is
to handle the supply of expectations and demands that come in
erratic ways through the ties that connect the actor to the rest of the
world. Although the performance of this task varies according to the
type of the situation and interaction, the basic interest remains the
same: the overarching objective is to secure and increase control over
the array of heterogeneous expectations and claims that the actor
constantly faces.
Fundamentally, the task requires the actor to have some kind of general principles that can guide him in making judgments and decisions about how to handle the flow of bombarding expectations and demands. What is needed, in other words, is a workable scheme that can help the actor to distinguish among the flows of diverse expectations, and to determine the relevance and relative significance of each of them. What is needed is a classificatory or prioritizing scheme to guide the actor in judging the relative importance of each individual flow, and in deciding the amount of due attention to be paid to it. Continuing the comparison mentioned above, White (1973a: 45-46) expresses the point by arguing that

fundamentally, a person has to function as a service facility to stochastic streams of messages of various sorts. His problem, solved in large part implicitly, is to evolve a priority scheme to deal with these flows, a scheme which in real life is forced to be rather different from his neighbor’s.

Some points require special attention. Among these are the complex questions of where such a scheme comes from and how it is developed. Apparently, White’s particular conception of control rests on the assumption that each actor, or at least each competent actor, is capable of developing and applying the necessary relevance and significance assignment scheme. Given the unique topological position of each actor, one is led to think that each actor has to work out his own individual scheme in isolation. As mentioned above, the actor cannot find much concrete help in the reservoir of overly general cultural prescriptions. Nor is imitation a real option for the actor since his scheme will be different from those developed by his neighbors. Any satisfactory treatment of this issue requires some familiarity with other elements in White’s conceptual apparatus, which have not yet been introduced. This issue will therefore be taken later. Nonetheless, some brief points can be made at this stage.

First, since any scheme will reflect each actor’s unique location, it must be developed on the basis of his own stock of knowledge.
This is the kind of knowledge that each actor can reasonably acquire through his own experiences and, therefore, is essentially practical, local, concrete and often implicit. Secondly, comparisons seem to play a crucial role in the actor’s efforts to elaborate the required scheme out of his stock of knowledge. In White’s view, each actor will, under certain circumstances, be able to acquire some guidance by monitoring a particular set of actors. This is the set of the actor’s peers who, because of the perceived similarities in their topological locations, constitute a sort of reference group for the actor. They constitute a group within which “individual actors watch one another … and imbibe patterns in how to maneuver and how to account in stories and values for the maneuvers. Thereby individuals acquire a style, as they jointly reproduce [some behavioral] profiles through their mutually patterned actions” (White 1992a: 200).

Thirdly, although such a scheme emerges out of the actor’s concrete, practical and local knowledge, it must be general enough to be applicable to the numerous and diverse situations that the actor will face. Given the actor’s multiple embeddedness, the flows of expectations and obligations with which the actor has to deal are heterogeneous. They come from vastly different parts of the social landscape to which the actor is connected and they bring along heterogeneous types of claims and demands. The required priority assignment scheme must therefore be general enough to be applicable across various types of ties and network flows. It has to be useful across numerous possible combinations of these flows and able to deliver concrete guidance on how to handle the complex situations that may come up.8

As mentioned earlier, however, any relationship implies mutual

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8 One is reminded of Bourdieu’s notion of habitus, i.e. the perception and valuation scheme that emerges as a system of dispositions that, deeply rooted in the actor’s life experience and biographical history, organize his social perception and practice. In addition to the likeness in conditions of emergence, there are also some other similarities between Bourdieu’s habitus and White’s relevance and significance assignment scheme. These similarities concern the way in which the two function. As in White’s scheme, habitus operates through a set of dispositions or senses that are general enough to provide guidance in most of concrete situations and, thereby, underpin the actor’s capacity of creative improvisation. For the notion of habitus see, e.g. Bourdieu’s The Logic of Practice (1990).
expectations. This mutuality means that any participant in a relationship is not only subjected to the other party's expectations but he is a source of expectations directed to the other party. Control, therefore is double-edged: handling the expectations that are issued by other party is only one face of the actor's control efforts. Equally important for the actor is to ensure, as far as possible, that the behaviors of the other party fulfill the actor's expectations. Seen another way, just as the actor is the object of the other part's control efforts, the latter is the target of the actor's control attempts; and just as the actor seeks to defy the control efforts to which he is subjected, the other parties do the same. Therefore, control is best viewed in terms of mutually posed constraints, i.e. constraints that participants in a relationship seek to enforce on one another in order to shape each other's behavior.

A final point regards the practical consequences of such a serviceable and general scheme for the actor's actual conduct in life. By having recourse to such a scheme, the actor can bring some sense and order into an otherwise confusing situation. He will be in a better position to determine what to attend to, in what way and to what extent. As more control is achieved through the elaboration and application of such a scheme, the actor's surrounding territory will be less variable and his sight will become clearer.

As a result, the actor will have better premises for his decision-making and planning of projects, and will be better prepared to reject or and respond to what might be disturbing to these projects. The more control that is gained this way, the less vulnerable the planned action is; the more control there is, the less contingency is allowed to upset the actor's plans. Therefore, prior to any of the actor's specific objectives is the general and overriding aim of achieving control, so that the actor will have enough maneuvering space for his action while, at the same time, he seeks to block and/or narrow down the range of options that are open to other actors. Hence the centrality of control to social agency.
MODES OF CONTROL

Since control efforts can be carried out through different means, the question of how control is sought and obtained is multi-dimensional. The means can take on various forms, and may combine and overlap in numerous ways. Sometimes these control efforts aim to create clear interaction environments and unambiguous decision-making situations. At other times, actors may use an opposite strategy and, as White (1992a: 10) puts it, “seek control ... from weaving a maze of uncoordinated and changing contexts around others.” Basically, however, control is a matter of tie management, and tactfulness in handling one’s relationships is fundamental to control attempts. The particular forms that this tie management takes vary considerably, depending on the types of ties and their specific circumstances. Since this is so variable it is unlikely that one can discover the particular disguises in which control strategies may occur. But, some general types of control strategy can be identified.

Among the possible options, there are control efforts that derive from or build on the “interpretative ambiguity” (White 1992a: 112) of relationships. It has already been mentioned that an actor may seek control through attempts that he makes to alter the contents and conditions of his relationships according to his preferences. Although the utility of this strategy varies depending on the context, it

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9 *Tie management* is not an ideal term since it fails to indicate explicitly the manipulative element in control, but it comes close enough to what White means. An alternative would be *gaming*, which White (1992a: 112) mentions as the “current idiom for interacting manipulations.”

10 White (1992a: 103) makes a “subtle and elusive” distinction between two types of uncertainty: “between uncertainty in cultural and uncertainty in social contexts,” and uses the terms “cultural ambiguity” and “social ambage” for these two types respectively. In White’s (1992a: 103) own words, “analysis of uncertainty in cultural context comes first by itself. An apt term for cultural uncertainty is ambiguity. Then comes contrast with the social form, ambage, followed by a calculus of trade-offs influenced by ecological contingencies.” White fails to offer clear definitions of these two types of uncertainty but it is quite clear that these can, and often are, means of control used by actors. Or, as he (1992a: 112) puts it, “gaming finds ready, requires and resupplies ambage, ambiguity, and contingency, all three of which are its raw material, its medium and product.” For use of ambage in control efforts see below.
can be found even in cases of contracted relationships, such as employment, where the terms and conditions can be highly specified and formalized. The main concern in such a strategy, however, is to keep the tie ambiguous enough to preserve its flexibility. Control in a relationship can be sought by keeping it undefined and, thus, liable to various meanings and interpretations. By avoiding clear-cut descriptions, a relationship can be kept open to redefinition, i.e. it is held in such an indeterminate state that it can lend itself to alternative definitions, and thus adjust to the variations of the circumstances. In this way, the flexibility of the tie can be preserved and predictability can be suspended. In consequence, purposes and standings can be kept unclear, full commitments can be escaped and, thereby, room for maneuvering can be created. By being ambivalent and ambiguous at

11 It should be noted, however, that the usefulness of this strategy varies. Although with regard to their conditions and terms, modern social relationships are much more flexible than traditional bonds, it would be a grave mistake to conceive of modern societies as contexts where there is no normative order, in which all social relationships can be manipulated at will. Rather, modern societies are somewhere between full institutionalization and total anomie, so that, as Talcott Parsons (1960: 39) argues, “the institutionalization of [any] set of role-expectations and corresponding sanctions is clearly a matter of degree. This degree is a function of two sets of variable; on the one hand those affecting the actual sharedness of the value-orientation patterns, on the other, those determining the motivational orientation or commitment to the fulfillment of the relevant expectations.” On one of the few occasions that White addresses the issue he seems to mean that cultural conventions are normally resistant to change and independent of the specific interpretations that actors tend to make of them according to their purposes and conditions. This resistance and independence is possible because these conventions are often generally formulated, so that they can be applied across various social situations. And it is precisely this general character of conventions that makes possible the “fuzz in the rules of perception and interpretation” (White 1992a: 107). Translated into a more common language, it is this general character of conventions that makes it possible for actors to manipulate them according to circumstances. In White’s (1992a: 106) own words, “the conventions actually used by actors, which may vary arbitrarily as gauged by the social mechanics going on, can be expected to be resistant to change. These conventions are not mere matters of perception. Exactly because a convention, as set of stories, fits any situation very loosely, it is not subject to refutation by ongoing observation. Ambiguity can be measured as the spread in stories within such a convention. Pressures for change of conventions will come as by-products of efforts at control.”
any particular instant and in any tangible action, these ties are pregnant with many possible unfoldings.12

Another, less straightforward way of seeking control is what White (1992a: 111-112) calls “social maneuver” or “social ambage.” The latter term seems to refer to the pursuit and exercise of control in an indirect manner. It appears to designate an actor’s control efforts in which he uses his indirect ties to influence some other actor. To employ such a strategy, in other words, means that the actor seeks to influence his target through the chain of ties that indirectly connect them, starting from the actor’s closest neighbor, then going through one or several other nodes in-between, and finally leading to the target node. Actor A, for instance, can try to change the target actor B’s perceptions and preferences about any matter indirectly, i.e. through one or several middlemen (C, D, E, etc.), who appear to have greater influence on B, than A himself has. History abounds with examples of attempts to influence the king’s decision indirectly, through his wife, mother and so on.

Such a strategy requires the actor’s familiarity with the social landscape so that he can identify and choose among various routes in the network context, to reach the target of the actor’s control effort. This strategy also involves the mobilization of the nodes along the particular network routes that are chosen according to the purpose at hand. Whereas interpretative ambiguity involves manipulation of cultural conventions, ambage is purely social. As White puts it, “ambage is especially associated with the connection between

12 White (1992a: 85) names this kind of relationship “Leifer ties,” named after Eric Leifer, a student of White at Harvard, who in the early 1980s wrote his doctoral dissertation, Robust Action: The Joint Determination of Outcomes in Social Relationships. White conceives of this type of ties as sites of ongoing strategies of the connected nodes, aimed at sustaining the ambiguity of the relationship and avoiding clarity in its definition and conditions. Drawing on Leifer’s example of chess playing, White (1992a: 85) maintains, “Leifer’s fundamental point is that unending gaming and speculation is a constituent of any tie significant to both its actors and to onlookers.” He then continues, ”it is exactly from this transparent example that it becomes evident that clear goals are antithetical to establishing identities. Robust action is just that which permits gaming and speculation to continue, which prevents anyone from seeing clearly an outcome that would end the tie. Ongoing relations lack the sharpness of a conceded game.”
identities and networks’ (1992a: 111) and it “concerns the concrete world of social ties, in networks of ties and corporates among nodes” (1992a: 107). What is at issue is precisely the actor’s mobilization of his ties, especially the dormant ones, i.e. ties that weakly and/or in a slack way connect the actor to others, without demanding any considerable amount of the actor’s attention and/or other resources.

Furthermore, social ambage appears to be a control strategy that builds on indirect ties, and it reveals the importance of these ties for social action. Indirect ties enlarge the actor’s sphere of control beyond his immediate environment. They can be made to function as canals that diffuse the actor’s influence. Chains made up of the actor’s indirect, efficient ties can therefore be seen as his prolonged arm, a means by which his influence and capacity to make a difference is reinforced and made more penetrating.

The degree of an actor’s success with this strategy, and thus with his control efforts, depends on the number, spread and diversity of his indirect ties, as well as his skills or abilities to mobilize these ties. Therefore, expanding one’s network with ties that have the potential of being mobilized seems to be an important element of competent social agency. Filling vacant positions in a formal organization with loyal people, for instance, is a well-known phenomenon; and as cases of rising leaders clearly demonstrate, indirect ties of loyalty are of crucial significance for the build-up of any chain of command in informal networks of power.13

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13 Some of White’s ideas about control through ambage are similar to those found in the social capital perspective, developed by James Coleman and others. As put forth by one of the key representatives of this perspective, Nan Lin (2001: 19) social “capital is seen as a social asset by virtues of actors’ connections and access to resources in the network or group of which they are members.” Appearing in various forms across different contexts, it is a form of capital that, as Lin (2001: xi) puts it, is “ingrained in social relations and facilitated or constrained by them.” In other words, it is a kind of capital that, unlike other ones, resides not with the individual actor himself but with others and that is available to the actor only through his relationships: hence, its definition in terms of resources embedded in social networks and structures. Crucial for achieving goals in purposive actions, these embedded resources can be accessed and/or mobilized only when they have been identified and localized by the actor. That is, such resources can be capitalized only when direct and/or indirect ties are established between the actor and those who occupy significant structural positions and/or strategic network locations. Yet, despite the obvious merits of this approach, it has some important shortcomings, most of them stemming from the uncritical borrowing
Key Concepts

Purely social, ambage concerns the skills in connectivity. It reflects one’s ability to maneuver in the maze of relationships. It requires the ability to see and use social ties as canals that lead to resources ‘out there’ embedded in networks -resources that can be used to enhance the outcomes and effects of purposive actions. In other words, ambage requires the ability to regard social relationships as opportunities, as doors that lead to resources that are otherwise inaccessible to the actor. It also requires the actor to know practically which routes of connections and chains of ties to take, which levers to use and which bottoms to press, in order to handle and bend the objective realities of social life, and to make a difference.

Finally, de-coupling is a general control strategy, which is “basic to networks” (White 1992a: 112) and which occupies a central place in White’s account. According to White (2002a: 211), “de-coupling concerns dependencies. Dependencies express themselves in ties.” But, whereas coupling or connectivity is rather obvious and can be “traced in strings of ties” (White 1992a: 112), de-coupling implies the absence of connectivity. More exactly, de-coupling concern the ways in which actors actively and consciously avoid undesired connections and dependencies. To de-couple means to buffer one’s action from the actions of others by removing or loosening the constraints that are put by others on one’s own action. As a result, it permits the coexistence of various, distinct courses of action. In other words, the term refers to a common form of control-seeking that cuts off a relationship and/or keeps out anything undesirable in the flow that it transfers. Among many other things, de-coupling can mean resisting the establishment of relationships that are assumed to generate irrelevant and thus disturbing expectations and obligations. Referring to production markets, for instance, White’s (1990a: 88) defines de-coupling as follows:

of the mechanic notion of ties and networks that is adopted in the conventional social network approach. It seems to be with this in mind that White (1990b: 787) criticizes James Coleman for reducing social capital to reified “stocks” that can be possessed and accumulated as if they were tangible material objects.

14 In White’s (1992a: 112) words, “de-coupling is the phenomenological face of what the calculus among ambage and ambiguity and contingency asserts analytically.”
in this context, ‘de-coupling’ means that in order to achieve a certain production [i.e. a product of certain quality], you simply have to chop off some causal chains. You have to somehow simplify them, to dissolve their impetus through people’s perceptions. If you look at the origin of present-day production, you’ll find that it has in my terminology ‘de-coupled’ itself from a series of kinship and political phenomena. This has been pointed out in several studies, ... Many people have made this observation, and I am just using the terminology of ‘de-coupling’ to emphasize that it is not just a passive phenomenon—it’s an action. People must deliberately de-couple in order to achieve some of their ends. ... But I shouldn’t be saying that people do this to achieve their ‘ends,’ because these are more a by-products than a cause, ... The question is one of achieving a kind of control (italics in text).

Many familiar social roles involve this kind of de-coupling, whose objective is the purity of role performances. A psychologist’s efforts to keep a professional distance to his patients, for instance, illustrates how de-coupling can be intended to prevent irrelevant and ‘improper’ ties from ever occurring. De-coupling can also mean rolling back a tie temporarily or permanently, and it can be done entirely or partially. At time, the main tie and the whole set of indirect ties that come along with it can be aborted, as in a divorce or a resignation. Alternatively, de-coupling can be done through splitting up a multiplex relationship into several distinct fractions, with the intention of preserving some, while dismissing others. The general point is that de-coupling can underpin control attempts that aim to diminish the types of perceptions, sentiments, expectations etc. that demand the actor’s attention and commitment in ways which are not desirable or acceptable to him. Above all, it can be used by the actor to guard himself against various control strategies of others, and to
loosen the constraints that these control efforts may put on the actor.\textsuperscript{15}

De-coupling can thus be employed, as White puts is, to “buffer one chain of actions from another” (1992a: 112) and to “restart the social clock” (1992a: 78), setting the scene for what White calls \textit{fresh action}. More concretely, cutting off some ties and replacing them with others means changing the constellation of direct and indirect relationships that make up the actor’s social territory. An immediate consequence of an actor’s de-couplings is the changes in his topological position. Alterations of this kind are often the driving force behind an actor’s calculated, strategic moves. Such moves may take the form of changes in the actor’s group affiliations. An actor’s voluntary changes of partner, occupation, working place and/or neighborhood are some obvious examples. Many other examples can be mentioned from other sites of sociability, like the move from one political and/or religious organization to another, or moves among different leisure activity groups.

One aspect of de-coupling that requires particular attention is its role in providing the actor with action opportunities and potentials. Some of these are well known from conventional social network currents. Being a member of a social network often means

\textsuperscript{15} The essence of control through de-coupling can be seen most clearly in White’s example from the world of formal organizations, namely that of a military drill and its clear-cut approach to seek control by cutting off what is irrelevant or distracting. He (1992a: 10) writes, “the military drill is but one model of control, a model which subjects to caricature the preconditions and steps for control. In a drill persons are induced to move in parallel within a small group which is both literally and metaphorically cut off from other social relations for a time.” Other examples can be found in almost any modern formal organization, military or otherwise. As Weber made clear long ago, the core of the rational bureaucracy adopted by such an organization is to preserve its professional purity. Such an organization seeks to create a stable and predictable environment for decision making by excluding arbitrariness and by safeguarding against irrelevant influences, both from within or outside. This however does not necessarily mean that bureaucratically designed organizations are free from uncertainties. On the contrary, as James Thompson (1967: 159) puts it, “uncertainty appears as the fundamental problem for complex organizations, and coping with uncertainty, as the essence of the administrative process. Just as complete uncertainty and randomness is the antithesis of purpose and organization, complete certainty is a figment of the imaginations; but the tighter the norms of rationality, the more energy the organization will devote to moving towards certainty.”
being able to influence the flows that run through that network. As a node, the actor can exercise some degree of control over the flows that pass through him, depending on his position within that network. He can function both as a coupler and a buffer, i.e. he can let the flows run through, but he can also stop them, temporarily or permanently. The actor can also try to reroute these flows, sending them to other, more preferable directions. Alternatively, he can seek to modify these flows, that is, to weaken or reinforce their content and/or to slow them down or speed them up. Action potentials of this type increase in accordance with the number of direct ties that the actor has. These potentials also depend on the array of indirect routes that are available to the actor. Even more interesting is his potential for agency as a measure of his multiple embeddedness. By virtue of his intersection positioning, each actor connects a unique set of distinct networks through himself. This puts him in charge of the connections among these networks. That is, the actor is empowered to decide either to permit or prevent resources, actions and events from one network to run through him, and to spill over into another. This capacity of the actor becomes particularly significant when paths of causal processes across distinct networks are considered.

**CONTROL AND AGENCY**

Where do all these observations and ideas about control efforts and strategies lead us? Most fundamentally, these observations offer good reasons to reconsider the notion of social relationship. Rather than being a simple and stable link between two nodes or a static and neutral path or canal of resources, any social tie should be viewed as a site of mutual, counter-balancing control efforts. It should be seen as a locus of the ongoing dynamic control processes that are launched by its participants. Any social relationship should, in other words, be viewed, as a battlefield where the participants struggle ceaselessly for control and mutual constraint, and where each participant gives his account of such struggles in the form of stories, which draw on familiar cultural notions and principles.

As such, a social tie should be seen and conceptualized as both the locus and medium of control. By the same token, any social
relationship can also be seen as a means of agency. It is where agency takes place, where the actors can pursue their planned actions through competent management of their ties. Through their ties, the actors can, when needed, try to mobilize more remotely located resources, of course. But above all, they can try to fulfill their wishes and materialize their preferences by getting others to do as they want them to. Referring to management in formal networks, White (1992c: 92) writes,

agency is the root of management process. To manage is to make use of ties. To gain and maintain control requires attending to networks of ties. ... Influences and acts among actors run through ties, and how they cumulate into significant actions is heavily influenced by shape and connectivity in the networks of those ties. Seeking, or observing effective control thus requires making use of and understanding how networks operate, and how a network both is shaped and can be further shaped through very actions on which it impacts.

Furthermore, according to this account, social ties are not at all static; they are not, as White (1992a: 67) puts it, “once-and-for-all objective interconnections among fixed identities [i.e. social actors].” Rather, social relationships are dynamic, intersubjective constructions that are “socially constructed” (1992a: 91) and that emerge out of complicated, ongoing interactive processes among the actors. In White’s (1992a: 67) view, social ties are conceived best as vivid “portrayals of connections.” Nor should networks be seen as static configurations of ties, which are given once and for all. Rather than treating them as fixed and finalized constructions, networks should be seen as dynamic contexts that keep being constructed and re-constructed, as their constituent elements do so. One should not lose sight of the dynamics involved and reduce social networks to “sheer connectivities” or “mere juxtapositions of ties” (White 1992a: 79 and 93. See also 1993a: 104).\textsuperscript{16}

\textsuperscript{16} As mentioned in the previous chapter, White has gradually grown critical of the social
On the whole, these observations also lead us to see the embedding social networks as both constraining and enabling contexts of action. As mentioned above, the actor’s embeddedness in multiple networks means that he is subjected to the erratic bombardments of a unique set of heterogeneous constraining forces that originate in distinct fields of the social landscape. These bombarding forces take the form of diverse, and sometimes even incompatible, bundles of expectations, demands, claims, etc. that pour down on the actor and shape his behavior in different ways. Diverse and heterogeneous as these constraining forces are, they tie the actor down through different, and perhaps even conflicting, commitments of varying intensity and durability.

On the other hand, one could also see these forces in a different light. It can be seen that the source of these forces is nothing but the control efforts of others, to whom the actor is connected through various ties. The actor’s embedding context, in other words, is an environment in which many other actors, if not all, also seek control. This context is best characterized as a force field, in which actors launch contesting control projects. These projects may never come to a resolution, or they may counter-balance and cancel one another out, as in a symmetric single pair-tie. It also becomes a network approach as it is conceptualized and applied by its practitioners. He (1992a: 65, footnote 1) even seems hesitant to use the term ‘network’ because this term, in his view, “does have misleading overtones of nodes being monads and of ties as lines in physical space with Cartesian dimensionality.” He also adds that he nonetheless keeps the terms “because of its familiarity” (see also White 1995c: 64; 1992a: 206-207; and 1997a: 66). The core of this criticism, however, concerns the omission of control and, thus, the neglect of the characteristic and essential dynamic properties of networks by most people who identify with this tradition. Because of such shortcomings, as White (1992a: 65) puts it, “until now, network constructs have lain undigested, increasingly indispensable for phenomenological insights … but inert theoretically. Theorizing social networks requires grounding ties in social molecules and then analyzing them in terms of dynamics of control, while recognizing influences from larger contexts.” In White’s (1992a: 93) view, as long as the control dynamics inherent in the social ties are neglected and, as long as networks are “stripped-down to sheer physical connectivities,” even apparently uncomplicated network “processes … of diffusion, much less of manipulations for control, cannot be described properly.” Therefore, he (1992a: 79) calls for a more proper treatment and a “much more subtle” view of social networks, which takes into accounts the control dynamics and which abandons conceptualizing networks as “mere juxtapositions of ties.”
context in which some of these control efforts can accumulate into a sequence of asymmetric relationships, as in a chain of command. The embedding context, however, is essentially a site of continuous mutual control efforts, where one actor’s attempt to gain and/increase his control becomes a constraining force on others; and it is the control efforts of the former that materialize into the erratic bombardments of the constraining forces with which the latter has to cope.\textsuperscript{17}

No matter how constraining this environment may be, however, it is also an enabling context. As shown above, it offers the actor an array of action opportunities, i.e. an array of potentials that the actor can actualize to gain and/or expand his control as well as to resist and/or counter the control efforts of other actors. The context of multiple networks in which the actor is embedded, in other words, puts at the actor’s disposal a whole set of control strategies and options that, if used skillfully, can empower him to alter his social territory considerably. For the reasons just mentioned, the scope of such a power may be, and often is, limited to the actor’s immediate environment. Nonetheless, multiple embeddedness empowers the actor to change the nature, strength and composition of the forces that constrain him. This is often what matters most in enabling the actor to alter what constitutes the premises of his action. White (1999a: 1-2) expresses this dual character of the embedding context as follows:

social network means ‘ties’ which warrant and explicate other, further ties. Some of these warranties will

\textsuperscript{17} This image of social context is very similar to, and can be seen as a network version of what Herbert Blumer (1969) envisions as the proper “root image” of the empirical social world. This empirical social world, with which the sociology should be concerned, is, in his (1969: 35) view, a world, which “embraces the large variety of relations between the participants” and which “covers the large complexes of interlaced activities that grow up as the actions of some spread out to affect the actions of others.” Above all, it is a world where these activities are interdependent in the sense that actors’ individual lines of actions must fit one another. Or as Blumer (1969: 20) puts it, it is a world where the “participants are developing [their own] lines of action in the multitude of situations they encounter” and where these participants “are caught up in a vast process of interaction in which they have to fit their developing actions to one another.”
materialize. So social network is process-interpretive process as well as structure. ... Embedding does tie down and constrain, but it also contradicts itself since socio-cultural processes in networks reproduce themselves in choices, that is, in acts of agency. Because humans are symbolizing, interpreting, remembering, and commitment-making creatures, social interaction creates and transforms contingent ties among individuals. But the existence of such ties, with their interpretive baggage, channels, constrains, facilitates, and even generates further social interaction. Hence, agency creates structure and structure creates agency.

Another point to be noticed regards the essence of social agency. White views the need and pursuit of control, i.e. the actor's efforts to reduce uncertainty and bring stability into his social environment, as fundamental to social action. Seeking control seems, in White's view, to be the overriding driving force that motivates the actor's social action and the overall objective from which the actor's interests derive. Put differently, any form of end-means rationality necessarily calls for control. With specific goals and objectives being so changeable, what is universally fundamental to social action is to gain and secure control, so that any planned action can survive contingencies and intended outcomes can be secured. It is with this in mind that White (1992a: 4), informs the reader in the first pages of *Identity and Control* that "the real riddle [for his theory to solve] will be seeing how it is that anyone can effect action by intention in social context."

Hardly a surprise, this emphasis on control as the essence of social action is a logical consequence of the particular image of social reality that White adopts, i.e. the image of social reality as a context where contingencies and uncertainties are everywhere, making the need and pursuit of control overwhelmingly urgent. Yet, by no means does seeking control imply rigidity. On the contrary, "since control is both anticipation of and response to eruptions in environing process" (White 1992a: 9), control efforts "consist in unpredictable action"
(White 1992a: 236) and are necessarily bound up with improvisation in the midst of chaos and contingency.\textsuperscript{18}

From White's particular view of the context of social action also implies that competent agency requires the elaboration of as robust a strategy as possible. In every interaction situation, the competent social actor aims primarily at working out and adopting what is perceived as the most sustainable strategy. Given all the uncertainties, ambiguities and complexities in the environment, which come from all the other actors' control efforts, this strategy needs to be robust. It has to be resistant to the uncertainties involved in the situation and flexible enough to be operative, despite possible changes in the environment. In other words, it has to provide the actor with the maximum possible preparation to face however events unfold and whatever outcomes these may bring along or lead to.

**IDENTITY**

It is now time to turn to the other main concept in White's theoretical construction, namely, *identity*. It should immediately be pointed out that, in White's usage, identity has a particular meaning that is very different from what is commonly meant by this term. He uses identity to designate any source of meaningful and purposeful action. Or as he puts it, identity is any source of "original and unpredictable action by intention" (1992a: 67, footnote 4), "any source of action [which is] not explicable from biophysical regularities, and to which observers can attribute meaning" (1992a: 6, see also 1992a: 236). The term thus designates any kind of social actor at any level and of any composition, be it an individual person, a group, an organization, a state, or even a city.\textsuperscript{19}

\textsuperscript{18} According to White (1992a: 237), "control is endemic at all scopes and levels, yet it can be unpredictable because it emerges out of identities which are by-products of irregularities and mismatches."

\textsuperscript{19} In White's words, "identity here does not mean the common-sense notion of self, nor does it mean presupposing consciousness and integration or presupposing personality. Rather, identity is any source of action not explicable from biological regularities, and to which observers can attribute meaning. An employer, a community, a crowd, oneself, all may be identities" (1992a: 6); or "persons are neither the first nor
However, identity is a concept that is also closely tied to the notion of control. The former is defined in terms of the latter because identity comes from and is bound up with control in a substantive way. More specifically, identity is a property of the social actor that emerges out of, and is a by-product of the control efforts that the actor undertakes to deal with uncertainties and contingencies in his environment. In White’s own words, “every identity is engaged in control efforts” (1992a: 12) and “is triggered by some contingency and strives for control over all the uncertainties that impact it” (1992a: 22). Emerging out of chaos and contingencies, to have an identity means to be able to exercise some effective control, over its own and others’ perceptions and behavior. Or as White (1992a: 16) puts it, “once triggered, identities seek control and continue to seek it, first here and then there, while several other identities in contact with any given identity are doing the same.”

In other words, the concept of identity captures the specific behavior profile that is particular to an actor and that grows out of his attempts to handle the unique and erratic bombardments to which he is subjected. It refers to the certain fashion and style that the actor develops to handle these bombardments and create some regularity. As mentioned above, any actor located at the intersection of multiple

the only form in which identity appear” (1992a: 8). On another occasion White (1992a: 67, footnote 4) holds that he uses “the term ‘identity’ when what is at issue is original and unpredictable action by intention—and in particular and especially, gaming. An identity may be short- or long-lived; neither it nor the bracket term, actor, is restricted to a person.” And on yet another place White (1993a: 47) maintains, “identities can be of persons, even of the artist himself or herself, or of various corporate groups, on up through nations.”

Many other similar statements can be found in Identity and Control. In Chapter One, for instance, White (1992a: 5) opens a section called “Identities from Contingencies” by holding, “a central claim of the theory is that identities are triggered by contingencies;” and he (1992a: 6) continues, “contingencies and [control] contentions produce identities.” In other places in the book White maintains that an identity emerges “out of overlapping efforts of many at control [that] constantly negotiate uneasily and endlessly” (1992a: xi) or, “identity is produced by contingency to which it responds as intervention in possible processes to come” (1992a: 9), and ”chaos and accident are the sources and bases for identities, and it is identities, seeking control, which give energy to practical activity in social context” (1992a: 4).
networks needs to elaborate a scheme to use in coping with these bombardments. The actor is more or less forced to work out a *priority assignment scheme* that helps him to distinguish and judge the relative relevance and significance of the flows that pour down on him. In that, such a scheme is a frame of action, which helps the actor to bring some order into what otherwise is chaotic. Such a scheme helps the actor to conduct the business of everyday life with some degree of orderliness, as it provides him with some general principles of how to deal with network flows, just as lists help us to channel, constrain and organize the flow of daily tasks and gadgets so that these are brought into some sort of manageable sequence.

The following can be added to this. To the extent that the actor develops such a scheme and deploys it with some persistence to seek effective control over network flows, he develops an identity. That is, from any sustained use of such a scheme the actor develops a certain behavior profile or a particular individual style of reacting to the flows of network ties. In other words, an identity emerges when and to the extent the actor manages to develop and use a relatively stable mode and amount of control upon what is going on around him. To the extent he manages to do so persistently, he develops a distinguishing and characteristic behavioral profile that is stable and reoccurring enough to make him predictable to, and recognizable by others. By virtue of doing so, he thus becomes an identifiable actor or an identity.\(^2\)

\(^2\) In an article from 1995, “Social Networks Can Resolve Actor Paradoxes in Economics and in Psychology,” White touches briefly on this topic. In this work White (1995a: 63) departs from Gordon Allport’s (1937) formulation of the *trait theory of personality* that “insisted that individual distinctiveness consisted in exhibiting traits of response that were stable across time and context.” Finding this theory unsatisfactory, White suggests a network rearticulation of it, drawing on some empirical fieldwork done by Walter Mischel and associates on a number of children and counselors in a summer camp. According to White (1995a: 64-65), “Mischel and colleagues uncovered distinctive profiles, distributions of behavior across [a limited number of] situations: if situation A, then [a boy with a particular set of traits] does X, but if situation B then he does Y, and so on, in contrast with another profile which discriminates another sort of boy. These profiles proved stable over time, as well as across distinct conventional settings, such as woodworking, games, cabin meeting.” White then continues, “put in my terms, [the authors'] central conclusion is that it is these profiles of discriminative behavioral reactions according to type of tie that should be seen characterizing personality” (italics in text).
Many interesting insights can be derived from this notion of identity. The one that is the most relevant for this presentation has to do with the conditions that are necessary for the emergence of an identity. As White repeatedly asserts, embeddedness at the cross-point of several distinct and heterogeneous networks is a necessary prerequisite for the construction of an identity. In his (1992a: 76) view, "identities emerge out of turbulences in social process." That is, identities "are generated out of contingency and mismatch" (1992a: 29); they "emerge out of contingent ties and mismatches of distinct networks" (1992a: 7 and 79) and come from "frictions and errors across different social settings" (1993a: 49). The reason seems to be as follows. It is only by being embedded at the intersection of several distinct networks that the actor becomes subjected to, and faces the challenge of dealing with, multiple heterogeneous constraints and all the possible combinations and clashes among these. It is only by being located at the converging point of several distinct network flows that the actor is forced to, and enabled to, deal with the inevitable mismatches among heterogeneous bundles of perception, expectations, claims etc.

These mismatches result from the actor's failure to meet fully and perfectly the continued flows of the various and conflicting expectations and obligations that come from so many distinct spheres. The more divergent these embedding networks, the more heterogeneous the pertinent constraining forces; the larger the entailing mismatches among the expectations, the stronger the pursuit of control and the development of a control scheme is more urgent. Since each constraining force requires the actor to behave in one way rather than another, the actor needs to gain some effective control over these forces; the more he can create a space for his own action and secure its independence, the greater probability he also will become a source of creative actions and original responses to these forces, i.e. the greater probability he has to become an identity. That such multiple embedding and subsequent mismatches are essential to-and indeed necessary for- the formation of an identity, is illustrated by White's (1992a: 7) example of children who face heterogeneous constraints as they move across various settings:
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Likely or not, for a given child ... one identity first [is] triggered from playground contingencies, and others from mismatches between home and school. This may occur, for example, when a kind of food newly enjoyed at school with peers is rejected by parents when the child goes home. Or it may occur when the clothes that classmates insist upon, as their badge of belonging, are disdained at home and purchase resisted. An identity comes out of diametrically competing energies, synthesizing many disparate bites, as when the child becomes the weird dresser in the family’s eyes, or conversely, the nerd in classmates’ eyes.

And some pages further White (1992a: 69) continues the example in the following way:

It is conflicts and inconsistencies in which a child finds itself caught up that start generating identity. It is not repetitive family life, and not playing with the same bunch, but rather clashing lines of descent, arguable residence rules, tainted ethnic assignments, and the like, it is these that cause, and work from, identities in adult and children.22

22 In a footnote White (1992a: 7) refers to Harold Garfinkel’s classical work, Studies in Ethnomethodology from 1967, and asserts, “this is a generalization of Garfinkel’s problem.” Although White does not specify exactly what he has in mind, it seems that he is referring to one of the main ideas of the ethnomethodological tradition, namely the notion known as the permeability of realities. According to this notion, people normally live within a variety of social worlds and move constantly from one to another. This moving across and between various social settings can, and often do, give rise to mismatches, so that behaviors that are acceptable in one setting may be objectionable in another. Referring to this issue as “the central fact of social organization,” White (1993a: 49) holds, “each human is in more than one social molecule. That is, each of us continues in several different roles that cross distinct realms, such as family and village and job and secret society, so that our actions and thence our selves crosscut these realms. Even as children, we mix with different groups while intermixing our living in different realms. And as adults we do not often try to include all these realms in any one narrative we call career. There need be nothing unusual or esoteric in this ... sense of identity. Consider a homely example. A child on
The same view underlies White’s (1992a: 8) assertion that ‘individual as person’ is a phenomenon that is “late historically” and can emerge only in modern contexts. Although White’s account of the issue is very fragmented, there are strong enough leads to indicate the main point: the conflicts of expectations and the inconsistencies of constraints make possible the individuation of the actor—a point perceived already by Durkheim. As in the case of traditional societies, whenever the decisive majority of these expectations and constraints stem from a single dominant encompassing culture, they tend to generate expectations and demands that are generally homogeneous. In such cases, expectations and constraints are usually not incompatible and disagreeable enough to produce pressing mismatches, which, like in modern settings, pull the actor apart. Moreover, too much compatibility of the compelling, constraining forces tends to undermine the uniqueness of the bombardment to which the actor is subjected. Therefore, the individual actor has a much less urgent need to elaborate an individual set of standards to determine the relative relevance and significance of the expectations, demands and claims that make up this bombardment.

As mentioned at the beginning of this chapter, it is a recognized fact of life that in modern social contexts people often take on a number of roles. One well known implication is the heterogeneity and even incompatibility of the typical expectations and behavior patterns that are attached to each of these roles. Another is the particular kind of skills that the actor is required to develop, which can ease the actor’s constant moves across and shifts between these roles, and which can help him to handle any friction or misfitting that may occur.23 However, what is of particular interest is White’s translation

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23 Yet another well known implication of this basic fact of modern life is the fragmented character of the actor’s ‘self,’ which becomes increasingly divided as the actor takes on several roles. Locating the causes of the individual’s diversity of roles in the fact that he belongs to a plurality of organized groups, Pitirim Sorokin (1947: 349), for instance, maintains, "man is indeed a creature of several different empirical roles. Their difference manifests itself introspectively and behavioralistically, in man’s mentality as well as his overt
of these familiar insights into a network language and the further, novel developments that he pursues. The main point here is the primacy that White ascribes to the embedding context in the development of an identity. That is, according to White, the network flows are decisive in the formation of any identity. An identity is molded and keeps being remolded through the constraints to which it is subjected or, in brief, the construction of any identity is dependent on the shaping forces of the network ties.

Let us try to unpack this. As mentioned above, an identity comes from and is bound up with control. It emerges as a by-product as the actor develops a relatively persistent mode of seeking and gaining control over the network flows that bombard him. An identity comes, in other words, from the ability and actual practice of the actor to maintain a particular individual style of reacting to these flows. Having an identity means that the actor conforms to and tries to fulfill a certain, stable collection of expectations, allowing these shape his behaviors, while rejecting and dismissing others. A manifest aspect of having an identity, therefore, is the development of a stable behavioral profile and the subsequent predictability of the actor’s behavior.

Given the unique and contingent character of the heterogeneous constraints to which the actor is subjected, the identity that emerges is necessarily unique and contingent. The unique and contingent character of any given identity comes from the unique topological position that the actor occupies, from the unique set of heterogeneous and contingently shaped constraints to which the actor is subjected and to which he must respond. Moreover, emerging out
of a unique set of heterogeneous and contingent constraining forces, any given identity is an untidy and uneasy construction; it is, as Charles Tilly (1993: 307) puts it, “perilous, mobile, negotiated and constructed.” Although an identity may be designed more or less consciously, it is hardly ever fully realized. It continues to be subjected to the random interplays of heterogeneous constraints.

Behind the veneer of normality that is often put on display and built into the self-presenting accounts on offer, identities are constantly jumbled by the ceaseless interactions of conflicting constraints. Therefore, although an identity may appear to others as unproblematic, it needs constant maintenance, adjustment and reconstruction; and in doing so, it may “succeed or not, and now rather than then” (White 1992a: 14). Furthermore, as its control strategies become subtler, an identity keeps changing and continuously grows more complex. This ever-evolving character of identity is referred to by White when he writes, “each identity continues discovering and reshaping itself in action” (1992a: 9); it keeps reconstructing itself “out of prior, simpler identities” (1992a: 5) and “is fleshed out over time” (1993a: 47).

Several points follow from the importance that White ascribes to the cross-cutting network flows of expectations and claims as a necessary condition for identity formation. First, the uniqueness, contingency and heterogeneity of the constraints that are involved in the formation or construction of an identity count for its individuation and singularity as well as its fragile, changeable and untidy character.24 Singular and contingent, an identity can remain stable and resemble other identities only under particular circumstances. In specifying these particular circumstances, network flows and forces are once again central. The stability of an identity is dependent on the resonance of the constraining forces to which it is

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24 This can be seen as a network translation of the familiar ideas about the rise of the individual as a phenomenon that occurs under particular social circumstances that exist only in modern social settings. This is a very interesting issue that deserves a lot more attention than what space allows for here. It can be mentioned briefly that while White never elaborates on the issue, the notion of identity as unique and contingent outcome of networks offers a promising point of departure for a plausible account of the individuation process, conceptualized in concrete network terms.
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subjected. Equally, the similarity of identities, i.e. observable similarities in their behavioral profiles reflects or rather is caused by the similarities of these forces.

These two points are closely related to each other and constitute the core of White's structural analysis: the commonly observed similarities of behavior of social actors stem from the similarities of their topological positions. The latter similarities mean that actors are subjected to similar types of constraints and therefore may show a tendency of developing similar styles of handling these constrains. Similarly positioned, these actors tend to view one another as a comparable peer. Each thus turns to the others within this set of peers to find guidance on action, and tends to develop a behavioral profile that is generally similar to those of the others in the set. As mentioned earlier, any satisfactory exploration of these issues requires some familiarity with some other basic notions in White's sociology like structural equivalence, role structures, and disciplines; these are the topics of the next chapter.
As shown in the previous chapters, White’s attempt to re-ground sociology begins by a novel image of the modern social reality—an image that he develops on the basis of the premises of social network approach. Adopting a particular network image of contemporary societies, White also elaborates a number of concepts that aim to describe and grasp more adequately the essential features of these societies. White’s enterprise does not stop here, however. White’s particular image of modern social contexts leads him to pose new questions and to develop new modes of analysis to answer them.

The central, general question that dominates much of White’s sociology is that of social structure. Within his approach, social structures are conceptualized in network terms, i.e. they are envisioned as local and relatively stable configurations of social relationships that emerge within the fluid and indeterminate contexts of contemporary social settings. In other words, they are viewed as tiny islands of order where the ongoing interactions and relationships have reached a sufficient degree of regularity to be observable. Much of White’s writing works towards the development of an analytical tool for identifying and locating these structures, as well as attempting to account for their emergence and maintenance. Providing answers to such questions is White’s core concern in the particular mode of investigation that he gradually develops, i.e. his network version of structural analysis.
SOCIAL STRUCTURE

Sociology is a science of social order; the discovery, description and explanation of regularities of social life is the heart of the sociological enterprise. Much research and analysis seeks to reveal and explain systematic correlations that are frequently observed between, on the one hand, social actors' perceptions and actions, and on the other hand, their individual attributes and/or standings within social systems. Structural analysis is one of the methodological strategies often used by social scientists to explore and explain these regularities.\(^1\) The core and characteristic feature of this mode of investigation is that it infers a decisive explanatory role from actors' structural position. That is, it aims to account for observed similarities of actors' attitude and behavior in terms of their similar positions within different social structures.

In this regard, White's sociology is undoubtedly structural. He explicitly adheres to the structural mode of analysis and makes use of the common methodological axioms of structural sociology in his search for explanations of social phenomena. In other words, he shares the basic structuralistic view that actors' positions within social structures are of crucial importance for the formation of their perceptions and actions, and that similarities in these perceptions and actions can largely be explained in terms of the similarities of actors' structural conditions. White's preference for structural explanations finds an early expression in his rejection of conventional survey analysis that he feels allots individual attributes like sex, age, etc. too much explanatory value and strength. For instance, he (1968: 3-4)

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1 Social structure is a crucial concept and represents a particular way of thinking about social life. Roughly speaking, social structures can be conceptualized and analyzed in two ways. First, social structure can be conceived of in terms of distributions, whether the distribution of attributes, resources, or positions, etc. Social structure can also be seen as a relatively stable system of relations among various types of real and/or symbolic entities, defined and constructed in various ways. However, the essential quality and perhaps the most distinctive feature of structuralism as a mode of analysis is the explanatory primacy or priority that it gives to wholes or totalities over their constituent parts. The fundamental tenet of this mode of analysis is that the whole and the parts can only be properly explained in terms of the relations that exist between the parts and the complex configurations of relationships that link these elements together and unite them as a whole.
explicitly criticizes most sociology, and indeed the social sciences—particularly as practiced in the United States—for what he calls "voluntaristic individualism," i.e. for building on the assumption that "basic reality is in individuals' values and choices." He regards this kind of "individualistic sociology" as a scientific reformulation of common sense or "simply a restatement of [the] folk sociology" that reflects the kind of assumptions that permeate the common culture.2

As this chapter unfolds it will become clear that, though White's structuralism shares these fundamental postulates, it also has its own, particular features. White’s structural perspective conceptualizes social structures and structural positions in network terms.3 It is also an approach where the aggregation principles that underpin these conceptions of structure and position are defined in terms of actors' relationships. Finally, as this perspective has it, the main forces and mechanisms that uphold social structures and allocate actors to their positions reside in actors' ties. Some of these particularities may appear too well known to be in need of any further treatment. Yet, this is only partly true. It will be shown that a number of theoretically important issues are involved here that still have not

2 Indications of White's structuralist inclination can be found already in his doctoral dissertation. In this study of the various groups of managers in a middle-size firm, White (1960: 30-31) explicitly seeks to prove that similarities of attitudes and sentiments among managers stem from the similarities of their positions, ruling out "background" variables as alternative causal factors. On another occasion White (1968: 3) openly rejects the individualistic mode of analysis for its neglect of structural constraints and asserts that such an approach "becomes a mockery without facing the constraints of social structures. Much better a twig of genuine freedom wrung from a tree of constraints, than an artificial tinsel forest of freedom." Nitin Nohria and Robert Eccles (1992: x) also notice this point and argue that White shares Ronald Burt's view that "the attributes or attitudes of actors contribute little or nothing in explaining their actions. Indeed, these factors lead to spurious causal explanations." Finally, as a reminder of White's persistent structuralism, the subtitle of Identity and Control is A Structural Theory of Social Action.

3 Many recognize the structuralistic character of White's approach. Randall Collins (1983: 327), for instance, credits White and his associates for linking structuralism with social networks, and more recently, Steve Brint (1992) labels White's approach "network structuralism." Some of White's former graduate students even speak of a distinct structuralistic tradition founded by White (see Appendix).
received due attention and remain poorly explored. Let us begin this exploration by examining the notion of social structure envisioned by White.

Any structural mode of analysis requires and presupposes some conception of social structure. It also requires some pertinent principles of classification and partition for clustering and allocating social actors to the various locations and positions identified within the structure. Therefore, no description of White’s structuralism seems particularly fruitful without first considering his underlying notion of structure and his structuring principle. Very early on, White shows his dissatisfaction with common conceptualizations of social structure. He finds many of the existing notions unfit to underpin his structural mode of analysis. In an early work, for instance, White (1967: 17) points to the question of social structure as “the key issue in theory” but he (1976: 11) also finds strong enough reasons to maintain that it is precisely this issue that is “the sore point in sociological theory.” Moreover, although the sociological literature abounds with various conceptions of social structure, White (1970a: 4) points to the “basic conceptual difficulties in theories of social structure,” including the problem of even defining properly the phenomenon in question.4

Typically, White declines to offer a systematic account of his criticism and leaves the matter unexplored. Yet, there are enough leads throughout his work to help the reader to grasp the main point of his criticism. At the most basic level, this criticism reflects, once again, White’s general quest for concretization and specification of social scientific concepts. He unequivocally rejects the theoretical constructions that analysts often tend to elaborate in abstraction, instead of dealing with tangible, empirical social phenomena. In the

4 In his criticism of the existing notions of social structure, White draws explicitly on Siegfried Nadel’s major work The Theory of Social Structure (1957). Reviewing the definitions of social structure in anthropology and sociology, Nadel is puzzled by the fact that, in spite of the various ambitious definitions supporting it, the term is often used in such a lax way. According to him (1957: 2), "in sociology, the concept [of social structure] is mostly used in a broad and almost blanket fashion, referring to any or all features contributing to the make-up of a society: it thus becomes simply a synonym for system, organization, complex pattern, type, and indeed does not fall very short of 'society' as a whole."
same fashion, White dismisses many conventional conceptions of social structure because of their constructed character. This is most clear in his refusal to ascribe scientific value to what he calls the *categorical* notions of social structure. This label refers to common conceptions in which social structure is envisioned as an ensemble of social categories that are constructed by the analyst. These categories are analytical entities invented by the social scientist who uses various attributes to divide and classify social actors. Within a categorical approach, the attributes used in partitioning actors are either derived from abstract theoretical schemes like membership in social classes, status groups, etc. or represent individual properties like age, sex, income, ethnicity, etc. Statistical measures are often used in the construction of these categories and in the underlying systems of classification from which these categories are derived.

This criticism of categorical structures originates in White’s early discussion of various types of *category systems* that underpin the common notions of social structure. White (1965a: 4-5) offers a four-fold typology of these systems, where the first, and most simple kind, is the *ad hoc category system*, i.e. a classification system where actors are partitioned according to whether they “have [the] attribute versus don’t have it.” According to White, this type of system yields “an arbitrary set of categories such that any person in the population belongs to exactly one of them.”

The second type is the *generic category system* where an actor “is located within successively finer subdivisions of an initial large category.” An example is “location of an adult by the industry, company, division and title of his work affiliation.” Finally, there is the *cross-tabulation category system* in which “a person is cross-tabulated by being placed simultaneously within two or more *ad hoc* category systems, each of which covers the entire population.” For instance, “specification [of a person] by sex, age, religion, location, and income is a cross-tabulation.” This category system is often associated with a particular kind of sociological analysis, i.e. survey analysis, in which “the first question one asks of a cross-tabulation is how much dependence it reveals between the category one belongs to in one *ad hoc* system and the category one belongs to in the other.”

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5 *Contextual category system*, the fourth type in White’s typology, will be presented below.
It is relatively easy to see why White, in accordance with his disapproval of survey analysis, dismisses categorical conceptions of social structure. Such conceptions are, in White’s view, constructions based on invalid or flawed classificatory systems that rest on “averages called for by cultural glosses” (1992d: 210) or some other, arbitrarily chosen statistical measures devised by an observer. This type of categorical structure represents social regularities that are perceived through the lens of constructed categories. Rather than representing or corresponding to actual partitions of social actors in reality, the analyst projects these categories upon the social landscape to bring some order into and make sense of it. Furthermore, in accordance with his preference for detailed causal accounts, White finds such categorical conceptions too descriptive and analytically vague. In his view, these conceptions lack the penetrating capacity that is needed for developing specified causal explanations which is at the heart of sociological theorizing.6

In White’s (1967: 1) own words, “theory in sociology, and other social sciences, at present deals most effectively with category concepts: class, values, epochs in evolution, attitudes, locales, ages, sex. It is hard to generate models of causation in such classificatory system, however elaborate.” On another occasion, White et. al. (1976: 732) put forth the claim that “the presently existing, largely categorical descriptions of social structure have no solid theoretical grounding;” and, finally, White (1968: 5) points at “the limitations of [the] descriptions in terms of categories” as one of the reasons for the “undervalued” importance of social structure in sociology.7

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6 In criticizing these notions of structure for being too descriptive, White echoes Siegfried Nadel. The latter (1957: 153) finds this kind of conception to be of little interest to a truly structural mode of analysis, holding “what ... makes structural analysis really informative ... is not the final positional structure at all, but the steps that lead to it. Our gain lies in the application of the appropriate analytical methods, not in gathering together, schematically, the result.”

7 White seems to mean that many of the categories that are used by social scientists are common sense constructions that have been smuggled into the social sciences. These categories are perceptual devices used by ordinary people for perceiving their social world. Though inevitable in our thought, these are rough and clumsy simplifications in practice. Although these categories do serve important functions in everyday life, they
Finding sociology in need of a proper conception of social structure, White undertakes what he calls "a general effort to systematize [his] approach to human social structure" (White & Heil 1976: 26), and sets out to develop an alternative approach that is different from the one based on constructed categories. Given the foundations of White's approach, it seems clear that the outcome of such an effort can be nothing other than a network conception of social structure. Although this may appear self-evident and well known, the issue deserves attention because of some of its implications.

One of the main premises of White's effort is that social structure should be conceptualized in such concrete terms that it becomes tangible and empirically observable. The alternative notion of social structure must, in other words, be as close as possible to the empirical reality that it designates, and it should have sufficient empirical validity. As seen above, this requires the elaboration of a notion of social structure in which actual ongoing relationships, rather than constructed categories, are the building blocks. This alternative notion of social structure must be inferred directly from the actual networks of ties among social actors. It must reflect the existing partitions in social reality, i.e. those durable groupings that are generated through, and are directly observable in, actors' interactions and connections.

This alternative notion of structure must, in other words, represent the actual social categories that appear as the social actors themselves create, sustain or recast their relationships. Therefore, the objective of such an effort is primarily to unearth those categories that are implicit in the context and to reveal the structures that these spontaneous categories make up. In other words, the objective is to identify or "tease out" (White 1992b: 210) the structures that are "given by the interaction of all dyadic relations with empirical referents in the given population" (White 1971b: 2). In view of the inadequacy of the categorical approaches, indeed, "network concepts are not, according to White (1968: 3-4), of much use to the social sciences because "neither insight nor prediction results [from such categorical descriptions], just an endless game of rewriting history in the present framework of categories."
may provide the only way to construct a theory of social structure” (White, et. al. 1976: 732).

White’s sustained effort on this question can be traced back to his writings on kinship structures in the first half of the 1960s. There is a whole line of inquiry in White’s writing devoted to this project; these attest to his persistent effort together with a number of his students and associates like Francois Lorrain, Scott Boorman, Ronald Breiger and Gregory Heil, to provide a remedy for the perceived shortcoming of social theory. As a result of this effort, a network conception of social structure has been developed. The major merit of this new conception is that it no longer has the abstract flavor often associated with the notion of social structure. The new conception is concrete and precise and open to rigorous and sharp scientific inquiry. Its meaning is narrowed down and confined to the system of actual relations of various types among the constituent units.

Thanks to this network reconceptualization, social structure ceases to be anything but the tangible outcome of the configurations of ties among actors in a concrete population; it is something that “exists concretely in a population of so many individuals related in such and such ways” (White & Lorrain 1971: 50). According to this conception, social structure is thus local and dependent on the relational properties of actors within any given, particular context. It is on such a concrete notion of social structure with a sharply restricted connotation that White’s methodological strategy rests—the structural mode of analysis he describes as follows:

Structural analysis focuses upon the patterns of relationships among social actors. This emphasis rests on the often unspoken postulate that these patterns—-independent of the content of the ties—are themselves

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8 Among these works are, of course, ”Structural Equivalence of Individuals in Social Networks” (Lorrain & White, 1971), ”Social Structure from Multiple Networks: Blockmodels of Roles and Positions” (White, Boorman & Breiger, 1976), ”Social Structure from Multiple Networks: Role Structures” (White & Boorman, 1976), and finally, “An Algorithm for Finding Simultaneous Homomorphic Correspondences Between Graphs and Their Image Graphs” (White & Heil, 1976).
central to individual action. Moreover, structural analysis posits that the constraints associated with positions in a network of relationships are frequently more important in determining individual action than either the information or attitudes people hold. … Structural context is represented by patterns of ties of varying content, and the analyst's interest is in how individual behavior serves to reproduce the structural context … This discovery of ‘self-reproducing’ structural contexts has occupied structural analysts in such diverse areas as kinship systems …, organizational structures …, world systems, and abstract social structures ... In this endeavor structures are ‘explained’ when their self-reproducing properties -and therefore their continued existence- are analytically understood (White & Leifer 1987: 85).9

9 This conception of structural analysis is to be found in work done by some of White's former students. According to Nicholas Mullins, for instance, who is one of White's early students, “structuralists … give logical and analytical priority to a whole over its part, emphasizing the complex web of relationships that link and unite those elements“ (Mullins & Mullins 1973: 259). Mark Granovetter, too, presents structural analysis as a distinct approach that “explains social behavior and institutions by reference to relations among such concrete entities as persons and organizations. According to Granovetter, this mode of analysis “contrasts with at least four other popular strategies: (a) reductionist attempts to explain by a focus on individuals alone; (b) explanations stressing the causal primacy of such abstract concepts as ideas, values, mental harmonies, and cognitive maps; (c) technological and material determinism; (d) explanations using ‘variables’ as the main analytic concepts, where structure is the connecting variables rather than actual social entities” (see Granovetter’s editorial note to the book series called Structural Analysis in Social Studies edited by him and published by Cambridge University Press). According to John Scott (1988: 112), by working out and adopting such a network conception of social structure, “the leading writers in North American social network analysis have forcefully reiterated the claim that the network concept is central to sociology, and is the most fruitful way of developing that structural analysis which the classical sociologists emphasized as the distinguishing feature of the discipline as a whole.” See also Wellman (1983).
STRUCTURAL EQUIVALENCE

On the basis of this particular notion of social structure and the methodological strategy that is derived from it, White and his associates have developed a number of conceptual and technical tools like structural equivalence, blockmodels, and relational definitions of role and position. All of these innovations are now well known and widely used within the social network tradition, so they will be presented here only very briefly. The focus is instead turned to certain aspects of these innovations that lie beyond their purely technical value and that are important for the study of White’s general sociological approach. These aspects are chosen on the basis of the relevance and bearings that they have for two questions of particular importance for the present study.

The first one regards the exact manner in which the structures implicit in the networks are ‘teased out,’ i.e. how the ties among the actors generate the non-categorical and relational groupings in a concrete population and how the subsequent structures are discerned. The second, and more substantive, question concerns the characteristic way in which the general promise of structural analysis is realized within White’s approach. In other words, how exactly is this particular network conception of social structure employed by White to account for individual actors’ perception and action? How does this notion explain the observed regularities of perceptions and actions of those actors who are located in similar structural positions?

Fundamental to both these questions is the concept of structural equivalence, the core idea beneath which is that those in same positions exhibit similar behavior. As an explicit and specified analytical concept, structural equivalence is a novel device developed by White, although he (1971b: 9) holds that the general underlying idea is “so basic in sociology [that] it is sometimes left implicit.” Essentially, the idea behind structural equivalence is that two or more units which occupy similar structural positions are interchangeable with regard to the prevalent classification or partition principle valid in that structure.

The idea of structural equivalence itself has a long history in White’s work and can be found in his writings on kinship structures in the early 1960s. In these studies, White divides a tribe into a small
number of clans. Any such clan is defined as a mutually exclusive group of tribe members who occupy the same position with regard to marriageability in the tribe’s kinship structure. They become equivalent and interchangeable in the eyes of others, just as the members of any other clan are equivalent and interchangeable to them. As White (1963a: 28), puts it, “men in a clan are equivalent to one another: each obtains a wife from the same other clan, finds his father in the same clan, his son in the same clan, and gives his sister in marriage to the same clan.”

In the 1970s, however, White’s work seeks to explore and tap the specific methodological potentials of the notion of structural equivalence. He turns the concept into a sharp analytical tool that can be used to partition and group social actors into various homogeneous categories. In more concrete terms, White uses this notion to sort social actors in any given context and cluster them into a limited number of relational categories or groups. He carries out this partition in the population on the basis of similarities and differences among the actors with respect to their ties.

In a purely technical sense, two or more nodes are structurally equivalent if they have exactly similar connections to all other nodes in the population across all relations. This rather stringent criterion is used to unearth the structural similarities that exist among actors who are embedded in multi-relational networks. By using this relational criterion, actors might be grouped together and placed into distinct structural positions. As defined by White and Breiger (1975: 68), the structurally equivalent nodes in any network population are those “who send or do not send ties of each given type to the same other sets.” White and Lorrain (1971: 63) give a more concrete definition of the concept, holding that any network member “a is structurally equivalent to b if a relates to every [other nodes] in exactly the same ways as b does. From the point of view of the logic of the structure, then, a and b are absolutely equivalent, they are substitutable. “

According to this definition, then, two or more nodes are structurally equivalent in a network context if they have identical sets of ties to and from all other nodes across all types of relations. Being structurally equivalent means having exactly the same set of ties sent and received, and being similarly connected in several types of ties to
the rest of the network population. Thus, structurally equivalent nodes together make up a particular cluster or category of actors, i.e. a category where *similarity of ties* is the criterion of membership. By the virtue of similarity of their ties, actors become members in the same category and share the same structural position.\(^{10}\)

Of more interest for the present study, however, is the importance of structural equivalence in relation to the notion of social structure, i.e. the function of structural equivalence as the only valid *principle of aggregation* that can yield an adequate conception of social structure. Indeed, through his dissatisfaction with, and criticism of what he refers to as the categorical conceptions of social structure, White brings to life a more fundamental issue, namely that of aggregation or partition. In his opinion, what undermines the theoretical validity and explanatory worth of common conceptions of social structure is the inadequacy of the partition principles used in the construction of these conceptions.\(^{11}\) But although White clearly

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\(^{10}\) Since this criterion of structural similarity is too strict, it is often somewhat relaxed in practice. Consequently, instead of searching for nodes with identical sets of relations, the analyst often looks for those with only sufficiently similar sets of ties. Within social network analysis, it is also common to replace this criterion by another one, measuring how far from or how close to being structurally equivalent a given pair of nodes is.

\(^{11}\) White, *et. al.* (1976: 733) hold that “all sociologists’ discourse rests on primitive terms –‘status,’ ‘role,’ ‘group,’ ‘social control,’ ‘interaction,’ and ‘society’ do not begin to exhaust the list– which require an aggregation principle in that their referents are aggregates of persons, collectivities, interrelated ‘positions,’ or ‘generalized actors’” (italics in text). The authors also add that, despite its centrality, the question of aggregation has not been adequately addressed and apart from “some exceptions … there is a remarkable lack of attending to aggregation as a central problem for sociological theory.” They then go on and identify two main ways of aggregation commonly used by sociologists: “either by positing categorical aggregates (e.g., ‘functional subsystems,’ ‘classes’) whose relation to concrete social structure has been tenuous; or by cross-tabulating individuals according to their attributes (e.g., lower middle-class white Protestants who live in inner city areas and vote Democrat). Both methods have often led to the neglect of social structure and of the relations among individuals.” About the same time, Christopher Winship (1977: 1-2), then a student of White at Harvard, addresses the issue in his doctoral dissertation, *Problems and Models of Aggregation*, in the following way: “Narrowly conceived, aggregation is concerned with the problem of classifying lower level units (e.g. individuals, companies, species) into meaningful higher level categories (e.g. ethnic groups, industries, genera). A fundamental distinction can be made between two different methods of aggregation. Aggregation can take place in terms of some common set of attributes of the lower
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raises this issue, he does not delve into it sufficiently. He leaves out several aspects that are of great theoretical significance and that seem to have been of crucial importance for the development of his general sociology. Therefore, some attention to these lacunae is in order.

Technically, the question of aggregation is rather straightforward. The question that the structural analyst has to deal with is as follows: What are valid principles of categorization or classification? More concretely, what are the most adequate principles of division to use in order to construct the various homogeneous social categories into which actors are to be placed? Beneath this technical surface, however, lies a fundamental question of great theoretical importance for any conceptualization of social structure and, thus, for any sociological approach that adheres to a structural mode of inquiry. This deeper dimension regards the choice of the valid structuring principles, i.e. the identification of the classification principles that will yield the most theoretically significant partitions. Such a choice, in other words, is a matter of determining the organizing principles that will have the most explanatory power, i.e. those that can best account for social actors’ perceptions and actions. If the structural position of an actor is decisive for these attitudes and behavior, as the structural

level units, or aggregation may take place in terms of the relationships between units. The first approach is concerned with defining categories so that units within categories are homogeneous with respect to some set of attributes. This approach is explicit in attempts to model the inter-categorical social mobility of men in terms of Markov processes ... The goal is to categorize men into occupations such that their sons have equal probabilities of either inheriting the same occupation or moving into some other specific job category. Being able to do this is essential to defining the Markov process ... In general this has not been possible. Attempts have been made to divide categories into ‘stayers’ and ‘movers’ ... , though these attempts have not been particularly successful ... The second approach is to aggregate units on the basis of their relations to each other (White, Breiger and Boorman 1976). It is the common structural position of units rather than their attributes that defines the aggregation. The contrast can be seen by considering an economic example. Consider a matrix of debts and loans between companies, banks, or any other economic actors. Actors could be grouped together in terms of whether they were net lenders or borrowers and the extent of their debt. This would be equivalent to classifying actors in terms of who they have lent and/or borrowed money from. This amounts to an analysis of the interior rather than the marginals of the matrix ... In understanding the implications of a bankruptcy the latter classification is at least as salient if not more salient than the former” (italics in text).
mode of analysis claims, then the issue of the partition principle becomes a question of locating causal factors: which classifications can yield the most adequate explanations of actor's perceptions and action? And, which principles of division generate these classifications?

As mentioned above, White dismisses any attribute-based aggregation method. For White, the analyst's placement of actors in constructed categories does not suffice as an explanatory factor of actors' perceptions and actions. Membership in the social groups that are constructed by cross-tabulating various individual attributes or other statistical inferences lacks the causal power needed for explaining actors' attitudes or behavior. Such placement tells us nothing, or very little, about the specific social environment in which these actors are in fact embedded. Nor do these memberships tell us much about the actual forces to which actors are subjected or about the concrete forms that social constraints take. In fact, the attributes that actors do have may well be the result, rather than the cause of, their placement within various social groups and categories. This is, of course, an important and complex question that will be the subject of further inquiry in the final chapter.

All that will be said about this now is that by dismissing the partition principles derived from individual attributes, White instead rests his own mode of aggregation on the basis of actors' relationships. This is the essence of his alternative notion of social structure. By the same token, this is also the heart of his structural mode of analysis and the novelty of his approach; all this stems from, and is manifested in, the notion of structural equivalence. According to White's alternative mode of aggregation, classification and partition of social actors is carried out with reference to the similarities and differences in their social relations. Rather than relying on actors' individual attributes, in other words, this alternative principle is based on the properties of their relationships and operates by distinguishing among these relationships.

The relevance, and fundamental theoretical importance of the notion of structural equivalence should be seen in this light. Instead of distinguishing among actors on the basis of attributes like age, income, class background, ethnicity, etc., this tool sorts actors
according to the similarities and differences that are directly observable in the properties of the relationships in which actors are actually involved. As a measure of relational similarities and differences among actors, structural equivalence is thus the new device which is required for aggregation and partition of these actors; it is the relationally constructed yardstick that can be used as the structuring principle in networks of ties in a population. The application of this relational principle can help the analyst reveal the social structure implicit in the context as a system of categories that are constructed relationally, i.e. as a system of categories that are discerned on the basis of particular properties of the units' actual ties and with respect to the actual types and configurations of these relationships.\footnote{An example of criticism of 'categorical' notion of structure, and a case of application of a relational conception, can be found in Ronald Breiger's study of the overall structure of international trade. In this study, he (1981: 353-354) accuses the common 'categorical' type of studies of imposing "highly idealized definitional categories both on the types of transaction under study ('goods,' 'services') and on the macro units of analysis ('the sterling area,' 'Latin America')." Starting with the Wallerstein's world-system model, Breiger instead seeks to develop "operational procedures ... to identify core, peripheral and semi-peripheral states on the sole basis of the structural positions they occupy in international exchange networks." He (1981: 355) seeks, in other words, "to derive ... 'positions,' each occupied by numerous states and identified on the basis of the similarity of nations' interchanges across multiple networks of transnational interaction;" and to do this, he (1981: 357) uses "a blackmodel approach [that] assigns states to positions according to the structural similarity of the nations' imports and exports to all other states, across various types of economic exchange, rather than on the basis of definitional aggregation."}

In collaboration with some of his graduate students at Harvard, White develops an analytical apparatus whose "core idea is structural equivalence" (White 1992d: 209). Blockmodeling, as he calls this apparatus, is by now a well-known technical procedure that is widely used by social network analysts to identify social structures within any given context of multiple networks. The main objective that motivates the use of this procedure is to lay bare the structures that are implicit in the context and that are often only vaguely perceived by the actors themselves. In very broad features, the blockmodeling procedure allows the population at hand to be partitioned and clustered into several blocks. Each block is a cluster of nodes that, as
members in multiple networks, have similar bundles of ties, i.e. members who through similar types of relationships are connected to similar set of other members. In other words, each such a block consists of, and hosts, nodes that occupy and share structurally equivalent positions in the context under observation.13

The basic substantive ideas behind this procedure are anticipated in the fourth kind of category system in White’s typology. This fourth type, the one preferred by White, is called the contextual categorical system. It is a system of classification in which people are partitioned and lumped together into categories that are defined on the basis of relations among them. The entities placed within each category occupy the same position in relation to the position of other entities that are clustered into other categories. Defining this system, White (1965a: 5) holds,

placement in a [category] in this system is meaningful only within the context of the whole structure formed by the categories. A hierarchical system of social classes is an example. One is not upper class because of some intrinsic attribute but in contrast to being lower class. The actual criteria of upper class membership can change, and even become inverted in a given society over time, so that membership in the category is a matter of the context. In this simple case of two social classes one could just say membership is a relative matter, but the word context better conveys the complexity of assignment in more complex systems of categories which form structures. One example of a

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13 Randall Collins (1988: 414) summarizes the way in which the idea of structural equivalence is deployed in the blockmodeling procedure to obtain social structure: “two actors are equivalent to the extent their relationships with other actors are identical. The mathematical model maps various actors onto social positions, in what is called ‘homomorphic reduction’ or ‘many-to-one-mapping’. One such attempt produces ‘blockmodels,’ diagrams of rows and columns in which the positions are the cells, and which show how closely or distantly incumbents of these positions are related to actors who are in other positions in the blockmodel.”
more complex system would be the schools and cliques in which artists are viewed as falling.

As many studies of even small informal groups show, the chart of connectivity of the actors across a few distinct networks is often too complex to be truly useful. Some mode of reduction is thus required to sort and somehow summarize all the actual relationships into a simpler, and yet sociologically meaningful, system of connectivity. As one of the main merits of this procedure, blockmodeling reduces the numerous relations that exist among the individual members of the network population to a limited number of blocks. It converts the overall complex pattern of connections in a context of multiple networks into a much simpler system of few, interrelated blocks.

Through the blockmodeling procedure, the original context is thus converted into a much simpler network of few blocks. Although the relations among the resultant blocks are more abstract than the actual ties among the population, the complexity of the context is reduced to a manageable level. In other words, the blockmodel approach is, a procedure that distills the complex web of actual ties into patterns that are of a higher level of abstraction but simpler — "simpler not only in having fewer constituents but also in exhibiting interrelations which are more regular or transparent" (White & Lorrain 1971: 49).14

The final picture that emerges through this procedure is a simplified representation of the social structure implicit in the context. The underlying structure that is revealed is often concealed from the actors themselves. This structure now becomes visible as a

14 The image of a simpler network of blocks seems to lie beneath White’s notion of catnet - an abbreviation for ‘categorical network,’ which is closely related to his contextual category system. White defines catnet as a net of relations perceived among categories or sets of structurally equivalent nodes in a given population. The prime advantage of this concept is the reduction of complexity it offers. As White (1965a: 6) puts it, “relations are cumulated more easily once people are lumped together in clusters with relatively homogeneous type of relation between each pair of clusters. The net [thus] tends to be seen as a net among the clusters or cliques, with persons in clique treated as equivalent unless there is an actual path to one of them which is short.”
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correlation of the constituent blocks and relations among them.\textsuperscript{15} It appears as a system of distinct and mutually exclusive clusters or, as they are often called, ‘positions’ that are related to one another through certain durable bundles of ties.\textsuperscript{16} These are, as White and Lorrain (1971: 49) put it, positions “within which classes of equivalently positioned individuals are delineated.” In other words, the actors who end up in any one of these blocks are similarly located within the overall structure; they “are equivalent with respect to the system of positions” (White 1971b: 9) and share an equivalent position in a population’s social structure. In this sense, i.e. as a system of positions, the overall extracted image is also a role structure.\textsuperscript{17}

\textsuperscript{15} It must be mentioned that there is always a risk that the final picture that emerges through the application of the blockmodeling procedure is produced by chance. In “Probabilities of Homomorphic Mappings from Multiple Graphs” White (1977a: 121) points at this risk and holds, “unfortunately, as with the other structural models in the social sciences, a fit to a blockmodel may arise by chance alone.” See also White 1974b and White et. al. (1976: 732, footnote 4).

\textsuperscript{16} The concept of ‘position’ used by many social network analysts, often rests on this notion of social structure. ‘Position’ is defined in terms of the similarity of ties among a subset of actors, so that a position includes the actors who are similarly embedded in multiple networks (see for instance Wassermann & Faust 1994: 350). According to Stephen Borgatti and Martin Everett (1992: 2-3), for instance, “the fundamental idea underlying the notion of position is that of structural correspondence or similarity. Actors who are connected in the same way to the rest of the network are said to be equivalent and to occupy the same position. In general, the objective of positional analysis is to partition actors into mutually exclusive classes of [structurally] equivalent actors who have similar relational patterns.” Peter Marsden (1999: 9), too, defines position in a similar way and holds, “two actors are said to occupy the same position in a social network when they have profiles of relationships to other actors that are identical in a particular way …; the actors are therefore substitutable for one another from an observer’s standpoint.” For a rather different definition of position, however, see Burt (1976: 93).

\textsuperscript{17} White and associates elaborate a formal, and thus general conception of social role, which derives from an actor’s configuration of ties rather than their content. An actor, or a node’s role is defined as the set of relations that the actor has to his neighboring nodes. As White and Lorrain (1971: 50) put it, “the total role of an individual in a social system has often been described as consisting of sets of relations of various types linking this person as ego to sets of others.” Given this definition, the overall image becomes a role structure “a picture framed in terms of theoretically meaningful concepts, concepts applicable in every population and with fit into other sociological theories” (White 1973b: 52).
After this sketchy description of the particular way of partitioning actors, it is time to turn to the second question that is central to the structural mode of social analysis. As already mentioned, the notion of structural equivalence involves the observation of a new kind of relation, one at a higher level of abstraction that is perceived by the analyst among the blocks. Another way of putting it is that the analyst extracts a set of ‘objective’ relations among the blocks in the structure from the context of actual ties. These relations are objective in the sense that any such relation between any pair of blocks is a general representation of all the actual ties that members of one block have to the members of the other one. As a generalization, it is thus independent from any single one of the ties that it represents. Indeed, the final structure that is revealed through the blockmodeling procedure is the overall pattern that is made up of all the general or objective relations that can exist among the constituent blocks. The unearthed structure, in other words, is the sum of such abstract relations.

But there is also a subjective side, which seems to have been less noted. That is, this new and abstract relationship is not only discerned by the analyst but is also perceived by the actors themselves. The blocks or positions that constitute the social structure are not entirely independent from the subjective perception and appreciation of the actors. On the contrary, each set of structurally equivalent actors, i.e. each set of actors who are positioned in each distinct block, tend to perceive themselves as members of a single collective entity. By the same token, they also tend to perceive actors in any other position as members of another distinct collectivity. Put differently, members of each block tend to regard themselves as sharing a collective role or identity, just as they bestow other, distinct and collectively held roles or identities upon members of other blocks. In White’s (1965a: 6) words,

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\text{the principle result ... is the definition in the eyes of participants of a new type of relation, equivalence within the structure. The simplest example is the}
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development of cliques in a net of friendship. As the density of ties among a subset of persons in the net reaches some threshold value, the subset will come to regard itself as having an identity. Most of the pairs in the subset may not be connected by the net relation at a given time, but because of the feeling of identity all relations will be regarded as present in a latent way. That is, any person in a clique will feel free to 'mobilize' the relation with another person in the clique.

There are a number of important issues to note here. First, as in the case of the analysts, the abstract relations that actors perceive among various blocks or positions serve to reduce the complexity of the context in question. This possibility of reducing the complex web of relationships into manageable form and size comes from the interchangeability of all the members of any given block in the eyes of any actor. That is, the actor can discern in the population the sets of others who are structurally equivalent to him, and, thus, interchangeable. Therefore, the actor can regard those in each set without discrimination. As long as these others share the same collective identity and the same relation to the actor, no individual consideration of them is necessary.18

The more interesting issue regards the underlying assumption implicit in the quotation above. White assumes that social actors tend to partition and classify themselves and others on the basis of

18 An example from kinship structures may be illustrative. According to White (1963a, 1964), even in small primitive tribes the kin structure can be extremely complex and confusing. Some reduction is thus needed to turn this structure manageable and useful in ordering social relations. To reduce the complexity of these relations, the actor may apply some principle of equivalence. By using such a principle, the actor's relatives can be divided into several groups, each embracing all the relatives who now will have same role with respect to the actor. That is, by applying the principle, the actor can regard these relatives, e.g. fathers' brothers, as structurally equivalent and, thereby, relate himself to them in the same way. As a result, the overall structure is reduced to a few and homogeneous set of clusters or clans into which ego can place all others in his kin tree who have identical kin roles. See White (1963a: 9-10) and (1964: 197-198).
relations that they have. According to this assumption, actors can both perceive their own place within the social structure as well as discern that of others. That is, any actor can tell which set of actors he belongs to and with which group of others he shares a common position. The actor can do the same with others as well. He can identify who belongs to which set, and where the set is located within the structure.

In other words, any actor, or at least any competent actor, has a sense of one's own place and of the place of the others or a sense of closeness to and distance from others. He can expose himself and others to this partition and project a certain classification upon the population. And he can do all this, not on the basis of individual attributes that he and others possess respectively, but on the basis of his and others' relationships. The actor, in other words, applies a relational view in making these partitions and in bestowing distinct roles or identities upon himself as well as upon others. This is a bold assumption that seems to be responsible for many of the substantive ideas and insights in White's sociology. Two central ideas that are closely related to this issue are the comparability of equivalent actors, and the similarity of their attitudinal and behavioral profiles.

**Comparability**

Being structurally equivalent means being interchangeable in the eyes of others, as mentioned above. But it also means being comparable. In other words, any group of structurally equivalent actors not only appears to others as a set of interchangeable units but also its own members regard it as a group of comparable peers. When the group members look at themselves, they realize the shared structural role they have. They also become aware of the position that they occupy and hold in common in relation to other sets. On this basis they tend to regard themselves as members of a single peer group. This is simply just another aspect of sharing a single role or identity, although it may be added that it is a matter of self-identification. In other words, it is a matter of identifying oneself with a set of certain others on the basis of some perceived similarity while, at the same time, distinguishing oneself from other sets on the basis of some perceived
differences. In this sense, it is a very basic and fundamental sociological observation of which one can find a great number of diverse formulations in sociological literature. White expresses this familiar and largely uncontroversial observation in the network language and thus gives it a more tangible empirical foundation. This idea of comparability, however, is of such fundamental importance to White’s sociology that he (1992a: 13) refers to it as “the second principle of [his] theory.”

The importance of comparability lies in the fact that such comparisons among structurally equivalent actors provide them with some guidance on their action. Here the basic image of the social actor in the modern social context should be recalled. As described in the previous chapters, in contemporary social settings the actor is embedded at the intersection of multiple networks and subjected to the erratic bombardments of heterogeneous flows. These flows that pour down on him from different direction are streams of various and, at times, even conflicting expectations and demands and come through the contingent ties that connect the actor to different regions in the social landscape.

The overall effect of this bombardment is to confuse the actor, as discussed above. This sense of confusion is reinforced by the fact that the overall landscape is too vast and complex to be knowable by the actor. The intractability of the social landscape allows the actor to have only a limited horizon and a partial view, which for practical reasons is confined to the actor’s immediate environment. This tends to make the actor quite unable to scan any larger sections of the landscape or to orient himself by tracing the flows to which he is subjected. In such a disorienting situation, the actor is left to his own devices in handling these flows. The actor is forced to work out some kind of priority scheme that can help him distinguish and judge the relevance and importance of these erratic expectations and demands. In developing such a scheme, however, the actor does not have much recourse to cultural instructions or prescriptions, which are too general to offer any concrete guidance. Nor is imitation an option, since the uniqueness of the actor’s topological position undermines its utility and does not permit it to be of any considerable help.
It is with this image in mind that the importance of comparability should be considered. Comparability offers the actor assistance. It offers help to the actor in handling the confusing situation caused by the erratic bombardment of the flows. Having a set of comparable peers means having a group of others who are in the same situation as oneself and who are therefore forced to handle roughly the same kind of flows. This set of comparable peers functions as a kind of reference group for its members. This set of comparable peers functions as a point of reference for its members in the sense that it helps them develop ideas about how to be and behave. It provides the actor with a sense of normality in a context that otherwise would be overwhelmingly confusing and hard to make sense of. While imitation is not a real course of action, watching the comparable peers may provide the actor with some guidance on action. Monitoring others who are perceived to be in the same situation can offer a reliable enough basis for working out the scheme that the actor needs.

Although each actor in this set is aware of the uniqueness of his own topological position, he nonetheless knows that others in the set have very similar partial views and can therefore see very similar segments of the larger landscape as him. Sharing the same position within the social structure, these comparable peers also share the same standpoint, i.e. the same point of view from which they can

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19 It is probably for this reason that, White and associates (1976: 733), in their critical review of the sociological accounts of social structure, mentions the reference group theory as an exception. As first described by Herbert Hyman, a reference group is a collection of people that an actor uses as a standard of comparison for him, regardless of whether he is a member of that group. The reference group to which the actor belongs is known as a peer group. As the classical formulation of this theory has it, the actor uses reference and peer groups to evaluate the relative worth and/or desirability of his appearance, attitudes, feelings and behaviors. Such groups are used by the actor as a source of models that he imitates, often in anticipation of becoming a member of that group, as well as a source of expectations that the actor can use to judge the appropriateness of his conduct. See Hyman & Singer (1968) and Merton & Rossi (1968). However, in addition to the occasion mentioned above, White (1992a: 38, footnote 17) again, after many years, refers to this theory and credits it for having come to the insight that "it [is] dispersions in rewards among actors, not averages, that [drive] social action in small groups"—an insight that underpins the reproduction mechanism in interface discipline (see below).
perceive the social landscape. Each actor is aware that the other ones in the set are subjected to the same or very similar flows of expectations, demands, claims, etc. Each actor knows that others are forced to cope with the same or very similar bundle of constraining forces and pressures. The actor also knows that these forces and pressures originate in the same fields within the larger social landscape as those which he is connected to. The actor thus knows that he shares with others in the set the kind of disparities and incompatibilities of expectations that he himself has to cope with. These similarities may therefore function as, or provide, a basis for similarities in attitudes and behaviors of the equivalent actors.

The notion of structural equivalence lies at the heart of White’s attempt to capture the structural properties of the social contexts in which actors are embedded. This notion serves, in White’s structural sociology, as the structural basis of the similarity of actors’ perceptions and actions. By translating the similarities of these actors’ structural positions and roles into network terms, a relational basis is provided for explaining the similarities of actors’ role behaviors and attitudes. In contrast with both the abstract cultural-holistic and individualistic approaches, this relational explanation accounts for the observed similarities of actors’ perceptions and actions in terms of these actors’ actual ties and their tangible patterns.

According to this view, given the shared structural position of the members of any given set of actors, it is very probable that these equivalent peers develop very similar schemes of perception and action. The occupants of each position will have similar linkages to the occupants of other positions. On the basis of their relational similarities, these actors will have similar experience since they are exposed to the same or at least very similar bundle of constraints and enjoy the same or very similar opportunities. Thus, in White’s version of structural analysis, the similarity of actors’ behaviors are inferred from the similarity of actors’ structural positions, which in turn is derived from or defined in terms of the similarity of actors’ ties across multiple networks.20

20 This, however, is not to deny the individual variations. As shown in the next chapter, comparability also implies competition among actors within the same set. As in the case of producer firms, each member of the group will seek individuation, i.e. differentiation
DISCIPLINES

The idea of structural equivalence continues to play a central role in White’s later attempt to develop a general sociology based on the main tenets of the social network approach. This notion underpins one of the most central and novel concepts in his theoretical construction, namely discipline—a concept to which White attaches great importance and high ambitions. As White (1992a: 22) puts it metaphorically, a discipline can be viewed as a “social molecule,” i.e. a relatively stable and recognizable formation, which consists of a limited number of identities or actors.

A discipline emerges in a network population, and its constituent elements are a rather small group of structurally equivalent nodes within that population. A discipline, in other words, is normally made up of a handful of actors who are similarly positioned within the overall structure of their embedding context. On the basis of this structural similarity, these nodes make up a distinguishable compound entity. To put it differently, the discipline, i.e. the group that is made up of such structurally equivalent nodes, becomes recognizable as a distinct whole, both for its constituent nodes and for others. It becomes a distinct entity, a distinguishable whole with its own collective identity that is shared by its constituent members.

Yet, as may be recalled from the previous chapter, in White’s terminology being an identity means being a distinct and independent source of social action. Thus, to regard a discipline as an identity means to see it as an actor with a certain behavioral profile. In other words, a discipline should be conceived of as a compound or collective social actor in its own right, i.e. as an actor with an own, and distinction. While sharing a collective identity with others in the group, each actor will strive for his own individual identity. In White’s (1992a: 13) words, “one is surrounded by examples: professors vie for distinction and thereby become as peas in a pod to students in their classes; physicians strive as individuals—and also in much the same process as specialisms—for prestige only to exactly thereby become imbued by other identities as interchangeable. Burger King, MacDonald’s, Wendy’s and so on induce a new category of equivalence, the fast food restaurant, exactly and only by striving to be better—which requires, and therefore induces as presupposition, being comparable.”
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relatively stable and thus recognizable mode of action. It is with this conception of discipline in mind that White (1992a: 25) maintains that each discipline comes “to be perceived as an entity, and to constitute an independent source of social action. In being embedded within a broader social array, it is also empowered as a distinct new social actor, an identity.”

The most important and interesting thing about disciplines in White’s sociology is that these are the elementary units of social order. That is, disciplines are conceived and conceptualized by White as tiny islands or enclaves of order, regularity and predictability in a world that is otherwise chaotic, disorienting and confusing. And since the scope of human control is limited, these social orders are limited in their scope and are necessarily local. Any given discipline embodies and represents a local social order, in the sense that it is a site where the constituent identities are disciplined. It is an embedding context where the participating actors are captured and tied down. It is the context where they cease to be fluctuating and dependent on the contingent forces that pour down on them from every corner. It is a context where these identities cease to respond randomly and behave as if they were atoms that could hover freely in a kind of social weightlessness.

Instead, a discipline is a relatively orderly context for action where identities can have a considerably larger degree of control over the contingencies and uncertainties that impact them. As the choice of term indicates, the constituent identities in a discipline acquire

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21 It remains unclear to what extent White takes a holistic position on this matter and conceives of disciplines as ‘emergent’ entities. Nonetheless, as the analogy of molecules suggests, he tends to regard each discipline as an actor who operates on a level that is different from that of its constituent nodes, pretty much in the same way as a molecule has its own modes of interaction with other entities in its environment. In White’s (1992a: 22) own words, although the atoms that constitute the social molecule “still [are] subject to polarization toward other molecules and atoms and thereby to some larger field or context,” these atoms are nonetheless “embedded into a new level of action.”

22 As Randall Collins (1988: 995) points out, “the limitations upon human cognition documented by the ethnomethodologists show why social order must necessarily be physical and local.”
some resonance in their responses and some stability in their behaviors. In more concrete terms, belonging to a discipline means having a point of reference to which an identity can turn and look for guidance about how to be and behave. Belonging to a discipline and sharing a collective identity means being subjected to certain, known and relatively stable constraints, and it means having a certain, known and relatively stable frame of action.

In White’s own words, disciplines are the “basic constituents for [social] order” (1992a: 22), and are the “locally overawing expressions of social control” (1992a: 233). Like in a molecule “which captures atoms from ... their own interactions” (1992a: 22), in a discipline the behavior of the constituent nodes are constrained,” and, as a result, “within a discipline, there is predictability, in perceptions and actions by the identities ... whatever the rhetoric in which it may be expressed” (1992a: 29). It is in this sense that a discipline is “a discipline for social action” (1992a: 23).

It should be remembered that disciplines are basically relational categories or blocks that, together with a number of other similar units, make up the social structure that is teased out through the blockmodeling procedure. This means that disciplines do not merely represent tiny, isolated and self-contained local orders, but can also be parts of larger and durable role structures. More than just an orderly context for their own participant, disciplines can be the basic units of the role structures that make up the skeletons of social organizations.23 That is, disciplines are the main and fundamental constituent part of any larger social organization, so that the underlying role structure in such an organization is a concatenation and configuration of a number of distinct disciplines. It is this issue that White (1992a: 22) refers to when he argues that although any “social organization is a shamble rather than a tidy crystal, but it is all the more important to be clear about any basic constituents for order, any social molecule. What persists, and thus is observed, builds from molecules.” It is in this sense that disciplines, according to White

23 As White (1992a: 62) puts it, “disciplines themselves can be nodes with social ties as well. Thus a network of ties can appear connecting entities embedded on different levels.”
(1992a: 23), are "unavoidable" and the most distinctive aspect of social organizations.

Another important feature of disciplines is their capacity to reproduce themselves. As White conceives of disciplines, they are self-contained and self-propelling units, or "self-reproducing social formations" (1992a: 22). Disciplines, in other words, are constraining contexts of action that are locally constructed. That is, they are durable formations that are jointly produced and maintained through the actions of the participant actors themselves. What sustains a discipline is primarily the internal forces and interactions among its participants. It persists because its participants mutually constrain one another, as they monitor and keep one another on track, all within the limits of the overall shared identity. Such mutual control efforts constitute the underlying source of both the formation of and the ongoing dynamics in any given discipline. To quote White on this point, disciplines are "distinctive units of mutually constraining efforts at control" (1992a: 23), and each discipline sustains and "persists only because of powerful mutual reinforcements among its handful of participants" (1992a: 28).

Now, some important questions arise immediately: How does a discipline operate as the basic unit of social order? How do the actions of a set of structurally equivalent nodes, which are not necessarily interconnected, become coordinated and harmonized? How does a discipline function as a constraining context of action for the participant identities? How is the behavior of these identities disciplined and how is the range of their choices of action narrowed? What is absolutely essential in answering this kind of questions is the comparability of the identities that together make up a discipline. As mentioned above, comparability occupies a central place in White's approach, primarily because through comparisons, the structurally equivalent nodes can develop a sense of normality and find some guidance about how to respond to the network flows and control efforts to which they are subjected. Comparisons with those who are perceived as peers offers assistance to the actor, so that he can turn to these peers to look for a point of reference, for a measure of normality and/or for a standard of action.
Although such mutual watching and monitoring is important for the operation of a discipline, it is not the whole story. Comparability is essential for the very existence and constitution of any discipline as a self-constructed social formation. The core issue here is that the membership in any discipline is not given in any 'objective' way but is a matter that depends on, and that is determined through, the agency or action of the identities. In other words, belonging to a certain discipline rather than another and sharing a certain collective identity rather another is a matter that is settled through the actors' own and conscious efforts. It is settled through the actors' efforts to be seen as comparable with one set of peers rather than another. And since membership in any given discipline is decided by the actual bundles of ties in which these actors are involved, establishing, breaking off and recasting ties become crucial ingredients in the actors' strategies. In brief, to strive to become a member of any given discipline takes strategic maneuvering in the social landscape as well as manipulative coupling and de-coupling. It is this sense of comparability that makes it a profound feature of social life, so that comparability, according to White (1993a: 5), "is the meaning of the social ... [and] achieving comparability is the key."

Such comparisons are, however, made by identities along schemes that are specific to any given discipline. Any such scheme provides actors with the necessary measures or standards that can be used by the actors to carry out valid comparisons. Such a scheme represents the collectively held identity of the discipline, within which the participant actors can find or define their own, distinctive profiles. As such, the scheme provides the participant actors with some scale on which they can be ordered and ranked. That is, it functions as an organizing device to be used in a discipline to produce and uphold the hierarchical order that prevails among the actors in that particular discipline.

By the same token, such a scheme also functions as a guideline or yardstick to help measure the fitness of the actors entering into the discipline and sharing the common identity. On the one hand, it helps
those actors who are already members of the discipline to sort those who seek membership, including the ones who are judged to fit and excluding those who do not. At the same time, the scheme that represents the overall identity of the discipline offers guidance to the membership-seeking actors about the valid criteria. Moreover, such a scheme makes it possible for the participants in a discipline to assign the entering actors to their proper place within the existing order, as it also helps the newcomers to embed themselves within a new and larger identity, to jostle, join and nest themselves among the participants, and to find or define their own niches within the new embedding context.

White calls these organizing schemes or status orders *valuation orderings*. A discipline “evolves together with an ordering [and] goes with some sort of specialized valuation” (White 1992a: 28) or, “each [discipline] is characterized by a valuation ordering” (White 1992a: 16). In any given discipline, such a comprehensive, hierarchical scheme is used to produce comparative judgments on the relative place of each member as well as on the fitness of the membership candidates. In any given discipline, a specialized valuation ordering defines the boundaries of that discipline and frames the behaviors of the participant actors. It envelops the identities, shapes them and keeps them on track within the collective profile of the discipline while, at the same time allowing the participant identities to pull apart and seek distinction within the boundaries of that common profile.

White identifies three general bases on which such judgments are made, and he associates each one with a distinct general type or species of discipline. In each species of discipline one type of these valuation orderings prevails, so that in any given case “all social action [is] mediated through the specialized valuation ordering that is the valid “idiom” in that discipline (White 1992a: 29).25 Moreover, each

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25 According to White, these valuation orderings induce and establish comparability among the participant identities. Thereby, these orderings “replace direct pair comparisons” (White 1992a: 28). White also puts forth some rather speculative ideas about the origin of these valuation orderings. Accordingly, these have emerged out of what he refers to as the *dominance ordering* that prevailed in some original form of social environment. By *dominance ordering* White seems to mean pair-wise comparisons, which mediate the interactions among actors within a pecking order kind of system and which are not yet articulated into the more comprehensive, transitive schemes of comparison.
type of valuation ordering seems to stem from three fundamental and universal types of social relation. The three discipline formations and three underlying valuation orderings that White includes in his typology are: the interface discipline with quality as the pertinent valuation ordering, the council discipline with prestige as the associated ordering, and finally the arena discipline with purity as the prevailing valuation ordering.

The first species of discipline, namely interface, is typically, but of course not necessarily, a social unit that evolves primarily around material production where -like in the case of production markets of modern industrial economies- what is produced in the discipline is shipped or delivered downstream. Interface is closely tied with the “passing through and transformation” (White 1992a: 31) of directional flows of products. In this sense, an asymmetry of flows is that valuation orderings are. As White (1992a: 28) puts it, “each such valuation ordering replaces and supplements any original dominance ordering.” Or, on another occasion, White (1992a: 33) holds that the original “dominance ordering has developed into three distinct valuation orderings. Pecking order is accordingly turned into three species of discipline.” Reflecting on the modern performance art, White (1993a: 3) also speaks of “the pecking order of actors” -a “meticulously kept” order which becomes manifest in the actors’ “stepping forward in turn for applause at the end of the evening.” He (1993a: 5) then continues by asking: “Do the arts and their works sustain invidious hierarchy in general? An evolutionary perspective can suggest answers. The central thread of any animal society, among wolves as among chickens, is comparability. Comparability is achieved within these most primitive societies as strict pecking orders. One hen defers to another without explicit fighting or challenging; it defers in eating and walking, not to mention sex. Each such pecking order yields strict interlockings among announcements and celebrations by the contending identities. Pecking order becomes strict hierarchy and as such remains the simplest way to achieve comparability that is the meaning of the social.”

Covering various areas of social life across levels, each of these three general valuation orderings seems to rest on a fundamental and universal type of relation, which White (1992a: 29-30) identifies as follows: “quality [is] mapped from instrumentalism, ... purity from friendly-hostile, and ... prestige from dominant-submissive.” He, however, declines to elaborate on this central issue. Instead, referring only briefly to Michael Argyle (1975) and Robert Bales (1970), White (1992a: 29) holds, “these three affective dimensions, induced from recent systematic observation of small human groups, can map into valuations for disciplines. This suggests three independent and distinctive valuations. If each tends to be pre-eminent in one species of discipline, [then] three species are implied.” See also Chapter Six.
built into this formation. On the other hand, there is also another directional flow of rewards, coming from the receivers of the products, which gives rise to competitive pressures and constraints on the participants in the discipline.

Furthermore, in an interface discipline the quality of that production is a core concern; at issue is the participants’ commitment to produce the certain quality that is characteristic for that discipline. From this follows that the relative performance of the participants in delivering that quality is being comparatively assessed and rewarded. As a result, any interface can be characterized by the competition that exists among the participants, as each participant seeks to perform relatively better than his peers. Similarly, the presumed or actual ability of the membership-seeking actors to hold the valid quality measures and standards is decisive for their entry into the discipline. Furthermore, the internal competition among the actors is carried out along these valid quality measures. That is, each participant’s relative position within the internal hierarchical order of the discipline is determined on the basis of judgments that are made about the quality of that participant’s performance, compared with the performance of the other participants.27

However, given the length of the time that White has spent studying production markets as a case of interface, there is a large number of publications in which he elaborates various aspects of this discipline rather extensively. Contrariwise, there is in his production a regrettable lack of explicit and clear presentations or even consistently presented examples which show how the two other species of network formations, namely council and arena, are related to notions like role structures, structural equivalence, etc. Nor does he make any attempt at systematic and transparent accounts, which could inform

27 According to White’s (1992a: 38) description, in an interface “a set of actors can become comparable, become peers, through jostling to join in a production on comparable terms. They commit by joining together to pump downstream versions of a common product, which are subjected by them and downstream to invidious comparison. Children competing in hopscotch or reciting for a teacher, mathematicians in a test for a prize, manufactures of recreational aircraft for the U. S. market, actors in a play—all can be examples. ‘Quality’ captures the connotations of the invidious transitive ordering induced in such interface disciplines.”
the reader how these two species of discipline derive from and operate through prestige and purity, i.e. the particular valuation orderings that White associates respectively with council and arena.

Furthermore, there is no account of the reproduction mechanisms at work in these two species. Finally, White fails to explain how the participants' perceptions and actions get harmonized and coordinated within these disciplines, so that the overall, shared identities of the disciplines are maintained. On the whole, and especially in comparison with interface, council and arena remain underdeveloped and vague to the extent that any attempt to present these two types of discipline would hardly be more illuminating than what is to be found in *Identity and Control*. Let us, therefore, turn to production markets and see how White fleshes out his abstract ideas about interface with more tangible and concrete observations from the economic realities of large-scale, modern industrial production systems.
Among the economic phenomena that White has studied closely, production markets occupy a special place. Ever since the mid-1970s he has devoted a great deal of interest to the topic and has produced a long series of papers with the common ambition of developing a sociological account of these markets.\(^1\) Some prominent observers have already recognized the distinctive quality of White’s approach.\(^2\) Despite the fact that the core of this model was presented more than thirty years ago, however, it has been received rather reluctantly, as its significant impact cannot be readily mapped.\(^3\) Although this neglect is

1 Among White’s earlier papers are “Subcontracting with an Oligopoly: Spence Revisited” (1976), “On Markets” (1979), “Markets as Social Structures” (1979), followed by the two seminal articles, “Where Do Markets Come from?” and “Production Markets as Induced Role Structures,” both from 1981. This enterprise has continued through 1980s and 1990s and culminated into a major work, *Markets from Network* (2002). For White’s work on the topic see Appendix.

2 According to Richard Swedberg (1994: 267), for instance, White’s approach “represents an unprecedented effort that particularly stands out among the comparable sociological accounts.” Due to his sustained effort White has secured a central place in New Economic Sociology and can confidently be regarded as one of its ”key persons” (Swedberg 1997: 161).

3 Given the severity of the challenge it poses to mainstream economics, White’s model has understandably been almost entirely ignored by economists, orthodox or otherwise; and apart from an entry in *The New Palgrave*, this model is also totally absent from the economic literature on production markets. There is however the exception of a group of French economists associated with a current known as the *economics of conventions* (see Favereau, *et. al.* 2002). In addition, due to their growing general interest for the role of networks in economic life, White’s model has recently received some attention from students of business management and administration (see for instance Kogut, 2000). Moreover, there are also some individual works inspired by White’s market model. One
reason enough to study White’s account of production markets for its own sake, there are other, more substantive, reasons as well. This account represents the most extensive application of White’s general sociology, where he fleshes out his abstract ideas and arguments. Given the length of time and the amount of work he has devoted to his alternative conceptualization of production markets, the body of White’s work on this topic represents indeed the most elaborated part of his general sociology. It has been a major source from which he subsequently mined empirically supported insights to illuminate and refine his general theoretical framework. Above all, it is in this body of work that one may find what is probably White’s most significant contribution to the social sciences, namely a novel account of the emergence of social structure out of network ties and flows. With

is Matthias Wächter’s doctoral dissertation *Rational Action and Social Networks in Ecological Economics* (1999), submitted to the Swiss Federal Institute of Technology, Zurich. Another is Patrik Aspers’ doctoral dissertation, *Markets in Fashion: A Phenomenological Approach* (2001). Commenting on this rather chilly reception of his model, White (1990a: 86) admits that in spite of “a scattering of little bits of interest on the margin … the overwhelming feeling …. is of a lack of interest. Partly that is because this is a busy world and there are lots of things to attend to. Another reason … is that [economists] just don’t see there is a theorizable problem in the existence of a production market, and in its specification as an explicit social mechanism.”

4 White frequently refers to production markets as a particular case of *interface*, i.e. a general and “basic social formation” (1993b: 165), which “comes in many … varieties” (1992a: 41). He (1990a: 85) also explicitly maintains that he actually uses his model of production market as a prototype “when [he] models other kinds of interface.” See also (White 1993b: 167). On another occasion, White (2002a: 2) holds “the model derives from and illustrates a more general theory of social construction, rooted in network, identity, and control and triggered by exposure to the uncertainties in ordinary business.”

5 In his pursuit of developing a sociological approach to production markets, White (1979b: 7) raises the more profound question concerning their “sheer existence” by asking: *where do markets come from?* - a question to which White frequently refers as a question “at the naturalistic level.” By pondering the emergence and maintenance of production markets as stable social structures, In other words, White delves into a more general issue and aims at developing a more adequate theory of social structures. In his (1981b: 4-5) own words, ”the theory and methods for production markets can lead us to confront some of the most intractable problems in the analysis of social structure.” Observing this point can perhaps help the reader to locate White’s work on markets in the broader context of his production. Also interesting is the timing of White’s turn to markets as an object of study, a topic to which he turns almost immediately after having
this in mind, what follows is a presentation of some of the main substantive ideas beneath White's model of production markets, though I do not explore its technical aspects. An attempt is also made to embed White's model in a larger theoretical context by relating these underlying ideas to some of the established insights developed by scholars like Edward Chamberlin, Alfred Chandler, Francis Edgeworth, Frank Knight, Wassily Leontief, Douglass North, Joseph Schumpeter and several others.

**PRODUCTION MARKETS AS DISTINCT ORGANIZATIONS**

The basic thrust underlying White’s sustained endeavor is drawn from his sharp distinction between production markets and the well known exchange markets. In his (1999b: 3) view, production markets represent "a distinct genus of markets," i.e. a kind of organization that is profoundly different from the one that economic theory commonly theorizes about.6 As this chapter unfolds it becomes clear that in making this distinction White departs from the view that the modern, large-scale industrial production is a process that is entirely different

finished the previous line of work on blockmodels. Having elaborated and polished the analytical tools for the discovery and analysis of social structures in networks, White points ahead in the final lines of his last article on blockmodeling and explicitly declares his readiness to take a step further: “The next analytic task is to provide ways to probe how role structures of the kind we have identified actually come into being, through the continuing accommodations and manipulations of all individuals acting simultaneously” (White & Boorman 1976: 1442).

6 White repeatedly maintains that exchange markets and production markets are two "entirely distinct institutions" (1995c: 60). For him, production markets "social constructions" (1993b: 173) with entirely different kind of organization, structural properties and maintenance mechanisms. Moreover, neither the emergence of production markets nor their continued existence is self-evident for White. On the contrary, the process of market formation is, in his view, a “conflict-ridden and erratic [one] with quite a range of outcomes possible” (1981a: 520) and both the emergence and maintenance of a market require specific conditions. Yet, according to White (1992a: 31), the “present-day discourse in economic theory obscures the distinction between … markets as arenas and as production in interfaces, which is remarkable since the two species are so different; they differ in dynamic, and in valuation, as well as in concrete embodiment.”
from the exchange process. According to White, this type of production requires a special, complex apparatus that can evolve only under particular historical conditions. It also involves particular kinds of flows and relations among the units that make up such an apparatus. More specifically, the flows and relations that sustain the modern, industrial production process contain expectations and entail commitments that are typically different from those found in exchange processes. Production flows and relations require, and demonstrate, a certain degree of intensity, durability and frequency that is often absent in exchange systems. These flows and relations generate forces and principles that yield and maintain a certain kind of organization that is distinct from exchange markets.

According to White, this fundamental distinction escapes the attention of the mainstream economists, who fail to realize the distinct character of production markets. Whereas economists have a well developed theory of exchange markets, their theory is inapplicable to, and irrelevant for, production markets. Confounding the two and treating them indiscriminately has left today's economics with a total absence of any theoretical treatment of the production markets.7

7 In White's (1990a: 83) own words, "there does not exist a neo-classical theory of the market — that's the extraordinary thing. You do indeed have a theory of the market and an excellent one at that, but it is misleading to call it the neo-classical theory of the market. This is the pure theory of exchange, which was notably developed by Edgeworth but was part of economics well before him. ... As a theory, the pure theory of exchange has all the desired features of a good theory to me. But it is a specialized theory of an exchange market, that is, it is a theory of markets, where production is not an issue. ... So economists in my opinion have never developed a theory of production markets. That is, they have never developed a theory about the kind of market which is around us all the time and which dominates the economy. ... the pure theory of exchange doesn't apply to production markets. So the only real models of production markets you could find were these rather embarrassing things you can find in the old kind of micro-economic textbooks. They are really a hodgepodge of things that I don't think anyone would call theory. Another thing to notice is that there are no theorists of great repute who work on production markets. At least this was true until recently" (italics in text).

An earlier expression of the same idea sounds as follows: "economic theorists are indebted to Edgewood for a powerful theory for ad hoc markets, markets of truck and barter, with or without the aid of money. It is called the pure theory of exchange ... This is the market theory to which Homans, Blau, Cook and Emersom, and many other anthropological, sociological and social-psychological theorists ... turn for analogy and inspiration; there are also some powerful applications...[yet] this theory has nothing to do with industrial economies" (1981b: 5).
Although this sounds like a severe judgment, it reflects a familiar observation made by many students of economic thought. According to this observation, there is in today’s neoclassical economics a one-sided focus on exchange at the cost of marginalization of all other economic processes. This bias in economic analysis has meant the centrality of the main exchange institution, market, coupled with the neglect of production as an analytically distinct process irreducible to exchange. It does not seem too inaccurate to regard the absence of a theory of production markets in economics as a natural or at least logical outcome of this discipline’s failure to see that modern, large-scale production is indeed a kind of process that is fundamentally different from exchange.

To maintain that economics has no theory of the most central institutions of modern economies is a bold claim. Even bolder, however, is to regard economists as disqualified for filling this theoretical void and to assign the task to sociologists instead. According to White, not only does economic theory lack a theory of production markets, it is also unable to develop any, mainly because the individualistic outlook of the economics makes it unfit for the task. On the other hand, sociologists are, in White’s view, much

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8 The most relevant point of this observation regards the centrality of exchange process and the subsequent neglect of production process. As observed by Richard Swedberg (1994: 259), "toward the end of the nineteenth century the concept of market in economic theory underwent a dramatic change through the work of Walras, Jevons, Menger and others. The difference between the new concept of the market and that of the classical political economic was large. For economists like Adam Smith market was something concrete but of limited analytical interest, ... Now, however, the thinking became almost reversed: the market became an abstract concept that acquired tremendous analytical interest as a price-making and resource-allocating mechanism." In the end, "Stanley Jevons simply equated the analysis of the market with a 'theory of exchange'" and "production ... played little role in Walras' vision." And, as Ray Canterbury (1995: 99) observes, Alfred Marshall played his role to convert the production theory of the classical writers to a marginalist-style demand-supply based analysis.

9 While White credits the Marginalist Revolution and the neoclassical economics for introducing the actor into analysis, he is nonetheless dissatisfied with, and critical of, the particular direction of the development of this introduction. According to him, due to its general obsession with empty formal models constructed to make predictions about
better equipped to carry out the task because their approach has the necessary theoretical prerequisites. It is here, at the naturalistic level, that White (1979b: 7) perceives "the most dramatic difference" between economic and sociological theory of production markets: whereas economists tend to take the existence of production markets for granted, sociologists problematize the very existence of these organizations.10

Such a question calls for a structural mode of analysis. Given the conception of production markets as a special kind of social organization, to pose such a question is to ask whence and how these organizations and the underlying structures emerge in the first place, and how they are sustained and reproduced. Conceived as such, this is clearly a task for sociology; and starting from the right foundations, the assigned task aims to provide an account of production markets as relatively durable social structures in the networks of the production flows and relation. As White (1999b: 2) puts it, the assigned task is "to theorize [production] markets effectively within networks of social flows which generate and are generated by and around those markets."

What kind of organizations are production markets then, and how do they operate? This is the focus of the rest of this chapter. In an unreal world, today's economics tends to substitute genuine empirical research with the abstract and speculative kind of analysis in which decisions by typical actors, firms and consumers, are modeled in accordance with some flawed and ossified ideas about their motivational structure (see, e.g. 1981b: 1-2 and 1990a: 86-87). Furthermore, White (1981b: 1-2) maintains, "even the departures from orthodoxy in recent decades share its individualistic obsessions" and, in agreement with Herbert Simon, White asserts, "since the time of Alfred Marshall economics could be considered as a psychological science."

10 According to White (1979b: 2), the economist tends to assume that "there can always be a [production] market" and therefore "sees no problematic" regarding the existence of these markets. And just to repeat what was mentioned above, White (1990a: 86) maintains on another occasion that economists "just don't see there is a theorizable problem in the existence of a production market, and in its specification as an explicit social mechanism." By contrast, White holds, "the sociologist views the [very] existence of a particular [production] market as problematic" (1979b: 2) and seeks answer to questions like "why do particular markets come into existence? Why does a certain market persist? Indeed, what sort of observable social structure is a market?" (1981b: 2).
the first section, the main features of White's conception of production markets will be presented. This presentation is then followed by an account of how producer firms in each market make their business decisions and how their individual behavior tends to contribute to the maintenance and reproduction of that market. Finally, some of the implications of this particular conception of production market are explored.

PRODUCTION PROCESS

In White's view, production markets are phenomena of a relatively recent date. Having a considerably short history, they are born out of particular circumstances and their emergence marks a historical turning point. More concretely, modern production markets have emerged out of the conditions and processes originating in the putting-out systems of the medieval Italian and German cities, i.e. systems that represented a novel mode of organizing the production of larger scale at the dawn of the modern era. The development and

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11 Production markets are, in White's (1999b: 5) view, phenomena that are built "historically within and into [western] economies." In contrast to the exchange markets that "have generated and nested in mercantile economies for millennia" (White 1999b: 2), production markets have emerged only few centuries ago (see below).

12 In White's own words, "early networks of production markets had their origin in entrepreneur-merchants who 'put out' raw materials and tools to cottagers on prescribed terms and then 'marketed' the resulting production within established distribution network" (1995c: 59), or "each production economy is the result of an historical evolution in which market and firm and network and product change together, usually slowly, from a base system of markets in long-distance trade and exchange. The process began several times independently in Europe, as putting-out systems evolved in tandem with production networks" (1993b: 162). On another occasion White writes, "in Florence and other Italian cities of the early Renaissance, production of cloth induced networks for 'putting-out' aspects of producing a product, each of which aspects could itself become established as product of separate market ... There were similar developments into verlager and kaufmann systems ..., in the hinterlands of medieval networks of German cities, as early entrepreneurs 'put out' raw materials and/or tools to cottagers and then 'marketed' the resulting production which they collected. And the process was elaborated further in subsequent periods and locales” (1992a: 83, footnote 24). For a more detailed account see White (2002, Ch. 15).
spread of the putting-out system was stimulated by the expansion of long-distance trade and was initiated by early merchant-entrepreneurs who sought to reorganize production to meet the demands of these growing markets. As is known, these merchant-entrepreneurs gradually arranged the manufacturing process as a flow passing through an input-output network of independent producers on the countryside and/or in cities. The novelty of the system lay in connecting diverse and scattered independent producers, subcontractors and sublettors within a considerably more efficient production apparatus. The result was an "invertebrate form of socio-economic organization" (White 1985: 202), which proved surprisingly capable of delivering regularly and continuously substantial flows of products for growing markets of the time.13

13 In taking this view White shares, of course, a familiar observation well supported by a number of economic historical accounts. One of these accounts is that of Douglass North (1981) according to whom, the putting-out system was an intermediary kind of organizing large-scale production for an ever increasing market, the intermediary mode between handicraft and the factory system. In North's (1981: 167-168) own words, "the putting out system ... developed in Tudor and Stuart England as a response to the expanding market demand of those centuries. It was characterized by raw materials being put out to geographically spread locations and wages ... being paid for each step in the manufacturing process from raw material to finished goods. In contrast to handicraft manufacturing, putting out was marked by growing separation of tasks — a classic example of Smithian growth in the size of the market inducing specialization." But this familiar observation seems to have led White to call for a theoretical account of their emergence that goes beyond the descriptive efforts of economic historians and institutional economists. In his interview with Richard Swedberg, White expresses his disappointment with these currents that, in his view, have proved unable to get beyond descriptive history-writing and develop general theories that transcend historical particularities. Due to this failure, according to White (1990a: 84), there is "in effect no intellectual basis for young economists to grow some theory out of a historical background without being trapped by it. It [is] hard for them to approach the problem of a theory of the market historically and see its evolutionary pattern." White also makes explicit how he has sought to take up the task, i.e. to take into account the historical character of production markets as an established fact to start with. On this point he (1990a: 85) maintains, "I have been trying to ... follow the historical roots of the production market. If you read Weber, a lot of this is prefigured, as so many things are. On the other hand, it is true that Weber had more to say about the verlager system than about the production market specifically. So I have some ideas for models for some of these verlager systems and how they might have evolved over a few centuries in ways that are identifiable and operational."
Another point regards the change in the nature of economic ties. In White’s (1999b: 7-8 and 17-18) view,
such [putting-out] networks, and firms, and the market mechanism, can have developed only on the basis of broader changes in configuration of social ties, as Adam Smith argued two centuries ago. In the high Middle Ages of Europe, new visions of social relations did develop which induced and permitted novel sorts of social ties in new configurations and thence networks. ... [As a result of economic expansion] producers’ attentions were pulled away from habitual ties to local suppliers and distributors. Their horizon of opportunity opened up; they paid attention to much larger and more diverse set of connections. In this enlarged world, producers became aware of much greater range of contingencies, exposure to more and more intricate influences that were harder to assess by habitual rules of thumb or by focus on a few predominant ties.

The constant expansion of the economy and the introduction of more advanced technology, however, has entailed not only the extension of the production networks but also has meant the replacement of the Medieval actors by modern firms and factories. Moreover, it has also entailed the disappearance of the early merchant-entrepreneurs as the central coordinators in the new large-scale manufacturing process. Above all, however, the forces of division of labor and specialization have brought about an extensive break-up of the manufacturing process in modern economies. The traditional mode of production, based on local resources and carried out within a geographically limited area, has given way to a production apparatus that is increasingly fragmented. The modern, large-scale production apparatus is often nationally and even globally scattered, so that production of any single commodity typically requires a large number of supply chains of raw material and intermediate products that spread in various directions.
As a result, the overall structure of the modern production machinery can be seen, as White (1993b: 162) suggests, as "overlapping networks of procurement and supply among firms in markets." It can be seen as a series of gigantic and incomparably dense and complex networks among producer firms situated along numerous, long supply chains. These chains are made up of pair-wise ties, each of which connects a couple of firms, where one is the supplier of the other. Any such tie thus requires a matching of two firms that are functionally complementary, and implies an asymmetric or directional flow of some intermediate product. Long and numerous production chains are thus formed as firms get hooked up with one another back and forth. Through these chains run directional flows of intermediate goods, which are the final product at one stage of the production while only one component of a more complex composition in the next step. In this view, the modern industrial production apparatus is seen as a tightly interwoven texture made up of numerous long strings or lines of product refinement. It is the sum of interconnected directional flows of raw material and intermediate goods which, starting at the far edges upstream, are advanced stage after stage in lengthening production chains, into the commodities of final consumption. In White's (1993b: 162) words, "each producer is also a consumer of inputs from other markets, so that each market presupposes a continuing network of flow from and among specific other markets."  

14 In his conception of modern production economies, White draws heavily on Wassily Leontief, according to whom (1986: 321) economy can be visualized as "a system of interdependent processes. Each process, be it the manufacture of steel, the education of youth, or the running of a family house, generates certain outputs and absorbs a specific combination of inputs. Direct interdependence between two processes arises whenever the output of one becomes an input of the other; coal, the output of coal industry, is an input of the electronic power-generating sector. The chemical industry uses coal not only as a raw material but also indirectly in the form of electric power. A network of such links constitutes a system of elements that depend upon each other directly, indirectly, or both." In the 1950s and 1960s, however, Leontief developed a specific technique for analyzing the economy, especially the production sector, known as the input-output analysis. This technique rests on the basic conception of a modern economy as a vast and complex network of interdependent sectors that are tied together with the relatively stable patterns of the flows of goods and services among various industries and firms. This interdependency is apparent in the cost-price structure of every single firm in which the prices entered in its cost account appear as
This development has given rise to a greatly increased production capacity which, of course, is due to the high degree of division of labor and specialization that characterize modern economies. This means, in turn, a considerable increase in the number of units involved, and an exponential multiplication of interactions among these units throughout the successive stages of the production process. Increased complexity, interdependence and uncertainty are expected problems, as well as a new need for a much higher degree of coordination and control of the huge volumes of production factors that enter, pass through and leave the production system.\(^{15}\) In other words, the modern mode of industrial production not only means immense gains in productivity, but also turns the overall production apparatus into a gigantic network of interdependencies and uncertainties. The modern production economy is characterized by enormously complex patterns of interdependency among the large number of firms that are interconnected through high-volume and high-speed flows of intermediate goods. Within such a system, uncertainty is a profound and inevitable element, especially in the absence of a central

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\(^{15}\) As Alfred Chandler (1977: 281) notes, “the rise of the modern mass production required fundamental changes in the technology and organization of the process of production. The basic organizational innovations were responses to the need to coordinate and control the high-volume throughput. Increases in productivity and decreases in unit costs (often identified with economies of scale) resulted far more from the increases in volume and velocity of throughput than from a growth in the size of the factory or plant. Such economies came more from the ability to integrate and coordinate the flow of materials through the plant than from greater specialization and subdivision of the work within the plant.”
coordinator. As such, uncertainty is a major premise of any organizational design of this kind of production process.\textsuperscript{16}

Among the variety of dimensions and manifestations of the uncertainties inherent in the modern large-scale industrial production, White's approach particularly emphasizes a couple of aspects, namely the ones regarding the magnitude and, especially, the quality of the throughput. That modern large-scale production requires quantitatively regular throughput is a well known economic fact, as the large amount of fixed capital invested demands regularity and thus predictability of production flows.\textsuperscript{17} Quality is another somewhat

\textsuperscript{16} Many economists and economic historians, especially the neoinstitutionalists, have observed the inevitability of uncertainty in large-scale modern production. Yet, although much work within this tradition has been devoted to the issue of uncertainty, neoinstitutionalist observers have mostly been concerned with the organizational consequence of this uncertainty for individual producers. In consequence, they have largely focused on the internal and boundary spanning interdependencies and the subsequent need of predictability and regularity both inside the firm and in its external relations. In addition to the well-known approaches of Ronald Coase and Oliver Williamson to the issue, Douglass North (1981: 167-168) too, in his account for the emergence of modern firm out of the preceding putting-out system, emphasizes the growing uncertainty and the subsequent increased transaction costs as the main explanatory factors.

\textsuperscript{17} Exploring the two characteristics of modern economies of scale, namely mass production and volume distribution, Alfred Chandler (1984) demonstrates that to tap the potential gains of such economies certain minimum regular volumes of production are necessary. According to him, although the modern technological transformation of production from labor intensity to capital intensity has permitted much greater economies of scale, it has also made these economies more vulnerable. As Chandler argues, mass production is possible either by increasing the number of workers and thus having a labor intensive industry, or by improving the machinery, by reorienting production process, by placing the several intermediate processes of production required for a finished product within a single work, and by increasing the application of energy, all leading to a capital intensive industry. The point is that this latter strategy has the advantage of making possible an economy of scale and, thereby, reducing the cost of per unit of output. Here, the technology of production permits much greater economies of scale then it is made possible through the former strategy or development. But conversely, as compared to a labor intensive economy, the cost per unit of output increases much more rapidly when the volume of production falls below the minimum efficient scale. In other words, for an economy of scale to benefit from decline in cost per unit, a certain volume of production is required. Chandler (1984: 139) elaborates on this requirement in the following way: "The cost advantage of scale cannot be fully realized unless a constant flow of materials through the plant or factory
more complex issue. The important point here is that the specialization that characterizes modern production also brings about a dramatically reinforced need of qualitative regularity of flows and the subsequent need of quality control at each step in the production process. Against this, regularity in magnitude as well as stability of quality of what is processed through the modern production machinery are crucial for its functioning. Receiving regular and stable flows in respect to both quantity and quality from upstream is thus a

is maintained to assure effective capacity utilization. The decisive figure in determining costs and profits is thus not rated capacity but throughput -the amount actually processed in a specified time period." To this, Chandler (1984: 139) also adds that in the case of capital-intensive industries "the throughput needed to maintain minimum efficient scale requires careful co-ordination on not only the flow through the processes of production but also the flows of inputs from the suppliers and the flow of outputs to the retailers and final consumers."

In itself, however, the importance of qualitative regularity in modern production has been observed by many, among them Douglass North. For him, an important part of the explanation for the fact that putting-out merchant-manufacturer tended to prefer the modern firm with its hierarchical organization and central monitoring of the production process before a series of simple market transactions, has to do with the increase of transaction costs related to the supervision and measurement of the quality of the inputs and outputs. The modern firm is, in North's account, the organizational device that provides better conditions to deal with the uncertainties related to the input and output quality and to control and thus to help to maintain a certain standard, and a stable identity as a producer. According to North (1981: 167-168), "the most convincing answer [to the question of the emergence of modern firm] is that the costs to merchant of ensuring quality control were less by [the factory system] than by [market transactions] ... Where quality was costly to measure, hierarchical organization would replace market transactions; the putting-out system was in effect a 'primitive firm' in which the merchant-manufacturer attempted to enforce constant quality standards at each step in the manufacturing process. By retaining ownership of the materials throughout the manufacturing process, the merchant-manufacturer was able to exercise this quality control at a lower cost than the cost of simply selling and buying at successive stages of the production process. The gradual move toward central workshop was a further step in efforts at greater quality control and presaged the development of the factory system that was in effect the direct supervision of quality throughout the production process." On this basis North (1981: 177) then holds that, in addition to the growing problems of labor discipline and bureaucracy, "the problem of quality control at each step in the lengthening production chain" is a crucial factor in accounting for the rise of modern firm, emphasizing that quality control and measurement is still necessary at each step in the production process.
prime concern of any producer, as is delivering resonant flows downstream. The pursuit of regularity is therefore of fundamental importance to firms’ actions and strategies. Given this fundamental importance, the question then is how, in the absence of any planner of the Leontief’s model, this pursuit of regularity of asymmetric flows is spontaneously secured.

The answer that White offers to this question is based on the idea of commitment. As White puts it, “producer commitment is the core” (1999b: 43) or,

producers of most lines of goods or services commit to a volume of output as they arrange inputs needed for the next period. These commitments, which especially focus on volume, must be made period after period. Each choice of production volume is responsive to the costs expected, and these commitments of producers to a line of business become reflected in their investments in specialized infrastructure and equipment, which are not easily changed (2002a: 27-28).

The core of this idea is that, at any stage of production, there can emerge a small and relatively stable set of producers who are capable of delivering downstream regular shipments of what is input to the producers in the next stage. These firms are not only capable of providing regular outputs but also commit themselves to do so. That is, each of these firms commits itself for a considerable period of time to produce a certain volume of a product of a given quality. It is out of such commitments that, at any stage of production, can emerge a production market, i.e. a relatively durable configuration made up of a

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19 As put by White, “in each market the producers have resources committed to transforming upstream procurements into products and/or services for downstream” (1995c: 60) or, “each [production] market coordinates its producer firms in commitments to pumping downstream product flows into which procurements from upstream have been incorporated” (2002a: 1). Therefore producer firms, situated in the production process, can according to White (1993b: 167) be seen as “pumps expensively committed to spouting continuing flows of products” (see below).
small number of firms that are similarly located in the overall production apparatus of modern, industrial economies. Why these producer firms make such commitments, and how such a set of firms persists, are the crucial questions that must be dealt with but let us first take a closer look at some of the distinctive features of production markets as White conceptualizes them.

**Comparable Producers**

Any particular production market consists of a small set of slightly differentiated producer firms that, due to the similarity of their positions with regard to the particular stages of the manufacturing process in question, perform roughly the same function. As White (2002a: 122) puts it, “our underlying claim is that each industry is a set of producers that have come to treat each other and to be treated by the outside world as structurally equivalent through the evolution of input and output networks of ties” or,

the end result of all [niche-seeking and] mutual positioning across an economy is the observed partition of producers into a set of industrial markets connected by an overall input-output network. Individual producers, in their networks of varied relations of trading and competition, have come over time to be clustered in ways whose outcomes reflect structurally equivalences in the original networks” (White 1995c: 61).

Structurally equivalent, these firms are therefore largely interchangeable in the eyes of those situated upstream and downstream. In other words, the constituent firms that make up a market are a set of comparable units, performing a basically similar function within the overall manufacturing process. Such a market can emerge at any stage of production, made up of a set of comparable firms that together function as a “transducer mechanism” (White 1999b: 2). Yet better, such a market can be seen as a “giant pump”
(1992a: 42 and 1993b: 167) through which the enormous directional flows of similar intermediate products—coming upstream and advanced downstream—continuously pass. As the analogy suggests, production markets perform this function because they lie between the edge markets at both ends of these flows.20

Given the overall vision of the production apparatus as a huge and complex network mesh, many markets can emerge, each distinct and relatively autonomous. Made up of a cluster of functionally similar producer firms, each of these markets will presuppose a continuing network of flows from and among specific other markets, and thereby will be entangled in the neighboring ones. Embedded within the gigantic networks that make up the overall production apparatus of modern economies, there will thus be numerous production markets, each of which situated within “some long-standing network of industrial markets” and “caught up in ties among some larger array of markets” (White 1999b: 2).

A production market, however, often comprises only a small set of firms. As White (1993b: 164; 1995c: 62; 1999b: 7) frequently points out, only a few or “a handful of producers is sufficient to sustain a market, which cannot support the very large number of producers envisioned in the pure competition markets of microeconomics texts.” Another feature of production markets is that the constituent firms not only make up a small but also a stable set from which the “producers do not bounce in and out” (White 1993b: 162) freely and frequently as they are assumed to do in the theories of the mainstream economists.21 Moreover, as already mentioned, a

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20 This ‘pumping’ function of a production market is defined, in other words, by its in-between position or by its ”sitting into flows of intermediate products” (White 1999b: 1). It is with this function in mind that White regards production markets as durable social organizations that “site properly into asymmetric network setting” (1995c: 60) or as organizations characterized by “permanent asymmetry between producer and buyers, often with long ‘vertical’ chains of supply and control” (White & Eccles 1986a: 138).

21 Both the small number and stability of producer firms that make up a production market are well-known features of real economic life as they are also significant deviations from the assumptions of mainstream economics. Reviewing the historical process of the emergence of managerial hierarchies in the United States, Europe and Japan in the late nineteenth and early twentieth century, Alfred Chandler (1984: 134) observes striking similarities among these economies, one of these similarities being the
production market consists of a small set of structurally equivalent producer firms that are comparable and interchangeable in the eyes of the actors upstream and downstream. This comparability and interchangeability is due to the similarity of the firms’ positions with regard to the particular stages of the manufacturing process in question. On the basis of this similarity of function any given production market will have an individual identity or, as White (1995c: 63) puts it, a distinct “personality” within the larger context. It will have a recognizable profile with regard to the kind of product that it regularly pumps out downstream. On this basis, any given market will, in other words, have an identity, which is held collectively by its member firms—an identity that is manifested in the particular quality produced in that market.

The crucial point, on which White draws heavily, is that the firms within any market are only roughly comparable and interchangeable, each performing its function in a slightly different fashion, with subsequent product differentiation as a result. In other words, by producing slightly different versions of largely the same product, these firms tend to develop individual specializations through product differentiation. Echoing Edward Chamberlin, White (1995c: 60) holds that “within each market individual producers must push apart, must differentiate themselves in qualities of product in the eyes of buyers located in other markets.”

Pushing and pulling apart, a stable number of large corporations in each country over substantial periods of time, especially in the United States. For the stability of American production markets with regard to their boundaries and patterns of interaction with suppliers and consumers see also Burt (1988). It is against this kind of well established empirical findings that White (1981a: 517-518) opens his seminal article on markets by asking, “why do economists accept a theory of firms in markets which denies in principle the most commonly observed situation of firms?” Pondering the typically small number of firms in production markets he asks, “why do so many of our industrial markets have but a dozen or so member firms, several of which produce substantial shares of the total output?” This is a question that, in White’s view, cannot be answered by merely referring to “technological constraints,” i.e. the inaccessibility of the required employment of complex and expensive production technology.

White draws on the seminal works of Edward H. Chamberlin, *The Theory of Monopolistic Competition* (1933) and Joan Robinson, *Economics of Imperfect Competition* (1933), two independent accounts that launched a severe critique of the pure competition model of the mainstream economics and that contributed significantly to
each firm tends, in other words, to find and/or to define a distinct niche for itself with regard to quality. As a result, there will emerge in any given market an array or a schedule of positions, which reflects the actual dispersion of quality among the firms within the overall and collective identity of the market. There will emerge a spread of firms around a quality scale, where firms sort themselves according to the mutual perceptions of quality produced by each other. Therefore, as the outcome of such a process of mutual adjustment, any production market can be described in terms of a set of specialized firms organized around quality variation. In other words, a production market can be described in terms of the spread of a small number of participant firms each having a particular quality niche within the larger common frame that is set by the shared identity of that market.23 By choosing and establishing a distinct position on a

23 As noted by White (1979a: 1), production markets are “organized more around quality than is implied by existing theories of competition in differentiated products.”
common quality schedule, each producer firm assumes a "distinctive role" (White 1981b: 2-3), and the market in question emerges as an ensemble of firms, each of which takes on a distinct role expressed as a slightly differentiated quality niche.

The conception of production markets as durable and persistent role ensembles, however, has a host of implications regarding regularities in enacted and perceived behavior of the firms. One regards the boundaries of markets. The issue of market boundaries, according to White (1981a: 1-2), marks yet another failure of economic theory, showing its inability to specify production markets analytically and to discriminate them as such from an entire industrial economy. Given the maze of differentiated products, White views boundaries of any particular market as being set by the degree of similarity of products, as perceived by peer producers in that market.

Boundaries, in other words, are determined by some perceived similarity of products that, despite differentiation, can still bestow some coherence and unity, i.e. a collective identity for the market, while this identity can simultaneously underpin the relative autonomy of the market vis-à-vis the neighboring ones as well as distinguish it from them. On the other hand, when producers participating in that market perceive such niche-defining differences in products as too large, the market in question unravels and divides into two or more new markets, each with more coherence, which is the same as product similarity.24 As White (2002a: 121-122) put it,

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24 Commenting on this topic White (1995c: 61) mentions the example of the market for rubber used to manufacture tires. According to him, the particular formation of the
attention should be paid to the intersubjective basis of the boundaries of [the] socially constructed markets. Knowing oneself, and being known, to be in a given market is the single most important aspect of getting established in business. ... Regardless of intersubjective basis, these boundaries of socially constructed markets become hegemonic social facts [and costly to violate]. Private as well as public collections of date tend to respect these boundaries. Maneuvers and strategy [of participating firms as well as membership candidates] bear them in mind.

A second implication regards the commitments made by producer firms. It is not hard to see producer firms as highly specialized organizations firmly tied down or embedded both in the particular market of which they are members and within the overall production apparatus. This embeddedness is primarily induced by the investments made by the firms or, in White’s (1999b: 2) words, by the “equipment, experience and historically developed specialization of the firms in that market.” Together with the individual quality niche that each producer chooses, this embeddedness also implies certain commitments on the part of the producer. Put differently, the maintenance of an individual quality niche that fits into a larger shared market profile requires some degree of stability of performance. It requires commitments regarding delivery of resonant flows downstream.

boundaries of this market “depends in part on incident and chance whether such a market encompasses all tires, or only auto tires, or all tires but only in a region, or whether, for example, a separate market develops, permanently or temporarily, around a technological innovation such as radial tires.” See also White (1993b: 162). Irrespective of the criterion of similarity, the boundaries of such a market are set by the producers who, within the framework determined by that similarity, differentiate and become specialized. One firm may for instance become known for producing lower quality but cheap rubber, another for higher-cost rubber of high durability but low flexibility, and so on. On occasions, however, this differentiation may yield too large differences among the firms, pulling them apart to the point of disintegration. For the question of unraveling of production markets see White 2002a, Ch. 4.
These asymmetric commitments made by the producer firms towards those situated downstream are, according to White (1999b: 11), “central to sustaining [any] given market” (see also White 1993b: 166 and 1995c: 60). According to this view, producer firms within each market commit themselves “for a substantial period and become specialized” (White 1999b: 11) in delivering orderly and continuous flows of products downstream. These firms tend, in other words, to commit themselves for considerable time to produce certain amounts of a particular version of a product of a given quality. Furthermore, these commitments are public. Each producer firm becomes known, both by its peers and by those downstream, as the regular supplier of a certain product. It becomes known for its specialized performance with regard to delivery of a particular, individual version of a product that is established in the market where the firm belongs and that is recognized by the buyers downstream.25

The solid embeddedness of producers in a particular market, the historically developed specialization, quality niche and individual profile or role of the producers are crucial and distinctive features of production markets. Both the individual identities that firms gradually develop and the persistence of these identities maintained through public commitments determine the often observed stability of production markets—a feature that is in especially sharp contrast to the undifferentiated image of markets adopted by economists. In other words, unlike the more flexible and temporary roles of actors in the open arena of an exchange market, where “everybody comes with some arbitrary collection of goods in order to exchange them for goods of other kinds” (White 1981b: 5), firms of a production market are “tangible producers.” They are “actually named firms” (White 1979b: 1) that are tied down through their recognized specialization.

25 According to White (1999b: 3), ”networks and production markets shape each other into the pattern which we observe today as a manufacturing economy. In so doing they generate an array of products as public institutions and a population of producers as formal organizations.” In this view, any given production market is a small population of highly specialized producers that deliver downstream an array of slightly differentiated products that have become “publicly defined” (White 1999b: 3) and “established” (White 1993b: 161). This notion lies at the heart of White’s discussion of what he calls “business culture.” See White 2002, Chapter 15.
with respect to a given sort of product and all the chains of dependencies that this specialization entail. They are, in other words, caught in the distinctive production flows of their suppliers and are committed to induce "massive flows of products [to their buyers]" (White 1981b: 5).26

THE BUYER SIDE

Other important implications of White's particular conception of production markets as ensembles of durable roles, regard the buyer side. Although White does not elaborate on the issue it nonetheless appears that, in his view, each single production market corresponds to a distinct segment on the buyer side. Each market produces for a particular set of buyers so that, on the whole, there is a correspondence between, on the one hand, the expectations that are characteristic of this particular set of buyers and, on the other hand, the collective identity of the markets. Having a shared identity or an overall and recognizable profile means that each single market directs its flows to a particular group of buyers and aims to meet their expectations. Each market, in other words, is oriented towards a particular segment within the differentiated embedding side whose characteristic expectations match the profile of the market.

The important point, however, is that the body of consumers that corresponds to any given production market is regarded in White's model as a discerning public for which the producer firms within that market perform. It is seen as a body of consumers who

26 Referring to this contrast, White (1999b: 21) holds, for instance, that "in exchange markets, such as lawn sales or county fairs, selling and buying are [temporary] roles for actors rather than fixed positions with respect to a given sort of product." Or, "exchange markets one might think of as in some sense horizontal, presumably without chains of dependencies and with the predominant status one of peers" (White & Eccles 1986a: 138). And pointing out the main differences between the economist's and sociologist's view, he maintains that "in the sociologist's view, the market is a bunch of tangible producers, actual named firms, attracting to their various products a concrete population of buyers. The economist's view is of a rather indefinite set of producers parallel to but not really facing an array of buyers who consider an abstract product. ... The market is a concrete structure among tangible social actors to the sociologist, but is an abstract arena to the economist"(1979b: 1).
have the ability to discern nuances in individual firms’ performances with regard to quality. Thus, as each producer firm makes public its specialization, i.e. its particular brand or version of a product, it subjects its individual performance to the judgment of this discerning body of buyers; and as the firms perform differently and seek to differentiate themselves by establishing distinct quality niches, consumers will act as arbiters by comparing and evaluating each single firm’s success with respect to its publicly made commitment.

In White’s approach, this corresponding buyer segment is not only endowed with an ability to discern the quality nuances in producers’ performance but also with a decisive power to judge. In other words, the buyers are empowered with the capacity to decide the competition among the firms and approve or disapprove what each firm offers. As White puts it, the buyers are seen as “comparison-shoppers” (1995c: 62, 1992a: 43), i.e. as arbiters who “evaluate products from one of these firms in terms of what these particular other firms offer,” and who “consider terms of purchase of the good made by one firm ... by comparing it to terms of just those other firms in this market” (1979a: 6). Seeing buyers in this position, White (1979a: 4) therefore speaks of production market as a buyers’ market, i.e. a market primarily dominated by the consumer power, and finds ”monopsonistic competition” as “a more appropriate description than the familiar ‘monopolistic competition.’”

Despite this salience ascribed to the buyers, these are treated in White’s model only in aggregate form. The buyers are not differentiated analytically in the model but are rather lumped together into one single representative consumer. Although significantly

27 In White’s (1979a: 4) view, “if either side of the market is to be viewed as having near monopolist power, it should be the consumer side. Instead the Chamberlin-Spence theory assumes that the consumer complies with whatever terms of trade each firm has set. I assume there is power and, therefore pressure from both sides: the representative consumer says ‘yes’ or ‘no’ to the deal proposed by each firm as its optimum after observation of the spread of terms of trade in that market.” Moreover, according to White (1979a: 6), what guides the representative consumer in his decision is “value for money”, i.e. he “will accept a deal offered by [one on the firms], if and only if, the additional value to him form the purchase is at least as large compared to its costs as for any other deal offered in the market.”
empowered against producers as the final arbiter of their contest, this undifferentiated mass of consumers is reduced in the model to an aggregate and passive recipient on the embedding side that can only approve or reject the producers by saying ‘Yes’ or ‘No’ to their individual offers.28 Given this treatment of the consumers, it seems justified to speak of the downplaying of buyers in White’s approach. Here, the demand side is not given the salience that it normally enjoys in economic theories of price determination. Rather, in this conception of markets the dynamics are driven from the producers’ side.29

How, then, is the buyers’ power conceptualized? It can be briefly said that this power makes itself felt through its impact on the producer firms’ business decisions. In other words, the analytical marginalization of the buyers in the model is strongly countered by the decisive, although rather indirect, impact that these exercise on

28 In White’s (1979a: 4) own words “since consumers are treated only in aggregate, the theory sets one buyer in the market confronting a set of firms with differing cost structures as the producers.” Therefore, there is “an asymmetry” in the model on the buyer side. As White (1981a: 522-523) spells out this asymmetry, “firms are the active decision makers; each has an independent cost schedule known to itself (at least). Buyers, on the other hand, are lumped together as an aggregate, in a passive role. The aggregate buyer may say ‘no’ [or ‘yes’] to the market entry [i.e. the distinct pair of volume and price] offered by a firm, but it has only this binary decision. This binary choice depends on how the buyers in aggregate evaluate more of one firm’s product against less of another’s.” White (1981b: 10) seems to justify this asymmetry by holding that “one side of the market is aggregated to permit individualized treatment of actors on the other side and still obtain readily interpretable solutions.” Furthermore, White (1981b: 16) argues, “aggregation of one side of the market -buyers- is a technical device to simplify the model. This device should not obscure the underlying facts, however. Buyers are not able to co-ordinate their purchases from all firms; they are not a conspiracy, not a monopsony. Buyers can make only local decisions: they say yes or no to each firm separately. Buyers cannot decide on the whole set of products as an overall package; so ‘maximization’ of net benefit [as an aggregate] is operationally meaningless.”

29 On one occasion White (1979b: 5) hints at the issue by saying that “the demand perceived by producers necessarily is what drives a modern economy” but he is quick to emphasize the role of producers and adds immediately that this type of economy “is defined by conscious, deliberate production for specialized markets.” That point, however, will be clearer in the presentation below of White’s notion of terms of trade as an alternative to the common supply-demand mechanism.
the formation of producers’ choices of volume and quality. To explore this issue, however, one should first see how a production market operates, how producers actually make their business decisions, and how these individual decisions get coordinated and contribute to the maintenance and reproduction of the market.

**Production Markets as Disciplines**

White’s starting point is the well-known, core idea of competition among the producer firms. Very much in accordance with the basic assumptions of economic theory, White regards the whole market process as one that is fueled by the self-interest of the business units and their pursuit of profit maximization. Acting “purely on self-interest,” White maintains, “each firm in the market makes its decisions with the sole goal of maximizing the resultant net flow of benefits to itself measured in money terms” (1981b: 10), and it does so by paying “attention to [its] cost curves and insisting on producing at marginal revenue equal to marginal cost, knowing both its cost schedules ... and the volume ... that turns the highest profit” (1999b: 14).

Yet, these familiar notions find rather different meanings and have different implications when they are replanted in a different soil, i.e. when they are integrated into White’s particular conception of production markets as disciplines. Although White’s approach does not violate the idea of self-interested competitive behavior as the principle mode of economic action, the deployment of this idea nonetheless represents a radical modification. Rather than being governed by an unbridled aggressive profit-pursuit, producer firms’ acquisitive and selfish efforts are, according to White, constrained by the forces that derive from the structural character of production markets. Producers’ maximizing efforts are, in other words, structurally constrained, both in option and design, and in aims and means. These efforts are structurally framed, i.e. they are made within a structurally determined framework that embeds producers’ business decisions, and “if maximization is relevant, it is relevant only within
[this] framework” (White 1985: 3). But, what is that framework, exactly?

This framework is given by the overall identity of the market - the collective profile of the market - as this is recognized by the member firms within that market, by the firms in the neighboring markets, and above all by the particular segment of consumers for which the market is a regular source of supply. In this sense, this framework is in the case of any given market historically evolved and offers any individual producer a certain array of quality variations, or a certain menu of possible choices of quality niches within that market. If a firm is to stay inside that market, its choice of niche should not fall outside or deviate too much from this menu. The firm has to find a niche within the collective identity and, thereby, nest itself among the peer firms. In making its business decisions, the firm therefore relies more on monitoring its peers rather than on trying to figure out the demand of the buyer side, as economic theory would have it.

To stay on track and in tune with its peers, any firm seeks to obtain guidance from watching closely the choices of its competitors, rather than from trying to ‘read’ the consumers’ preferences. Its own business choices are thereby interlocked with the choices of other firms in the market. As others may change their positions in the market and move into new niches, the firm too must adjust its own choices in order to keep up with and avoid sliding out of the market. This seems to be White’s message when he speaks in more abstract terms of the framework of business choices as a market schedule, i.e. as a valuation ordering of quality that is valid in any given market. This also seems to be the content of his account of the reproduction of a market through the interlocking of choices. Let us now take a closer look at these issues.

Being comparable and interchangeable from the buyers’ point of view means that each individual producer firm in a given market falls under the judgmental gaze of comparison. In other words, the functional similarity of firms in a market and their subsequent interchangeability in the eyes of those downstream give rise to a desire for distinction and, in effect, a sharp and constant competition among peer producers. Although price competition is never absent from a production market, White does not share the conception of
price competition that mainstream economic theory typically adopts. Rather, as shown above, White tends to emphasize in particular the competition among firms carried on through quality variations, i.e. through product differentiation.\(^{30}\) Given the collective identity of any given production market and the product differentiation within that, the competition that prevails in any such market is primarily a quality competition. This competition is limited to the small number of comparable firms in that market. It is confined to the boundaries of the market in question, as these boundaries are perceived by the member firms themselves and by others both downstream and in the neighboring markets. Furthermore, at the very core of this competition lies the relative performance of the firms in the market as judged by buyers. This competition derives, in other words, from the comparability of the firms’ performance in the eyes of the buyers and turns their comparative judgments into a constraint on the firms’ business choices and behavior.\(^{31}\)

\(^{30}\) White borrows from Edward Chamberlin’s notion of product differentiation, as already mentioned. To that it can be added that White’s emphasis on quality niches also echoes the observation made by Joseph Schumpeter. In his criticism of the economic theory, Schumpeter (1975: 84) argues, for instance, “economists are at long last emerging from the stage in which price competition was all they saw. As soon as quality competition and sales efforts are admitted into the sacred precincts of theory, the price variable is ousted from its dominant position. However, it is still competition within a rigid pattern of invariant conditions, methods of production and forms of industrial organization in particular, that practically monopolizes attention.”

\(^{31}\) According to White (1979a: 7), the firms within a single market “are engaged not in a pure competition but in finding and sustaining roles with respect to one another given an environment of discerning buyers.” He (1981b: 2) also holds that, since each firm’s output is valued differently by buyers, the role taken by each firm “is accepted by the buyers only in the context of what the other producers are doing.” This means, “in any given market, each producer firm will have a position that is entirely relative to the positions of other producers, in that market, as perceived by and across all of those whom they jointly supply” (White 1993b: 164; see also 1995c: 62). Taken together, the market can therefore be seen as a set of “comparable peers” who keep “jostling to join in production on comparable terms” (White 1993b: 165). And, it is with reference to the pressures stemming from the “invidious comparison” (White 1993b: 165) done by the buyers that White speaks of “the knife-edge pressure upon the producer” (1979a: 7) and competition among the peer firms in any given production market -a kind of competition that like “in any interface is about the importance of doing slightly better
ONE WAY MIRROR AND TERMS OF TRADE

Given this nature of the competition, monitoring one’s peer producers becomes of central importance to a firm in making its business decisions. In order to estimate what and how much to produce, each firm keeps watching the other producers, according to White. It seeks to stay attuned to the other firms in the market and aims to find and/or retain its niche, i.e. its relative position among these peers. Although the buyers’ approval or disapproval is crucial to the fate of the firm, their evaluation does not enter the firm’s decision-making process until it is terminated. It is with the centrality of this peer-scanning in mind that White defines a production market as a set of producers who “eye each other’s products” (1979a: 6) or as a set of firms, “each of who looks to the others and just the others in the set” (1979a: 1).32

Occurring in both formal and informal ways, i.e. through business reports, trade associations, lunches and gossip (see e.g. White 1981b: 12; 1993b: 167; 1995c: 62), this peer-monitoring takes place in observable terms. Each firm watches a pair of easily observable values i.e. production volume and price or revenue, for all the other firms in the market. It observes the choices of all the other firms in the market, that is, the revenue each firm receives for the volume it shipped in the last business period. Summarizing the previous business period for every other firm in the market, the set of such pairs provides the firm only with some rough information. But this rough information is a reliable enough indication of what volumes and prices are realistic or, as White (1981b: 6) put is, it is sufficient to than the peer who, in the larger context, are so very similar to the competitor” (White 1993b: 171).

32 According to White, the guidance-seeking producers are not primarily guided by “speculations on an amorphous demand” but “watch the competition” (1981a: 518). They monitor and “watch each other within a market” (1981a: 518) and “elicit from one another cues on prices offered and volumes sold downstream” (1995c: 61). And, admitting the influence of ”the long-standing tradition of economic studies of ‘imperfect competition,’” White (1981a: 520-521) also marks the difference by holding that this tradition “has firms using conjectures on buyer taste to decide their market offers. In contrast, my view ... is that firms decide on the basis of observed positions of all other producers.”
“guide a real firm in a real market toward volumes and price that demonstrably can be sustained.” This kind of information is the best tangible evidence a firm has, the most reliable indicator of what it can expect to earn from various volumes of production. According to White (1981b: 6),

business people know [that] the world is much too complex to compute as economic theorists would like them to do and is anyway too opaque to provide enough data to permit such speculative analysis. Instead, businessmen are attuned to tangible evidence from their own specific market as to what volume and value are permitted in their niche among the specific set of producers. Economists assume that producers are speculative virtuosos. I ... assume they are prudent observers.

As a more reliable alternative to speculative attempts to estimate current demand, the producer seeks guidance from the observable outcomes of the previous actions of peers in the market. On this basis the firm can develop a more realistic idea about what volumes and prices are acceptable to the buyer side. By watching the competitors’ observable results for the last period, the firm can also anticipate these competitors’ plans for the forthcoming business period. In other words, the firms can try to guess the strategic moves of its peers, as they adjust their choices of volume and price according to their experiences from the last period. Put differently, any given firm can try to guess how its competitors plan to match the consumers’ reactions to the offers that were made during the last period. It is this monitoring of the peers—a phenomenon that White seeks to describe by using the metaphor of a one-way mirror—rather than speculating on the buyer side, that, in White’s view, constitutes the foundation of producer firms’ business decisions. As White (2002a: 34-35) puts it,
the core is producer commitments both in pragmatics of volume and in identities recognized by both sides. One metaphor for this market mechanism is a one-way mirror. The set of producers’ commitments fills out and sustains the one-way mirror. This is a special mirror through which the producers cannot see the miscellaneous buyers, even though these buyers can see the producers. The one-way mirror is opaque to the producer and shows it [only] the reflection of its comparable peers. This mirror is flexible, as if made of plasticene, with a shape adapting the distribution of competing pressures from the two sides. Relatively few producers—a handful or a score—are jointly searching for terms of trade with a variegated and possibly numerous other side. The given market need not figure importantly to this other side, need not in the eyes of the buyers stands out among the whole production flow network of inputs and outputs among producers and consumers—who typically both are firms.33

What firms see in this one-way mirror is a menu of options or fates, a common or “collective opportunity schedule” (White & Bothner 1999: 2) that represents an array of positions or niches from which they can choose. And this is the core idea behind White’s other central notion, terms of trade—a notion to which White refers as “the key concept” (1981b: 2) or “the key point” (1993b: 164) in his approach.34 Basically, the notion of terms of trade can be conceived of

33 On another occasion, White (1992a: 51) maintains that a “commit-interface operates as a one-way mirror,” so that “producers eye only each other, as reflected in terms of trade achieved, with the buyers being a confusion.”

34 The notion of terms of trade is presented by White as a mechanism specific to production markets and is intended to replace the conventional price mechanism. In economic theory, however, the notion of ‘terms of trade’ is, along with comparative advantages, one of the most basic themes in international trade, evolving around the question what will be the ratios at which the export of a country exchange for those of its trading partners. There are several definitions of this concept, each associated with specific statistical measures. The most common measure is commodity or net barter terms of trade, i.e. the relative price of the ‘exportable’ in the terms of the ‘importable’.
as a set of options or possible niches, indicated as points on a schedule where each point represents a pair of variables, namely production volume and price or revenue. According to White, there is in any production market a common schedule of terms of trade that consists of such pairs. Specific to each specific market, this schedule is the outcome of, and reflects, the historical evolution of that market. It functions as a kind of particular and local institution that guides the member producer firms in their business decisions. It defines what objectives are realistic and what choices are possible.

Any such schedule represents, in other words, a menu of possible niches, i.e. a menu from which each producer can choose a specific pair of variables (volume and price) for any business period. The schedule of terms of trade constitutes the kind of “decision framework” (White & Bothner 1992: 2) that constrains the participant firms’ choices of volume and price in any particular market for any given business period. By watching its peers, according to White, any producer can thus read the schedule that is valid for that period and, by making a choice from the existing options, find for itself a “distinctive position” (1993b: 164, see also 1981b: 2 and 1995a: 62), “a location optimal for itself” (1981b: 2-3) or, simply, “define [its] niche” (1981b: 10).35

Another one is the gross barter terms of trade, i.e. a ratio of the volume of imports to the volume of export (see Findlay 1987: 623-624).

35 It is interesting to notice that, in White’s model, commitment made by firms regards both volume and price. So is the judgment of the buyers on the other side who, though are seen as arbiters of quality, are nonetheless assumed to evaluate firms’ performance by price and volume rather than by quality. It is also interesting to notice that it is not through reading the quality of other firms that firms eye each other. Rather the monitoring is confined to volume and price and the reason seems to be the difficulties involved in estimating quality. As White puts it (1981a: 520-521), “the key feature of [the] approach is this: Firms can observe only volumes and payments, not qualities or their valuations, and they act on the basis of these observations, thereby reproducing the observations” (italics in text). He (1981a: 519) also maintains that although “each firm knows that its product is distinctive, but it also knows the difficulty and risk of assessing one’s own distinctiveness. ... In particular, when the total volume one offers in the market changes, its attractiveness to buyers changes, in ways hard to estimate. No firm can reliably assess relative qualities of other firms, and every firm knows that its position could be affected by choices made by any one or more of its competitors.” White uses volume and price either because they are easier to observe and measure or because
Although the schedule of terms of trade has evolved historically and is, thereby, specific to any given production market, it is not static. Rather, it keeps changing as producer firms adjust their niches in each business period, on the basis of buyers’ reactions to what they had offered in the previous period. Moreover, as the producer firms continuously seek competitive advantages, there are constant innovations in the market, followed by changes in the array of quality variation, distribution of niches and spread of the firms within the market. The schedule of terms of trade should thus be conceived as something changeable, to which the firms have to adopt.

Put differently, the schedule specific to any market is reconsidered and renewed in every period, and yet remains reproducible and viable. It is flexible, so that while preserving the overall coherence and identity of the market it can permit periodical adjustments for individual firms. While in any given market the schedule as well as the relative position of individual firms may change, the market will stay relatively stable, continuing to have its overall identity and pumping regular flows of known and accepted quality downstream. A market schedule should, in other words, be seen as a moving target that the firms try to hit or, rather, as a moving frame with constantly changing boundaries, within which the firms try to maintain their individual, relative position. It is in this sense that what becomes the overriding concern for any firm is its survival i.e. its continued existence as a comparable peer or member in a certain market, rather than as a mere profit maximizer. Since the valid schedule of terms of trade is changeable, the ground is moving under the feet of any producer and, in consequence, the primary objective that any producer pursues in the competition with its peers is to stay attuned to them and thus to stay within the market.\footnote{The point is prefigured in Joseph Schumpeter’s (1975: 84) criticism of the economists who inaccurately describe and understand the interactions among the big firms within an industry as the behavior of an oligopolist body. Emphasizing the changing structure of price somehow reflects quality. It seems to be the latter that White adheres to when he (1981b: 16) holds, “the concept of hedonic prices ... is a sophisticated generalization of the quality idea: consumers are paying for a few qualities in a product rather than for its innumerable literal attributes.” And yet, on another occasion White maintains, ”volume signals quality and the set of volumes form an array of [qualitative] differentiation” (White & Bothner 1999: 1).}
According to White, however, any production market is a durable, self-reproducing constellation of producers with a relatively stable and recognizable collective identity. It is a reproducible and self-propelled kind of organization that operates without an external coordinator and that persists solely on the basis of producer firms' business behaviors. In his words,

there are no gods, no Walrasian imps, no Maxwell demons available to orchestrate patterns of choices in markets ... Orchestration must emerge out of interactions. Yet the custodial discipline for markets, economics, has in general slid away from its issue of mechanism.

How is this self-reproduction possible and what mechanisms are at work? How are these production markets maintained and reproduced as stable constellations, through the self-interested

of any industry, Schumpeter advocates the view that the behavior of any such a group of firms should be seen, partly, as "an attempt by those firms to keep on their feet, on ground that is slipping away from under them." The source of this instability, according to Schumpeter, is not the price competition but the quality competition that stems from constant innovation. The kind of competition that counts in the "capitalist reality" is, in Schumpeter's (1975: 84-85) words, not the price competition "but the competition from the new commodity, the new technology, the new source of supply, the new type of organization (the large-scale unit of control for instance) -competition which commands a decisive cost or quality advantages and which strikes not at the margins of the profits and the output of the existing firms but at their foundations and their very lives. This kind of competition is much more effective than the [price competition] as a bombardment is in comparison with forcing a door, and so much more important that it becomes a matter of comparative indifference whether competition in the ordinary sense functions more or less promptly."

White frequently maintains that a production market is a self-operating social organization capable of self-maintenance and reproducibility. For him, "any market of significance operates itself and reproduces itself" (1999b: 12), and for its functioning no external planner or coordinator, "no auctioneer need be hypothesized" (1993b: 164; 1995c: 62). And, according to White (1992a: 42), "such a market is an ongoing social act which accomplishes the feat of reproducing itself to continue month after month just by their coherence as social acts ..."
behavior of individual producers? White refers often to this question and points to the special conditions that are necessary for any production market to emerge and be sustained. What seems to be central in his account of the issue is the matching of the two sides of the market, i.e. the matching between, on the one hand, the differentiations or quality variations among the producers and, on the other hand, the spread of preferences among the buyers.

To grasp White's account of the issue it should be remembered that the producer firms' commitments entail certain expectations among the buyers regarding the producers' performance. As producers commit themselves to deliver certain versions of a product, they will also generate particular expectations on the buyer side. That is, the spread of quality on the producer side is paralleled by a spread of valuation on the buyer side, an associated dispersion of appreciation with regard to the producers' performance as the deliverers of quality. There is on the other side of a market, in other words, a body of consumers who not only have the power to judge but also the ability to discern nuances in firms' performances with regard to quality. This means that it is not only producer firms that differentiate themselves by seeking and establishing distinct quality niches, but also that consumers too differ in their evaluations of the offers on the market and in their appreciations of the products. Thus, with buyers seen as a discerning audience for which the producer firms perform, in any market there will be an array of valuations on the buyer side, an array of buyers' appreciations of the products on display. There will be a dispersion of quality as perceived by the buyer side, parallel to the dispersion of quality delivered or performed on the producer side.

Crucial to the maintenance of any market and, indeed, necessary to any market schedule is the establishment itself is the matching between these two parallel spreads or arrays of positions. Time and again White points to the matching between this pair of arrays, i.e. the interlocking or dovetailing of choices on the both sides as the necessary condition for a production market to emerge and sustain.38 What lies at the heart of this matching process, in other

38 White (1981a: 520) refers, for instance, to these dispersions and their matching as the elements that "occupy the center stage" in his analysis. On other occasions, he holds,
words, is that there is some correspondence between, on the one hand, the array of choices made by producers, i.e. the set of pairs of volume and price chosen by individual producers and, on the other hand, the array of buyers' preferences. For a market to be established and be viable over time these two orders must interlock; and they must interlock in a special way so that "the producer set is arrayed in reward in the same order in which their productions are discriminated" (White 1992a: 43).

It must be recalled that these choices of pairs, or offers, come from the producer side, and that the buyers can only approve or reject these choices after these are made and materialized. Thus, with the choices coming from one side of the interface, what is crucial to the maintenance of a market is that these choices are confirmed by the buyers. It seems to be in this sense that White speaks of interaction between the producers and buyers and of the need of the two sides to settle down and reach what is agreeable across both sides of the interface. It also seems to be this kind of matching that White has in mind when he frequently refers to production markets as joint constructions that "emerge and evolve in a symbiotic process of definition and recognition by suitable clienteles and procedures" (1999b: 4).

"the terms of trade [offered by the producers] must be accepted by the embedding side [i.e. the buyer side], which is the arbiter of the competition or relative performance" (1993b: 168), or "the concrete market composes itself as some definite mesh between an array of use values [on the buyer side] and an array of costs [on the producers' side]; without such meshing it does not reproduce itself in the continuing actions of producers and buyers" (1993b: 164 and 1995c: 62), or "[the] schedule will not reproduce itself unless the particular product varieties from the various producer firms come to seem, to the other side, equivalent trade-off of quality for price at their respective perceived aggregate sales volumes" (1995c: 62).

White defines, for instance, a production market as "a set of firms who eye each other's products ... in interaction with the population of consumers" (1979a: 6), or holds that any actual production market is "some set of differentiated producers [that] manages to establish itself as a set vis-à-vis an 'other side'" (1993b: 161). White also maintains that in any market the participating firms have "to settle down" with the buyers (1999b: 3), seeking to make their offers acceptable to the recipients on the other side.
As far as modern large-scale production is concerned, there can be a market only in as much as there is a set of comparable producers that can produce regular flows of qualitatively differentiated products. Equally important is the existence of a differentiated body of consumers who can discern the quality variations put on display by the producers, who appreciate the various versions of the product differently, and who are willing and able to reward the producers accordingly. Where and when there is no such a set of producers there cannot be a market. A less obvious implication, however, is that there cannot be any market either where and when the consumers are unable to discern quality variations offered by the producers, where and when the consumers are indifferent to these variations, or where and when the consumers cannot reward the producers in accordance with their relative performance.

Furthermore, every production market is historically particular. It is evolved historically and its development is “a conflict-ridden and erratic process with quite a range of outcomes possible in the forms of markets schedules” (White 1981a: 520). And it is crucial to keep in mind that such market schedules or profiles get established [only] through various particular histories of trial-and-error searches. Trial and error search is a complex process of interaction between successive provisional choices and false starts by various of the producers both in terms of responses they start seeing from the other side of the market over various periods and in terms of their perceptions of the choices being made in much the same fashion by their peers (White 2002a: 35).
After having presented the main concepts and ideas in White’s general theory, it is time for a general assessment. Any such attempt, however, should start with the following consideration. It is both easy and difficult to evaluate a general theory like White’s and to discuss its merits and flaws. The ease and the difficulty stem from the unfinished state of the theoretical construction that he puts forth in *Identity and Control*. The fact is that what this book contains is a sketchy outline of a grand theoretical project rather than a fully developed theoretical framework. As many reviewers of the book have pointed out (see Introduction), *Identity and Control* contains a large number of underdeveloped ideas and vaguely articulated concepts and arguments. It includes, it sometimes seems, some unnecessarily complicated reformulations of familiar notions while, on the other hand it appears to leave out many important issues indispensable to any sociological theory that claims to be general. Indeed, rather than a fully coherent and consistent body of well-integrated ideas, the book represents a more or less organized ensemble of novel concepts, images and propositions, which are yet in need of much further elaboration. Given the fact that White is himself aware of the unfinished state of his theory, one is left with the impression that the ultimate purpose of *Identity and Control* is experimental, i.e. to test the worth and potential of the proposed theoretical outline that it contains by inviting the sociological community to reflection and assessment.

The unfinished state of White’s general theory has, of course, certain implications for any assessment of it. On the one hand, the incomplete character of the theory offers numerous opportunities for
criticism. Indeed, one can, without any considerable effort, find a number of apparent shortcomings, gaps and even inconsistencies in this still unfinished theoretical project. One can pick almost any concept or topic in the book and demonstrate its incompleteness and/or inadequacy of treatment. On the other hand, its same unfinished state also makes it hard to assess the true value of the theory, and to do so with fairness. The absence of a definite, complete and systematically presented theoretical framework opens itself up, among many other things, to a variety of interpretations, and puts any student of the theory in a rather vulnerable position. The reason is that, as the whole and final construction cannot be perceived, one can never be completely comfortable with his interpretation. Further-more, White’s unconventional and, at times, idiosyncratic ideas, images and concepts make comparison with other approaches difficult. One is almost totally left to his own devices when interpreting and assessing this theory, without having recourse to anything comparable to the established interpretation frames that often accompany other general sociological theories.

Having said that, it seems more fruitful to concentrate the present assessment on the overall ambitions and achievements of White’s enterprise, rather than on specific concepts or notions. In other words, although it is inevitable to discuss the central concepts and arguments in White’s general theoretical framework to a certain extent, it seems worthwhile to focus more narrowly on the profound outcomes of White’s project of regrounding sociology. A critical assessment of White’s theoretical construction that considers the unfinished character of his general approach should not occupy itself too much with the specific concepts and ideas. It should instead turn its focus to the main question: How well or to what extent does White succeed in substantiating his claims of having laid the proper foundations for a new, and more adequate, sociology? Put differently, the real question to be discussed is whether or not, and/or to what extent Identity and Control offers a fresh start and provides us with new ground to build on.

White’s approach represents one of the most ambitious and elaborate attempts to develop a general sociological perspective on the basis of the characteristic tenets of the social network approach.
AN ASSESSMENT

Given the premises of his enterprise, the main and important question to discuss becomes a test of the potential of the social network approach, i.e. it becomes a question of the worth of social network approach as a general sociological paradigm. Let us now begin to examine this question by exploring what I consider to be the major merits of White’s approach.

A STRATEGIC TURN

On the basis of the presentation put forth in the previous chapters it seems clear that, in pursuing his ambition to reground sociology, White aims to build a general theoretical construction that is equidistant from both established paradigms of social theory, namely atomism and holism, voluntarism and structuralism, micro and macro perspectives, or whatever one may choose to call these. Discontent with many premises of these perspectives, he begins instead with the basic tenets of the social network tradition, and seeks to develop a general sociology on the basis of the concrete interactions and relationships among social actors as these carry on the business of their everyday life. This particular feature of White’s approach can be characterized as a move towards a distinct level of sociological analysis, i.e. a level which lies between the two main positions held by the established perspectives. Alternatively, it can be characterized as a turn to the level of the social, between the psychological and the cultural, or as a move into the level of the concrete interaction, between atomism and holism.

Before trying to explore various aspects of this positioning in the middle, some other points should be mentioned. First, as this chapter tries to show, this is a strategic turn, which constitutes the very cornerstone of White’s endeavor and which represents the most salient and pivotal feature in his theoretical construction. It is also a multi-dimensional move, which has a number of manifestations and implications, both ontological and methodological. Furthermore, it can be seen that much of the novelty of White’s theoretical framework approach indeed stems from this turn to the middle, as also much of the ambiguity and deficiency of his conceptual apparatus does. In addition, this positioning in the middle also represents the
most stable feature in White's approach, which dates back to the very early days of his career as a social scientist and which persists throughout the development of his sociological thought up to the present day.

The core issue for any study of White's sociology requires an exploration of this positioning, i.e. keeping track of this central and multi-facet turn, unpacking its various aspects, and examining its numerous implications. Observing this move is not only a good entry point to White's sociological thought; it also offers valuable assistance in organizing and systematizing the student's reflections and assessments. Neglecting this issue would, on the other hand, prevent us not only from seeing the very main characteristic of his approach but also from discerning the overall frame of his project and its novelties. In fact, without observing this move, it is hard to see any consistency in White's bulk of production. It also becomes more difficult to discover any continuity across the body of his work and to follow the development of his mode of thought over time. Moreover, it seems hard to grasp the essence of White's criticism of the established sociological paradigms without exploring the position from which this criticism is launched. Without delving into various dimensions of this positioning one is unlikely to appreciate the novelties of White's approach or to adequately assess their worth. This is also necessary, of course, in order to identify the shortcomings and limitations of his theoretical construction.

One important point should be spelled out in particular. The emphasis on the salience of this move may give rise to the misconception that White's attempt to develop a theory equidistant from the two established paradigms of social theory represents yet another theoretical project aimed at bridging the gap between them. Such an interpretation would mean a nullification of the very essence or spirit of White's endeavor. Rather than seeking to mediate between these two positions, White's turn to the level of tangible social interactions and relationships among real actors represents what Herbert Blumer (1969: 34-35) calls "a return to the empirical social world." That is, above anything else, this move expresses White's disapproval of the unscientific character of established paradigms and
marks his quest for a return to actual social reality as perceived, experienced and constructed by actors.

As mentioned in Chapter Two, there is a deep empiricism in White's approach, i.e. a firmly rooted preference for concretization and specification, on the basis of which he criticizes the major prevailing paradigms of today's social sciences. In his view, these paradigms are based on—and keep building on—constructs or mythical concepts which have been invented to describe, analyze and understand social reality but turned into poor substitutes for that reality. These paradigms have, in White's view, abandoned dealing with tangible social realities, and are mostly occupied with the never-ending business of further elaborating on the abstract constructs that are void of the necessary empirical validity. With that in mind, it is easy to see that what motivates White's turn to the empirical social world is primarily his ambition to find an alternative point of departure and a more adequate foundation for the social sciences rather than search for a conceptual link between the paradigms that, in his view, are equally flawed. To phrase it differently, unlike an attempt at reconciliation between sociology's old adversaries, White's turn to and positioning in the middle means and represents an attempt to move away from the abstract towards the concrete, away from the constructed towards the factual, away from the imagined towards the actually existing, and away from myths and towards reality, to the extent that it is ever possible for science to do.¹

¹ On the whole, Paul DiMaggio seems to share White's general assessment of contemporary sociology and advocates, like White, a middle ground approach. According to him (1991: 59) "neither holism nor individualism in this sense is a sound starting point for analysis. Put simply, the problem is that neither perspective pays adequate attention to the constructed nature of both individuals and groups. A good opening to this has come in the growing influence of the network approach, which followed earlier social anthropologists in suggesting that the proper unit of analysis is neither individuals nor whole societies but the structure of social relations (Nadel 1957). In Giddens' ... terminology, we could say that the historical process of structuration is emphatically not a mediation between individual and society, for both individual and society are its products, or its contents, not its starting points. What is primary is the intersubjective process."
THE GENERAL SOCIOLOGY OF HARRISON WHITE

THE ONTOLOGICAL DIMENSION

To examine the issue let us begin with the ontological dimension of White’s turn to the level of concrete reality. It has already been mentioned that White, in pursuing his objective to reground sociology, starts by taking a fresh look at the kind of reality that makes up the domain of this discipline. To reground sociology White reexamines and determines anew the constitution of the modern societies that sociology sets out to analyze and theorize about. He does so because, in his view, the major paradigms of the discipline have stopped dealing with tangible phenomena and are instead built on inappropriate or even false ontologies. What lies at the heart of White’s dissatisfaction with, and criticism of these paradigms is, in other words, that each starts with a misleading description of social reality, using either ‘individual as person’ or ‘society’ as its building block or basic unit of analysis, as if these were unproblematic and self-evident entities.

As mentioned earlier, what White is aiming for here is, on the one hand, the notion of ‘society’ as conceptualized in the standard holistic perspective. Being a troublesome concept with vague connotations, it typically refers to an all-embracing whole or totality, which, clearly separated and demarcated from its surroundings, has an independent, self-contained and persistent existence. Especially in the Parsonian style of envisioning the modern social reality, ‘society’ refers to an all-encompassing and well-organized societal system, normatively unified and functionally equilibrated, with an ensemble of fixed roles, neat divisions and tidy boundaries.\(^2\)

\(^2\) For instance, with clear reference to the common Parsonian images of modern society, White (1970a: 4) holds that such conceptions “have an abstract, ideological quality. Actors in role abound, but concrete persons and positions seem to belong to another, divorced, level of discourse. Balanced structures of roles are filled by actors subject to the abstract harmonies of generalized value orientations. The harmonies are so strong that most of the conceptual problems of a system of men is positions defined relative to one another disappear; at most a few actors with a very few general attributes suffice logically to people the system.” This kind of criticism and rejection of the abstract cultural-holistic images of society is an old topic in White’s writing and dates back to his early years at Harvard. In an interview conducted by Richard Swedberg for Economic Sociology: European Electronic Newsletter (October 1999) Mark Granovetter observes: ”I and others who worked with Harrison White as his graduate students in the 1960s, were in rebellion against the dominant Talcott Parsons’ framework which
conception of society is an invalid construct, i.e. a thought object or an imagined entity that is void of sufficient empirical foundation. It is, in other words, a fabric of imagination that corresponds poorly to actual and tangible social reality. As such, this construct derives from false assumptions, especially those concerning the existence of some overall order and prevalence of balance and harmony. As White perceives the issue, therefore, it constitutes an inadequate point of departure, and yet holism continues to build its architecture on the "myth of society as some pre-existing entity" (White 1992a: 9).

The common adherence to and prevalence of the construct of society, according to White, is only a reaction to the construct of 'individual as person,' as it has been devised within individualistic approaches. While both of these paradigms of social science share the same guilt of building on myths, the main target for White's criticism is nonetheless "the mirage of persons as atoms" -a mirage that he (1992a: 3) holds responsible for breeding the "obverse mirage of society as an entity." In other words, what White is targeting at here is the prevalent atomist notion according to which individuals are essentially autonomous and self-contained entities, fundamentally distinct and separate from one another.

looked like a rather elaborate taxonomy and did not pay enough attention to concrete social relations and networks of relations. It seems to me that in what you might call a sort of over-reaction to this very abstract argument, we were aggressively uninterested in cultural or mental states. ... we were almost, though never quite, behaviorists without ever giving up the idea that meaning is terribly important -we had after all read Weber. But it wasn't clear how to integrate that with the more concrete and manipulable and non-tautological parts of social life that we were paying more attention to, like social networks." Below it will be discussed how White gradually seeks to improve his approach on this point by introducing meaning into social network analysis.

3 In holding this position, White seems to be echoing the common observation that the holistic sociological paradigm historically emerged as a conservative reaction to and a critique of its "natural enemy" (Giddens 1984: 213), i.e. the atomist conceptualization of individual. According to this observation, it is in response to individualistic assumptions that some major social thinkers in the nineteenth century like Auguste Comte, Karl Marx, Johann Gottfried Herder, Ferdinand Tönnies and Emile Durkheim begun to articulate ideas of the 'social' and elaborated a set of concepts -such as community, nation, group, class, culture and society- which stood in stark contrast to the individualistic ones.
By asserting that "there is no [such] tiny atom" (1992a: 4), White expresses clearly his disapproval of the particular vision of social reality often referred to as ontological atomism. What is characteristic for this ontological position is its "deeper commitment to the fundamental singularity of individuals" (Fay 1996: 31) and its main claim that, as the ultimate unit of social life, individuals are essentially autonomous and self-contained entities. As such, every individual is assumed not only to be fundamentally distinct and separated from others by a wall of privacy but also to possess a stable core that is made up of certain given attributes, faculties and propensities. In other words, according to its basic notion, this tradition suggests that there is a fixed, pre-made and universal human nature, independent of the effects of the social conditions; individuals are thought ultimately to be what they are independently of their relations to others.4

Whereas composed entities like society, nation or class are somewhat counter-intuitive for ordinary habits of thought and are often hard to express clearly, 'individual' seems to be an unproblematic unit in full accordance with common experience; and on this basis rests its givenness as the ultimate constituent of social life and as the basic unit of social analysis. In consequence, much of social theory is individualistic in the sense that it takes the immediate existence of individual human beings as a given point to start from and as a solid rock bottom to build on. Rallying against the central position ascribed to the construct of individual in much of the social scientific thought, White maintains that the construct of 'individual as person' is a purely theoretical invention or a concept with "uncertain

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4 In the words of the founder of social thought in the post-Medieval Europe and the father of atomism Thomas Hobbes (quoted in Fay 1996: 31), "the causes of the social compound reside in men as if but even sprung out on the earth and suddenly, like mushrooms, come to full maturity, without all kinds of engagement with each other." As is well-known, it is on this assumption that Hobbes develops the famous notion of the state of nature as the original state of mankind where there exists no mutual trust and, thereby, no ties among men and where each must depend on himself and his own force or cunning for protection and security. See White (1992a: 23-24) for a critique of, and "improvement on" the Hobbsian notion or, as White prefers to call it, "the Enlightenment myth" of the state of nature, where White seems to echo some of the objections already put forth by David Hume (1966: 21-25).
scientific status" (1992a: 192). For him, ‘individuals as persons’ or rather, human beings as identities, i.e. as social agents capable of meaningful and intentional action, are secondary phenomena that need to be accounted for. Human beings as social actors, in other words, are only emergent entities that, lacking the ontological primacy often ascribed to them, can evolve only under certain social circumstances. Therefore, they do not qualify as the given and ultimate point of departure for social theory (see below).

Now, dismissing both the holistic and atomistic positions and the underlying constructs, White seeks an empirically more valid foundation for his own theoretical construction. He turns to the social reality out there as it actually is and seeks to approach it without the mediation of the theoretical constructs that shape or even distort our perception of that reality. It is with this critical view of the common ontological positions and with the ambition to find an alternative, more adequate description of social reality that White turns to the level of concrete social interactions and adopts the basic tenets of the social network approach.

As shown in the previous chapters, White finds the most promising axioms for elaboration to be the connectivity and embeddedness of social actors in the complex webs of their ties. Such ties and their patterns constitute the subject matter of his scientific enterprise, and observations made about the concrete interactions and relations among real people make up the bulk of proper raw material for his analysis and theorizing of social phenomena. In other words, such relations and their complex concatenations and intertwining constitute the basic building blocks of White’s theoretical construction. They perform this function in a dual sense, i.e. both as the basic units used to describe social reality and as the main sites of the generative forces that underpin the explanations of the tiny, local islands of regularity and predictability that emerge in the overwhelmingly disorderly and confusing modern social settings.

All this, however, would appear hardly revolutionary to any one acquainted with the social network approach, if it were not for the particular twist that White introduces into this mass of familiar ideas. The familiar assumptions about the centrality of social relations and embeddedness as fundamental properties of social life are true and
sound, but only trivially so. Neither these assumptions, nor the associated concepts such as social relationship and network are particularly fruitful. They only acquire their true significance if their potential is recognized, i.e. when serious and thorough attempts are made to explore the modes of operation and outcomes of the formative or constructive forces involved in interactions among human beings and in their associations.

This is exactly what White sets out to achieve. Perhaps his most significant contribution to sociology is his effort to do more than just pay lip service to the basic premises of the social network approach and to explore the true potentials of this perspective. *Identity and Control* aims precisely to achieve this objective—an objective White seeks to realize through the marriage that he attempts between the social network approach and the tradition known as social constructivism. In other words, White’s approach represents the most persistent, elaborate and systematic effort to enrich the analytical rigorous of the social network approach by adding the substantive theoretical insights that have been elaborated mainly within the symbolic interactionist perspective and the tradition of phenomenological sociology. This marriage is the fundamental idea underneath White’s enterprise of regrounding sociology, and it represents the essence of the challenge that his enterprise poses to the existing bulk of sociological knowledge. The significance of this endeavor for White’s later sociology is such that one could confidently argue that the foundation that he offers is nothing but the outcome of this unifying effort. Both his novel image of social reality and the new ways he propose to study this reality rest on the basis of this attempted marriage.

Although there is a fundamental continuity in White’s sociological thought, a general and comprehensive shift can also be discerned, namely a process of gradual crystallization—of consolidation and clarification—in his mode of conceiving social reality in the social interactionist fashion. In other words, one can discern a long and gradual process of theoretical modification and reconstruction, which eventually culminates in an original interpretative synthesis that still bears fundamental similarities with the old approach and, in many substantial ways, is its continuation. The
overall result of White’s attempt at the marriage between the social network analysis and social constructivism is a novel sociological framework, which remains faithful to the characteristic tenets of the social network tradition in its fundamental premises and core concerns, but reaches a considerably higher degree of theoretical insightfulness and subtleness.

With regard to the nature of this theoretical development and the high ambitions attached to it, White’s approach is the first of the kind. Moreover, the attempt to rearticulate the social network approach along the principles laid down in the social constructionist perspective and the explicit advocacy of such an attempt are both very recent in White’s sociology. Therefore, such an undertaking may initially appear as a mark of discontinuity in his sociological thinking. In fact, until this late stage, the typically formal character of White’s production, with the exception of a few early works, strongly supports the impression that his sociology lies very far from the social constructionist tradition and has little potential of developing in that direction.

The formal and highly technical character of his approach, often coupled with a good deal of advanced mathematics and modeling procedures, stands in such sharp contrast with the core interests of social constructionism for venturing into and understanding the social actors’ immediate experience that a combination of the two might seem inconceivable. But this is a false impression. On the contrary, it seems that White has in fact followed closely and been very receptive to many of the fundamental theoretical achievements within non-formal, actor-oriented and interpretative sociological currents, and has industriously selected and incorporated these achievements into his own network approach. In spite of the absence of explicit statements about his overall objectives, this continuous selection and incorporation has taken the form of a rearticulation of many of the old notions in the light of fresh, interpretative insights.

When the specific background of White’s attempt is considered, however, his project appears as a natural reaction to the state of affairs, as perceived by him. The attempted marriage appears to be rooted in White’s dissatisfaction with the unhappy development of
social network analysis in the last two decades or so, a development, which has led to an increased formalization of the approach, paralleled by a persistent loss of substantive theoretical insights. Although the formal character of network analysis has been crucial for its applicability and use within many disciplines and across various levels, that has also gradually come to hamper this current’s theoretical sophistication. As time has passed, social network analysis has distanced itself from and grown more alien to the very substantive ideas that originally justified the use of networks in social research. As time has passed, it has turned into a mode of analysis that is primarily concerned with the sociometric shapes of networks, i.e. with the identification of overall partitions of the population, of the strategic positions and centrally situated actors, etc. without paying much sociological attention to the complex social processes constantly taking place in the connections and interactions among the actors. As a result, to the extent this formalism has gained the upper hand, social network analysis has increasingly become synonymous with the use of various, highly advanced technical procedures, without much theoretical substance of interest to the conceptual development of sociology. In White’s own words,

social action is interaction that induces interpretations and thus builds continuing relations. Thus, discourse is the stuff of social networks. While this observation is not new, it has yet to trigger a coalescence between research sub-disciplines that have until now operated mostly in isolation from each other. Over the past few decades, network analysts have developed increasingly sophisticated measures and models around a bare-bones conception of social networks ... while socio-linguists working from an interactionist perspective have helped to unpack the discursive patterning of the dyad ... These approaches are ripe with mutual resonances and implications, yet they have so far maintained a skeptical aloofness from each other in regards to research strategy and design. One reason for this aloofness is the absence of an adequate theoretical understanding of the
commingling of network relations and discursive processes (Mische & White 1998: 695).

**SUBJECTIVE DIMENSION OF TIES**

Turning to the marriage itself, it can be safely said that the main purpose behind the unifying effort that White undertakes is to bring back *meaning* into the social network approach, that is, to restore the subjective dimension of social reality, which has been less and less present within the social network perspective. His ambition seems to be to venture into the space of immediate experience, perception and comprehension of real social actors as they carry on their daily lives. The overall ambition seems to be to arrive at a more adequate description and understanding of the actors’ life-world, seeking to reconstruct social reality as these actors confront it, act in it and live through it.

Such an ambition stems from and indicates the distinctive subject matter of sociology, as various directions within the interpretative perspective have always insisted. White’s attempt to introduce meaning into the social network approach derives from the insight that social action is necessarily meaningful, that it is always oriented towards others and is intended to express and convey the meanings and intentions of its performer or author. Furthermore, social action always involves symbols, which are essential to human communication in all its forms. All human communication occurs through signs and symbols that the actors discern, experience, recognize, evaluate and manipulate. In short, all human communication and interaction takes place within a vast symbolic universe, from which each action acquires a meaning both for the actor and for the others involved.

Now, the question is how does White go about incorporating these familiar truths, omitted by so many network analysts, into the formal body of the social network approach? By taking significant steps towards a marriage between the social network analysis and the social construction perspective, White is to some extent restoring the theoretical orientation and consciousness that characterized the work of network pioneers like John Barnes and Elizabeth Bott. Although
never explicitly declared, such an undertaking marks a revival of the aspirations and ambitions that some of the founders of this current originally started out with. And given the present state of social network analysis, White's effort to inject substantive theory into the formal body of this perspective is a much needed and welcome undertaking. For this reason alone, the mere fact of identifying such a need and embarking on such a remedial endeavor is a valuable contribution to the development of the social network approach, and social theory in general, irrespective of how far White actually gets in his effort.

Yet there is more to it. As mentioned in Chapter Two, White begins this enterprise by problematizing the very basic unit of analysis in the social network tradition, namely, the concept of social tie. In other words, he gradually grows critical of and eventually abandons the mechanical notion of the social tie as it is usually adopted by the practitioners of the social network analysis. In sharp contrast with the common practice of many social network analysts, White does not see social tie as an objectified abstraction, i.e. an unproblematic analytical unit that, without much loss, can be reduced to a sociometric line drawn between two points. In his view, social ties are no longer given, objective realities that either exist or do not exist. They are no longer conceived of, and reduced to, ossified and unproblematic linkages through which various kinds of resources are transported back and forth in discrete packages, from one node to another, never really allowing these flows to transform anything but the distribution of the resources in question.

Rejecting this static and mechanical notion of social relationships, White instead tends to view social ties as dynamic and meaningful entities, i.e. as vivid, intersubjectively constructions that can emerge only out of the interactive processes among social actors, where the meanings and perceptions involved are constantly being adjusted and readjusted as the interaction unfolds. Another way of putting it is that White starts his enterprise by making room for the subjective dimension of social relationships, i.e. the particular perceptions and meanings that the participants in a relationship develop and assign to the tie between them. He also opens up the social network approach for the entrance of the actors' practical
mastery of their social relationships, i.e. the practical knowledge and skills that enable the actors to carry out the checks and corrections intended to ensure the adjustment of their perceptions and actions to the expectations and reactions of other actors.

In this revised view, the nature of a tie is no longer given to the parties, pre-determined by the objective cultural or other structural characteristics of the social systems that are external to and independent of the participants. Phrased differently, the meaningfulness of social interactions and relationships is not to be seen as external, i.e. something which is simply given from the outside, but should be regarded as something that is to be achieved and sustained in specific ways on each particular occasion. As this revised conception has it, any social tie, even the apparently simple pair-wise relationship, is a complex phenomenon. It is the unique outcome of the association of the actors involved and is the fragile product of the dynamic forces that are at work in that association. Its construction, as well as its continued existence, requires the matching of mutual perceptions and actions of those engaged. In other words, any social tie is seen in this new view as a joint “accomplishment” (White 1992a: 68), i.e. as a living, socially constructed entity that, far from being anything mechanical and static, must be maintained actively and continuously by the nodes connected.

In clear distinction with the mainstream social network approach, White’s recognition of the particular nature of social ties in modern contexts and the introduction of intersubjective meaning to the conception of relationship has some far-reaching implications. On the one hand, such a theoretical turn makes it possible to shake off what, to paraphrase C. Wright Mills (1959), could be called the abstracted empiricism that the social network tradition has increasingly inclined towards. In other words, it makes it possible to incorporate some theoretical substance into what otherwise is increasingly turning into empty formalism. This issue has already been discussed above. In addition, and more importantly, is that such a theoretical development, i.e. such a reconceptualization of the notion of social tie, also enables a fundamental epistemological shift towards a hermeneutic perspective, and opens up the social network approach to phenomenological sociology which is of the idea that social reality
is constructed through intersubjectively designed interaction among social actors.

In more concrete terms, to recognize the particular nature of ties in modern contexts means to conceive of social relationships, and the chains and networks that these make up, as "phenomenological realities" (White 1992a: 3). It means to realize and concede the fluid, intersubjective and constructed nature of social relationships. It conceives of any social tie as a reality that is constructed and sustained jointly by those connected, as a reality that takes form, emerges out of, and keeps being reshaped in and through perceptions and actions of the connected parts. It means to conceive a tie as a reality whose existence and nature depends overwhelmingly on the intersubjective or interlocking perceptions, i.e. the settlements and agreements between those involved on what the tie’s terms and conditions are and/or should be.

As the result of this novelty of White's approach, the social network paradigm is enriched with a phenomenological sensitivity towards the constructed nature of social ties and thus towards the active role the actors play in interpreting, assigning meaning and defining their ties. By allowing the social actors to play this active part, they are also empowered to define their social situations and to determine the context of their actions. This particular turn also calls upon a different mode of knowledge and a different approach with a stronger emphasis on the analytical task of venturing into the life-world of the social actors and trying to reconstitute their "lived experience" (Bourdieu 1977: 2), i.e. the task of exploring and re-constructing the world of the actors' immediate perceptions and experiences of the social universe as it appears to them and as they understand it according to their common sense.5

5 The history of phenomenological inclination in White's sociology goes back to his very first sociological work, Sleep: A Sociological Interpretation, originally published in Acta Sociologica (1959), and later in a book called The Hidden Society (1965) edited by Vilhelm Aubert who was also the co-author of the article. Offering a first clue, Aubert (1965: 3) declares in Introduction, though the essays included "lack reference to an explicit methodology," the approach of the whole book is 'phenomenological' in the sense that social structures are described primarily through their counterparts in the inner world of cognition and perception." Nonetheless, he almost immediately emphasizes "the revealing aspect of social analysis," i.e. disclosure of the objective structures which, though invisible to the actors themselves, constitute the conditions that make possible
Yet, the implications of this phenomenological turn do not stop at the problematization and reconceptualization of the notion of social ties. For White, social relationships are not only complex and dynamic emergent realities; they also have ontological primacy. That is, social interaction and relationship is a *formative* process that not only engages the actors and connects actors together but is also decisive for the very construction of the actors themselves. This issue takes us to what gradually has become a fundamental characteristic of White’s later sociological thinking, namely, the *relational mode of thought*. One must stop and consider the implications of this development for White’s sociology, especially because the adoption of this mode of thought occurs largely in a tacit fashion and because explicit statements on this issue are essentially absent from his entire body of work.

Put simply, the relational mode of thought is a view of reality - natural or social- in which the existence of relations among various units as a distinctive kind of reality is recognized in its own right. The essence of this mode of thought perhaps is better understood when it is contrasted with its antipode, namely *substantialism*. As Pierre Bourdieu (1989: 15) puts it, the latter is “characterized by the inclination to recognize no reality other than those that are available their social behavior as well as their perception of them. Referring to these concealed parts of the social world, Aubert (1965: 4) writes, "it is always a task of sociology to reveal the hidden society to its members. In so far, however, as sociological efforts address themselves to the phenomenology of the private world of social perceptions and cognitions, the revealing aspect of social analysis becomes more predominant." In this article, however, Aubert and White first give an overview concerning various conceptions of sleep across culturally different settings, followed by an attempt to demonstrate how this phenomenon, despite its private appearance, is indeed socially designed, i.e. they seek to show how sleep is a “social event” (Aubert & White 1959: 2) and how sleep behaviors are conditioned and patterned due to the underlying structures which stem from the surplus of meaning associated with this activity. Though essentially resembling Durkheim’s treatment of suicide, the authors nonetheless set out here to explore the “counterparts” of these objective structures in the “actors’ inner world of cognition and perception,” i.e. in their immediate unreflective experience, demonstrating thus the very first signs of what Pierre Bourdieu (1977: 5) calls “a ‘phenomenological’ desire to restore the subjective experience of the practice.”

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6 The point has also been observed by Mustafa Emirbayer (1997) who regards Harrison White, along with Pierre Bourdieu and Norbert Elias, as a relationalist social scientist.
to direct intuition in ordinary experience." The substantialist mode of thought recognizes only one kind of reality, i.e. the one that is immediately accessible to our senses. In more specific terms, although this mode of thought recognizes the existence of any pair of tangible objects as real things, it declines to ascribe a similar status to the relation between those objects. In this sense, this mode of thought implies an undifferentiated and reductionistic ontology, which consists exclusively of perceptible objects.

In sharp contrast with the substantialist point of view, the relational mode of thought is a fundamentally different way of conceiving reality, which recognizes the reality of relations. This mode of thought does not confine itself to tangible objects and is derived from a more comprehensive notion of reality. This mode of thought does not identify the real with substance alone, i.e. with the phenomena that are available to direct perception, but also with relations. Additionally, this mode of thought does not only extend the concept of reality to include relations -it also ascribes ontological primacy to these relations.

Again, the contrast with substantialism is illustrative here. According to the basic premise of the substantial mode of thought, the tangible objects not only represent the only kind of reality but also are self-contained. They are discrete entities, which exist independently from and prior to the relations in which they are involved. In other words, this mode of thought asserts, "it is entities that come first and relations among them only subsequently" (Emribayer 1997: 281). By contrast, the relational mode of thought refuses to take self-subsistent, pre-made and fixed entities as a given and unproblematic point of departure. As this view has it, entities do not exist prior to and independent from the web of relations in which they are embedded. Instead, entities are inseparable and detachable from their transactional contexts. Rather than being accomplished prior to their entry into relations, these entities are constructed and realized by way of their interactions with each other. Hence the primacy of the relation or, as one of the main figures associated with this mode of thought, Gaston Bachelard (1929: 65, quoted in Vadenberghe 1999: 43), puts it, "in the beginning is the relation."
Drawing on John Dewey and Ernst Cassirer, Emirbayer (1997: 286-287) expresses this point as follows:

fundamentally opposed to both varieties of substantialism is the perspective of trans-action, where systems of description and naming are employed to deal with aspects and phases of action, without final attributions to 'elements' or other presumptively detachable or independent 'entities,' ‘essence,’ or ‘realities,’ without isolation of presumptively detachable 'relation' from such detachable 'element' .... In this point of view, which I shall also label 'relational,' the very terms or units involved in a transaction derive their meaning, significance, and identity from the (changing) functional roles they play within the transaction. .... Things are not assumed an independent existence present anterior to any relation, but ... gain their whole being ... first in and with the relations which are predicated of them (italics in text).7

7 In his presentation Mustafa Emirbayer (1997) distinguishes two distinct varieties of the substantialist mode of analysis in social theory: the perspective of self-action and that of interaction. The former is to be found in rational choice theory, which is essentially based on the assumption of the givenness and fixity of the acting units. It is also prevalent in the norm-based models of social action which take as their basic unit of analysis norm-following individuals depicted as ”self-propelling, self-subsistent entities that pursue internalized norms given in advance and fixed once for the duration of the action sequence under investigation” (Emirbayer 1997: 284). ”In a very different way,” Emirbayer (1997: 285-286) continues, ”the idea of self-action also insinuates itself into social thought by means of holistic theories and ‘structuralisms’ that posit not individuals but self-subsistent ‘societies,’ ‘structures,’ or ‘social systems’ as the exclusive sources of action. Proponents of these approaches ... all too often fall back upon the assumption that it is durable, coherent entities that constitute the legitimate starting points of all sociological inquiry. Such entities possess emergent properties not reducible to the discrete elements of which they consist.” According to Emirbayer (1997: 285), “the second key category of substtablism ... is that of inter-action. In this approach, which is frequently confused with more truly relational point of view ... entities no longer generate their own action, but rather the relevant action takes place among the entities themselves. Entities remain fixed and unchanging throughout such interaction, each independent of the existence of the other, much like billiard bolls or the particles in Newtonian mechanics” (italics in text). For an interesting presentation
What is the relevance of all this for White’s sociology? A short answer to this question is that in describing modern social landscapes White starts with social relationships as the basic constituent unit and offers a network image of these settings. Yet, the adoption of a relational mode of thought does not stop at the development of a network ontology, i.e. at redescribing the social reality that underlies his sociology in terms of chains and networks of ties. As shown in the previous chapters, in White’s theoretical perspective social relationships also have an ontological primacy. That is, not only are all concepts of his sociology defined in terms of social ties but also any social entity that enters into his sociological construction is derived from ties and networks.

More concretely, the main categories that help White describe the social universe of modern societies, namely identities and disciplines, are both relational entities. In other words, both identities and disciplines, i.e. social actors and orders, emerge out of network contexts and are constructed through network processes. Social relationships are the primary, constituent elements from which these entities emerge. In this sense, both identities and disciplines, i.e. the main observable social entities that make up the social world, are secondary. Neither identities nor disciplines exist prior to the network contexts in which they are embedded. Quite the contrary, both identities and disciplines are derived from, and are constructed through the inherent dynamics of social interactions and relationships.

A longer answer to the question above is as follows. White envisions modern social settings as essentially complex, vivid and indeterminate contexts best described as vast and dense textures of overlapping and multi-layered networks, made up of the concatenations of ties of various kinds, that extend endlessly in every direction, without any natural, clear-cut boundaries. With dynamism, complexity and contingency as the fundamental and indispensable features of modern social settings, any holistic conception of society, as already said, can be dismissed as unrealistic and mythical, simply of the relational mode of thought in general and its application in sociology, especially by Pierre Bourdieu, see Vadenberghhe 1999.
because such a conception does not fit the social reality it intends to describe.

The adoption of the relational mode of thought also leads White to reject, equally forcefully, what he sees as the mythical notion of social actors as pre-social entities. White dismisses the idea of fully developed social actors independent from and accomplished prior to the interactions and relationships into which they enter. On the contrary, White views identities or social actors as emerging only as by-products of social interactions and out of the dynamics of network contexts. As mentioned earlier, embeddedness, and in particular embeddedness at the cross-point of several distinct and heterogeneous networks, is a necessary prerequisite for the construction of any identity, according to White. It is only by being located at the convergence of several distinct network flows, by being subjected to the diverse shaping forces inherent to these flows and by being forced to deal with the inevitable mismatches among heterogeneous bundles of perceptions, expectations, claims etc. that identities can gradually crystalize and take form.

It appears to be precisely the adoption of the relational mode of thought that leads White (1997a: 64), seemingly inspired by the shift from solid state to quantum physics, to point to the updated version of *knot theory* as a model and hold,

you can already see why I conjecture that knot theory may become central in the future for modeling social phenomena in the currently emerging era of social constructionism. Interactions, ties in sociocultural context, are coming to supplant persons as building blocks -and a person may come to be seen as a knotted vortex among social networks ... It is not just persons that can emerge as actors from knot theories of spacetimes. Consider, for example, the kaleidoscope of networks and corporates in conflict and oscillation as they continually reconstruct the Ottoman Empire as portrayed by Barkey (1993), or in the Medici Florence portrayed by Padgett and Ansell (1993). And there are a number of other theoretical-modeling enterprises
moving in this direction, some catalyzed by the Santa Fe Institute.

Nothing gets constructed without constructing powers, however. In White’s conception of social ties and networks, connectivity is anything but passive. Or as Blumer (1969: 64) observed long ago, interaction is not “a neutral medium, [not] a mere forum for the operation of outside factors,” but is “a formative process in its own right.” In other words, taking further the implications of the social network approach, White conceives connectivity, interaction and embeddedness as a shaping process in which the interplay of forces at work is crucial for the construction of the participants involved.

As the concrete leverage of the adoption of the relational mode of thought, White conceives of identities, i.e. social actors of various kinds, as social outcomes of the joint efforts of the nodes tied together, which mutually shape one another through different relationships and interactions. Rather than being pre-given and primary entities, they are secondary phenomena that emerge as by-products of their interactions. They are constantly being molded and remolded, due to network energies or pressures that are ceaselessly issued, exercised and mediated through ties. They become and keep becoming what they are due to their position in the ever unfolding, multi-layered textures of multiple ties.

However, it is not only in the conceptualization of the social actors and the essence of their agency that White’s adoption of the relational mode of analysis manifests itself. Another important case of expression of this mode of thought regards the question of social order, the fundamental question of any sociological enterprise. Both the way in which this question is reformulated and the kind of answer that White offers to this question distinguish his approach from substantialism and embrace a relational mode of thought that is concretized in network terms. In fact, White’s view of the modern social landscape radically alters the very nature and state of the question of social order as well as the premises of its answer.
Put in different words, given the ontological outlook on which White's theory rests, the question of social order can no longer be conceptualized within holistic perspectives, in terms of behavioral regularities that derive either from an all-inclusive value consensus or from the functional integration of social totalities. Such totalities are absent from White's social universe. Nor can the question be formulated, as the atomistic ontologies suggest, in terms of achieved social contracts that are intended to end, or at least, regulate the war of all against all. White's particular image of social reality and the set of assumptions from which this image is derived, invalidate both the holistic and atomistic styles of conceptualizing the issue. Such an outlook conceptualizes the question of order relationally. That is, it becomes a question of identifying the tiny islands of regularity within the social landscape that is dynamic, indeterminate and shifting. In more concrete terms, it becomes a question of identifying the limited, local and stable patterns or configurations of relationships that prove sustainable and thus observable, despite all the dynamics of embeddedness and connectivity.

As presented in the previous chapters, it is through the concept of discipline that White addresses the fundamental issue of social order. Discipline is the concept that White chooses to label the basic units of social order, the tiny islands or enclaves of regularity and predictability in a world that is otherwise chaotic and confusing. Any given discipline embodies and represents a local social order, in the sense that it is a site where the constituent identities are disciplined, where they are constrained and tied down. It is the context where the participating actors cease to fluctuate and react unpredictably to actions of others. It is the context where the participating actors develop relatively stable and predictable behavioral profiles. Any discipline, in other words, is a relatively stable framework for action, i.e. the context in which social action is ordered and harmonized across participants. It is in this sense that, as said earlier, disciplines are "disciplines for social action" (White 1992a: 23), and that disciplines are the "locally overawing expressions of social control" (White 1992a: 233) or, more simply, the limited sites of local social order.
Social order does not come from the heavens; it is a human construction. The notion of discipline makes it possible to avoid the conventional, poorly underpinned and vague accounts of social order, which normally rest on mythical assumptions either about some all-inclusive social contract, some organic whole, or some deep-lying cultural scheme. Instead of assuming the existence of some overall social order, which prevails everywhere and permeates everything, the phenomenon is brought down to earth and broken down into relatively small and locally created arrangements. In other words, social order is conceived and conceptualized as a tangible outcome of real social actors and their interactions—an outcome that corresponds to the degree of control over the contingencies and uncertainties that they face.

In addition to what has been said so far about disciplines, a few points should be mentioned. First, through the concept of discipline White offers a phenomenologically informed basis for the kind of structural analysis that the social network perspective adheres to. That is, as a concrete outcome of White’s unifying project, the notion of discipline helps us to see the significance of actors’ perceptions, meanings and experiences for the creation and maintenance of social structures, and to see how the actions of individual actors unintentionally help to produce and reproduce these structures. The notion of discipline helps us to gain some valuable insights about the intersubjective and interactive processes that underpin the production of the objective structures revealed by network analysis.8

More importantly, these social orders are conceptualized and accounted for in terms that are purely relational. Disciplines are defined as relatively stable and cohesive configurations of ties. The ground for the construction of any discipline is, as said before, provided by the relationally defined categories of actors, i.e. categories defined and discerned on the basis of the similarities and dissimilarities of the participants’ relationships. It is also through the management of their ties that the actors seek to alter or maintain their

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8 An immediate implication of this, of course, is the dynamic nature of any revealed social structure. As outcomes of stochastic network processes, social structures are, in other words, variable and, thus, measurable phenomena, allowing the observer to ask “how much?” (White 1963c: 97).
membership in these relationally yielded categories and, thereby, their
topological location and structural position. In other words, disciplines emerge as the constituent actors are driven towards and
away from each other by multiple forces of attraction and repulsion,
of attachment and detachment. As such, disciplines are the basic units
of orderly social co-existence, i.e. the primary sites where interaction
processes, the processes of conjunction and decoupling among actors,
have come to some accommodation and gained a degree of stability.

THE METHODOLOGICAL DIMENSION

As mentioned above, White’s positioning in the middle also has a
methodological dimension, which is closely related to the ontological
one. White’s approach represents a case where it can be seen very
clearly how a particular ontological outlook gives rise to a pertinent
methodology.9 In accordance with the ontological dimension of
White’s positioning in the middle, there is also a methodological turn

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9 As the underlying substratum of thought, ontology is a ”theory of reality” (Mannheim
1936: 259), i.e. a theory about the nature, constitution and structure of reality. Any
particular ontological outlook assumes the kind of object there will be. It is a certain
standpoint defining the most general and necessary characteristics that anything must
have in order to count as being. The issue obviously has a decisive impact on how we
perceive social reality and how we approach the problem of understanding social life,
thus forming the basis on which all sociological work rests. Methodology, taken in the
broadest sense of the term, i.e. as “the logic of scientific procedure” (Merton 1968: 86),
is of fundamental importance for any system of thought, and one has to have a more or
less clear picture of the basic methodological standpoints of a social thinker before
trying to examine his or her substantive ideas. There is, however, a close substantial link
between the kind of ontological outlook adopted in a theory and the methodological
stance taken by that theory. About this parity of positions Anthony Giddens (1984: 213),
for instance, holds, ”the debate between the two positions (i.e. methodological
individualism and ‘structural’ explanation’) is in some part the methodological
counterpart to the dualism subject and social object that has characterized the ontology
of the social sciences.” Roy Bhaskar (1989: 13) seems to take this parity further and
suggests the primacy of ontological investigation when he maintains that since ”the
objects of scientific inquiry are either empirically given or even actually determinate
chunks of the world ... it would seem that we must first know what kind of things
societies and people are before we can consider whether it is possible to study them
scientifically ... The question [is] what properties do societies and people possess that
might make them possible objects of knowledge for us.”
exhibited in his simultaneous rejection of methodological strategies associated with the rejected ontologies. It is manifested in his ambition to explain social phenomena without appealing to either the 'psychological' or the 'cultural' as the decisive explanatory element. In full accordance with his disapproval of both the atomistic and holistic descriptions of social reality, White also discards both psychological traits or/and individual attributes as well as abstract, culturally defined role prescriptions as primary sources from which valid explanations can be derived. Turning to the level of social interactions and relationships, he instead develops a mode of analysis that can provide us with accounts in terms that are purely social.

As shown in Chapter Four, White’s particular version of structural analysis starts by dismissing conceptions of social structure that come from partitioning actors and assigning them to their positions on the basis of the actors’ attributes. Nor does this mode of analysis ascribe any explanatory significance to culturally defined role expectations and behavioral patterns, although social actor may, according to this mode of analysis, draw on cultural reservoirs at hand in order to give legitimizing accounts of their actions. In White’s view, true and primary causal forces reside in actors’ relationships, in their embeddedness and in their positions, or as White (1967: 1) puts it, “to get at efficient causes one must explicitly deal with concatenations of relationships in concrete social structures: networks of persons, structures of roles, and frameworks of organization.”

As shown above, the notion of structural equivalence lies at the heart of White’s attempt to capture the structural properties of the social contexts in which actors are embedded. This notion serves, in White’s general sociology, as the structural basis of the similarity of actors’ perceptions and actions. By translating the similarities of these actors’ structural positions and roles into network terms, a relational basis is provided for explaining the similarities of actors’ role behaviors and attitudes. In contrast with both the abstract cultural-holistic and individualistic explanations, White’s approach offers relational explanations for the observed regularities of social life. That is, the observed similarities of the actors’ perceptions and actions are primarily accounted for in terms of these actors’ actual ties and the stable patterns of their relationships.
SOME CRITICAL REMARKS

Despite all its merits, White's general sociology also has some serious shortcomings. Many of these shortcomings are a consequence of the unfinished state of the theory, but not all of them. As mentioned in Chapter Four, there is a sharp asymmetry of treatment concerning the various species of discipline. Whereas interface receives an extensive and elaborate treatment, the two other types of discipline, namely council and arena remain highly underdeveloped. White's account of these two, as he himself admits, is quite sketchy and incomplete, leaving many threads loose. Indeed, Identity and Control is the only place in White's whole production where these two species of disciplines are presented. But this book not only lacks explicit, clear and systematic descriptions of these disciplines, it also falls short of offering illustrative and consistently followed examples.

Among the many questions that are left unanswered, the following ones can be mentioned; though the list could easily be longer. Identity and Control fails, for instance, to offer a comprehensive and satisfactory account of how council and arena are related to the central notions such as role structures, structural equivalence, etc. Nor does White make any effort in this book towards systematic and transparent accounts, which inform the reader how these two species of social formations are derived from, and operate through prestige and purity, i.e. the particular valuation orderings that he associates with council and arena, respectively. Furthermore, there is no account of the reproduction mechanisms at work in these two species. Finally, White fails to explain how the participants' behavior get harmonized and coordinated within these disciplines, so that the overall, shared identity of the disciplines is maintained. On the whole, and especially in comparison with interface, council and arena remain highly vague. This lack of lucidity, both in the presentation and exemplification of these two species of disciplines, confirms only the fact that much of White's conceptual apparatus is still under construction and in need of further development.

Yet, there are other problems attached to the notion of discipline as well. The first one regards the typology of disciplines
Three distinct valuation orderings underlie this typology: quality, purity and prestige, as White calls them. As mentioned in Chapter Four, these valuation orderings function as hierarchical organizing schemes or status orders, and help the participants in any given discipline to make comparative judgments concerning the relative place of each member as well as the suitability of the membership candidates. Thus, in any given discipline a specialized valuation ordering or a comprehensive and transitive scheme or scale is used to establish the comparisons so crucial to the construction of the discipline. Furthermore, it is through the application of these valuation orderings that the boundaries of that discipline are defined and the behaviors of the participant actors are constrained. White is rather silent, however, on the reasons why these particular three valuation orderings are chosen and why, in consequence, his typology includes the three particular species of interface, arena and council. Indeed, he never offers an explicit detailed account of why the number of valuation orderings, and of disciplines, should be three, and not two or four, etc.

There are, however, some passing remarks on the issue in *Identity and Control* that are unsystematic and poorly argued. Underneath the three-fold typology that White offers there is a more fundamental classification of the basic dimensions of social action, or three universal types of relation. Covering various areas of social life across levels, these three dimensions or types, according to White (1992a: 29-30), are “instrumentalism,” “friendly-hostile,” and “dominant-submissive.” According to White (1992a: 29), “these three affective dimensions [are] induced from recent systematic observation of small human groups.” Each yields or, as White puts it, “maps into” one of the valuation orderings, quality, purity and prestige, and each “tends to be pre- eminent in one species of discipline,” i.e. interface, arena, and council, respectively. What is left unsaid, however, is where these particular three dimensions come from. One is reminded of Talcott Parsons’ *pattern variables*, i.e. the few, highly abstract, basic and universal dimensions of social interaction that he held to be essential to the design of, and inherent to, any social relationship and to any social system. One is also reminded of Parsons’ grand project to
develop a general sociological construction on the basis of these variables along which choices and judgments are made.\(^{10}\)

In a similar fashion, White also argues that instrumentalism, friendly-hostile, and dominant-submissive are the universal criteria actualized in any case of social interaction. They pose a dilemma to the actor and force him to make judgments about the character, i.e. about the quality, purity and prestige aspects, of the interaction in question. On this basis, the interaction and relationship can be defined and thus handled. If this interpretation is correct, these dimensions are thus the very basic parameters of any social action. They are decisive for the formation of the particular constellation of ties that the actor has and, thereby, for the actor’s structural position and the identity that he eventually develops. At any rate, White declines to offer any satisfactory account of why these dimensions, so central to his conceptual apparatus, are chosen instead of other ones. One is left only with the claim that these three, and the specific typologies that are derived from them, are the only valid ones.

There are several other important issues that could be added to such a critical assessment. As stated at the beginning of this chapter, it is almost too easy to pick a topic or concept in White’s approach and demonstrate its shortcomings. Yet, these critical remarks should not be allowed to obscure one’s vision. White’s approach offers major novelties that, if fully tapped, will be of great significance for the development of sociology and, indeed, the social sciences in general. His sound criticism of the unquestioned reign of theoretical constructs is one of them. His healthy emphasis on the need for a return to the empirical social reality, without the veil of such constructs is another one. His effort to enrich and refine the social network approach with the help of symbolic interactionist, social constructivist, and phenomenological insights is undoubtedly the most important one. In this sense White's general sociology as articulated in Identity and Control, despite all its shortcomings, offers a new foundation and marks a fresh start. Moreover, it shows the

\(^{10}\) As known, drawing on Tönnies, Talcott Parsons (1960) identifies four pattern variables, which represents four dilemmas of action, each offering two possible responses. These are universalism vs. particularism, affectivity vs. affective neutrality, diffusness vs. specificity, and finally, attributes vs. achievements.
direction towards which sociology should be moving, even though his own effort falls short in many important aspects. In short, White provides the sociological community with both the foundation and the direction for a better sociology. This should encourage many others to take up the task and continue his efforts.
Harrison Colyar White was born on March 21st, 1930 in Washington, D. C. He was the third son of Joel Jesse White, a physician in the US Navy, and Virginia Armistead, both Southerners from Nashville. During much of his childhood White moved around the U.S. from one port city to another, as his father was transferred from one navy base to another—a fact that seems to have influenced White deeply. Already at the age of fifteen, however, he entered the Massachusetts Institute of Technology (MIT) and graduated in 1950, at only twenty years old. Five years later, in 1955, he received a doctorate in theoretical physics from the same school, under the tutelage of John C. Slater who was also the Chair of the department at the time.

Towards the end of his doctoral work, White took a casual course in nationalism with Karl W. Deutsch, a charismatic political scientist then at MIT, whose influence and encouragement were decisive for White’s later turn to the social sciences. Right after receiving his Ph.D. in theoretical physics, White started his doctoral studies in sociology at Princeton University. At the same time White took up a position as an operations analyst at the Operations Research Office, Johns Hopkins University (1955-1956). While continuing his studies at Princeton, White also spent a year as a Fellow at the Center for Advanced Study in the Behavioral Sciences, Stanford University, California (1956-1957). Upon an invitation from Herbert Simon, White then moved from California to Pittsburgh to work as an assistant professor at the Graduate School of Industrial Administration, Carnegie Institute of Technology, Carnegie-Mellon University, where he stayed for a couple of years, between 1957 and 1959.
It was also during these years that White, still a graduate student in sociology, wrote and published his first social scientific work, *Sleep: A Sociological Interpretation* in *Acta Sociologica*, together with Vilhelm Aubert, a Norwegian sociologist. White also managed to carry out a case study, in which he examined how uncertainties inherent to industrial research affected the internal structure of a medium-sized firm and the nature and pattern of relations among the managers of various sections within that firm. In May 1960 White submitted the result of this study as a doctoral dissertation to the Department of Economics and Sociology of Princeton University and earned a Ph.D. in sociology. Twenty years later, in 1980, this study that was entitled *Research and Development as Pattern of Industrial Management: A Case Study in Institutionalization and Uncertainty*, was published in a dissertation series edited by Harriet Zuckerman and Robert K. Merton.

It was also during these years that White met his first wife, Cynthia A. Johnson, who was a graduate of Radcliffe College, where she had majored in art history. The couple’s joint work on the French Impressionists, *Canvases and Careers* (1965) and “Institutional Changes in the French Painting World” (1964), originally grew out of a seminar on art in 1957 at the Center for Advanced Study in the Behavioral Sciences, led by Robert Wilson. In 1959 White moved to Chicago to start working as an associate professor at the Department of Sociology, just after James Coleman had left the University of Chicago for Johns Hopkins. The move to Chicago, which had come out of Philip Hauser’s search for a mathematical modeler, was a turning point in White’s career. During his stay at the University of Chicago, White finished his first sociological book, *An Anatomy of Kinship*, published in 1963 within the Prentice-Hall series in Mathematical Analysis of Social Behavior, with James Coleman and James March as chief editors.1

1 The first chapter of the book, which contains the ideal types of kinship structures, is a revised version of a paper that White had earlier presented at the Seminar on the Social Science of Organizations, sponsored by the Ford Foundation at the University of Pittsburgh, June 10-23, 1962, and at Conference on Research in Formal Organizations, sponsored by the U.S. Office of Naval Research at the Carnegie Institute of Technology, June 22-24 the same year. According to Mullins and Mullins (1973: 252-253), White’s main concern in this book was an old issue, which was “stated first by [Claude] Lévi-Strauss … , then given mathematical form by [André] Weil … , extended
White’s stay at Chicago did not last long, however, and in 1963 he left Chicago for Harvard. There he started working as an associate professor of sociology at the Department of Social Relations, then headed by Talcott Parsons. At that time the Department of Social Relations was an interdisciplinary department, with a mixture of education and research in psychology, social psychology, social anthropology and sociology. It was also a place where a number of recognized American social scientists of the time were gathered. Besides Parsons, people like Gordon Allport, Daniel Bell, Robert Bellah, George Homans, Seymour Lipset, Stanley Milgram, Davis Shapiro, and Charles Tilly were among those who were there at the time of White’s arrival. As soon as White came to Harvard he started teaching. In 1953-64 he gave several undergraduate courses: Social Stratification, Mathematical Models, Anatomy and Control of Complex Organizations (see below for course descriptions). During his first year at Harvard, White also assisted professor A. Inkeles in his sociology seminars organized for the first-year graduate students who were candidates for the Ph.D. in sociology.

The year after, 1964-65, White, in addition to the mathematical modeling course and sociology seminars -now led by Chad Gordon-, also got involved in an undergraduate course that was formally called An Introduction to Social Relations, 10. This course was given between 1965 and 1969, and during all these years professor Roger W. Brown, a social anthropologist, was the main teacher. Eventually, this course turned out to be an important platform for White where he not only developed and conveyed many of his basic network ideas but also attracted many students who later formed the particular circle of researchers around him. As Nicholas Mullins, one of those who attended this course, witnesses, this “course has to be one of the few introductionary courses ever thought which, at completion, had

by [Robert] Bush ..., and subsequently restated by [John] Kemeney, [Laurie] Snell, and [Gerald] Thompson ... in their Introduction to Finite Mathematics. ... [And this issue is:] “Are some kinds of kinship structures amenable to description in terms of formal relations such that the phenomenon of kinship is necessarily implied by the relations among groups? Anthropology largely ignored White’s book, and the reviewer in the American Anthropologist (Kennard, 1964) remarked that he might be the only one in the United States with sufficient mathematics to review the book.”
almost as many graduate as undergraduate students attending lectures faithfully" (Mullins & Mullins 1973: 255).2

From the lectures that White delivered in 1964-65 in this course some notes were taken and put together by Michael Schwartz who was then a doctoral student of White and one of many section instructors of the course. Since then these notes -entitled Notes on the Constituents of Social Structure- have been circulating among many of White’s students and colleagues and, eventually, within a larger circle of American network analysts. Furthermore, it seems to be out of this introductory course that interest in the social network approach and the structural mode of analysis associated with that grew among a number of students who later came to be what Mullins and Mullins (1973: 255) refer to as the “core of the original group” around White. Among the members of this group were people like Phillip Bonacich, Ivan Chase, Mark Granovetter, Nancy Howell Lee, Joel Levine, Nicholas Mullins, Michael Schwartz, and Barry Wellman, all of whom were White’s teaching assistants for this course.

In addition to this basic course on social networks, there were also a number of other topics that White, during his years at Harvard, kept teaching. Among these, courses on sociology of art, complex organizations and mathematical molding occurred almost regularly (see below). What is especially interesting is that already in 1981-82, i.e. at the same time as White published his first articles on production markets, he also started giving a course in economic sociology -a course that in the first two years was simply called Economic Sociology and that in 1983-84 had a slightly different label (see below). Moreover, during his time at Harvard White also directed, or at least played an important part in, the doctoral work of a rather large number of graduate students in sociology. Before coming to Harvard White had already had his first doctoral student at the University of Chicago, namely Morris F. Friedell. Later, when in 1986 White moved from Harvard to Arizona University, he also had a few doctoral students and, of course, since his arrival at Columbia University in 1988 White has continued to function as the thesis adviser for some graduate students, among them Mathew Bothner.

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2 On the importance of this course, see also White (1992a: xv).
But the years between 1963 and 1986 at Harvard seem to have been a special period in this regard.

Given the length of the time White spent teaching and conducting research first at the Department of Social Relations (1963-1970) and then at the Department of Sociology (1970-1986) at Harvard University, he was closely involved in the doctoral research of many students, though not formally their thesis adviser in all cases. For instance, people like Edward Laumann (1965), Nicholas Mullins (1967), Barry Wellmen (1969) and Paul DiMaggio (1979) had not formally appointed White as director of their research but nonetheless developed their doctoral theses in close relation with him. However, among those who, formally and otherwise, have been White’s graduate students at Harvard are Nancy Howell Lee (1968), Joel Levine (1968), Mark Granovetter (1970), Michael Useem (1970), Peter Brandt Evans (1971), Michael Schwartz (1971), Francois Lorrain (1972), Scott Boorman (1973), Ronald Breiger (1975), Christopher Winship (1977), Joseph Schwartz (1978), Robert Eccles (1979), Eric Leifer (1983), Kathleen Carley (1984), Peter Bearman (1985), Calvin Morril (1986) and Roger Gould (1990).3

Furthermore, another factor that makes this period special is that White’s attempt on the theoretical front to reground sociology was also coupled with an outspoken aspiration and a conscious effort on the practical level. White actively searched for and selected a group of young sociologists who would be trained in this new kind of sociology. In A View on Mathematical Sociology, a memo from 1967, White drew up the outlines of this project, and concerning “personnel” as one of the main requirements for carrying out the project he argued for the recruitment of young men with appropriate mathematical training. In his (1967: 9) own words,

by some mysterious process an increasing number of young men not only with conventional training in applied mathematics but also with real grounding in algebra are entering graduate work in social science. There is not

3 Indicated in the parentheses is the year in which the Ph.D. was received. See below for a list of these students and the title of their dissertations.
much work in being to demonstrate the relevance of non-trivial algebra to social science. Some fellowships would be helpful to ease the way; no more than 20 a year would be of much relevance for the next 5 or 10 years given the existing level of faculty available.

However, as mentioned in Introduction, what is usually pointed out as one of White’s major contributions to the contemporary American sociology is his role in training these students at Harvard, a number of whom are considered to be among the most successful American sociologists today. For instance, Andrew Abbot (1994: 895) points at White’s “reputation as a man who has … trained one of the finest groups of students in the discipline.” To what extent it is justified to credit White for having created and established a distinct theoretical tradition, a distinct sociological school or a theory group through these students is an interesting question that could be examined properly by those who are interested in the sociology of science and skilled in that kind of research. This issue, however, can be addressed briefly here by mentioning some of the remarks made by a couple of White’s students.

In an unpublished paper from 1973, Scott Boorman, for instance, refers to the Whitean mode of structural analysis as a distinct current that he chooses to label American structural sociology (see White 1973b). Furthermore, in a study carried out about the same time, Mullins and Mullins (1973), too, speak of a distinct type of structural sociology that they call American structuralism, and present White as the “intellectual leader” of this current. According to the authors, (Mullins & Mullins 1973: 260), up to 1970 White was concerned with training the “future structuralists” at Harvard, mainly through the course mentioned above. The authors also refer to the publication of White’s article, The Use of Mathematics in Sociology, in 1963 as an important intellectual event and as a work that “has served as structuralism’s program statement.” According to Mullins and Mullins (1973: 260), however, as the initial phase in the consolidation of this current came to an end, “the structuralists had an intellectual leader, a program statement, and a research-training center.”
Although this question remains to be examined, it is nonetheless clear that White has played a crucial and pioneering role in the development of the social network approach. As already mentioned in Introduction, White’s seminal articles from 1971 (with Lorrain) and 1976 (with Boorman and Breiger, and with Boorman) are all widely recognized as “the foundational work“ (Wasserman & Faust 1994: 14-16 & 349-350), each being a significant landmark in the development of the social network current. To this one may also add the observation made by John Scott who, like many other students of the history of the social network approach, assigns White a great significance and a leading role in the development of this tradition. Reviewing the history of social network analysis, Scott (1988: 111) refers, for instance, to a “group of graduate trained in Harvard’s Department of Sociology by Harrison White” as those who have played a key role in the development of social network approach.

Another interesting fact about White’s achievements at Harvard concerns the part he played in the creation and establishment of the Department of Sociology there. Perhaps as another institutional aspect of his ambition to give sociology a fresh start, White broke away from the Department of Social Relations that, still under the strong influence of Talcott Parsons, preserved its old mixed character. The break-up occurred in 1970, i.e. only one year after White had become professor in sociology and when he was the acting chair of the Department of Social Relations. However, among the other faculty members who left the old department and joined White in the new-founded Department of Sociology were people like Daniel Bell, Seymour Lipset and George Homans. The latter also chaired the new department initially and remained at that position until 1975. Talcott Parsons, however, was until 1973-74 a faculty member in both departments, while he seems to have preferred giving his courses in sociology in the Department of Social Relations.

To return to White’s academic career, he was in 1971 a Senior Sociologist with Urban System Research and Engineering, Inc., Cambridge, and received the Sorokin Award of the American Sociological Association for his book *Chains of Opportunity* (1970). A couple of years later, he left Harvard to be a Visiting Professor at the
Department of Sociology, Edinburgh University, Scotland in 1973-74, and in 1975 he was appointed as a member of American Academy of Arts and Sciences and of National Academy of Sciences. In the same year White was also the co-winner of the Samuel A. Stouffer Award in Methodology, American Sociological Association. In the same year he replaced Homans as the chair of the Department of Sociology at Harvard, a position he held for a couple of years until 1978.

1985-86, however, was White’s last year at Harvard as an active member of the faculty. In 1986 he moved to Tucson to be the head of the Department of Sociology and the Eller Professor of Management and Policy, at College of Business and Public Administration at Arizona University. After two years in Arizona, White, on Ronald Burt’s initiative, went to New York in 1988 to work at Columbia University. Upon his arrival at Columbia White was appointed Director of the Paul F. Lazarsfeld’s Center for the Social Sciences and maintained the directorship until 1999. In Spring 1990 White was a Fellow-in-Residence at the Netherlands Institute for Advanced Study, and on his return to Columbia he took over the chairmanship of the Department of Sociology there -a position he kept until 1994, left for a couple of years and resumed in 1997-78. Since 1992 he is a Giddings Professor of Sociology at Columbia University. Recently, i.e. in March 1998, White received the Merit Award from Eastern Sociological Society and later in June the same year he was also rewarded by the University of Chicago with the title of Doctor of Humane Letters. White has also been a member of the editorial boards of the following Journals: Social Networks (since 1989), Sociological Forum (since 1990), and Poetics (since 1991).
COURSES GIVEN BY HARRISON C. WHITE
AT HARVARD (1963-1986)¹

1963-64
Social Stratification (123)
The roots of social class and social mobility in personal relations, status, property, occupation, education, values, and power; with their functions and problems for the individual, the formal organization, and the broader social system.

Mathematical Models (198)
Intensive analysis of single models, dissection of interrelations, within families of models, and practice in construction of models and comparisons to data are combined. From year to year topics vary and may include social mobility, attitude structure, sociometry, kinship systems, control systems, bureaucracy and processes of congestion, diffusion and allocation.

Anatomy and Control of Complex Organizations (237)
Recruitment, integration, boundary conditions and coordination in large-scale organizations will be discussed. The emphasis will be on development and application of new concepts, such as vacancy chains, differential flow of uncertainty, and cycles of structural change. Church, government and private institutional systems, both present and past, will furnish examples.

¹ Sources: Harvard University Directory of Officers and Students (1962-63 until 1978-79), Directory of Faculty, Professional and Administrative Staff (from 1979-80) and Courses of Instruction: Harvard and Radcliffe, Faculty of Art and Sciences.
1964-65

An Introduction to Social Relations (10)
(with Roger Brown)
The course deals with the individual, society, and culture, and relations among them. It takes up problems of individual development, the family, primitive cultures, social institutions, and modern industrial society from the several viewpoints of psychology, anthropology, and sociology.

Mathematical Models (198)
Same description as above.

1965-66

An Introduction to Social Relations (10)
(with Roger Brown)
Same description as above.

Mathematical Models (198)
Same description as above.

Anatomy and Control of Complex Organizations (237)
Same description as above.

1966-67

An Introduction to Social Relations (10)
(with Roger Brown)
Same description as above.

Mathematical Models (198)
Same description as above.

Anatomy and Control of Complex Organizations (237)
Same description as above.
1967-68
An Introduction to Social Relations (10)
(with Roger Brown)
Same description as above.

Mathematical Models (198)
Same description as above.

Anatomy and Control of Complex Organizations (237)
Discussion of recruitment, integration, boundary conditions and co­
ordination in large-scale organizations, emphasizing development and
application of new concepts, such as vacancy chains, differential flow
of uncertainty and semi-lattices.

1968-69
An Introduction to Social Relations (10)
(with Roger Brown)
Same description as above.

Mathematical Models (198)
Same description as above.

Anatomy and Control of Complex Organizations (237)
Same description as above.

1969-70
Mathematical Models (198)
Same description as above.

Institutional Analysis (206b)
Analysis of major institutions or complexes of institutions, social class
and stratification, family, education and religion. The course is
designed to provide a basic background for graduate students in
sociology.
1970-71
Mathematical Models (198)
Same description as above.

Anatomy and Control of Complex Organizations (237)
Same description as above.

1971-72
Mathematical Models (198)
Same description as above.

Institutional Analysis (206b)
Exploration of structure in economic and legal systems and of ties between them. The nature of change in ‘politics’ and institutions.

Systematic presentation of a set of ideas about social structures and process. Draws illustrations of varying scope from comparison of detailed studies in a range of periods. Discusses measures and models germane to the ideas.

Sociology of Art: Institutional Context of Change in Painting (250)
Examines social contexts of selected transitions in western art with emphasis on the institutional systems within which painters work.

1972-73
Social Stratification (123)
The study of structure and process of social inequality; class, status, and power in comparative perspective.

Mathematical Models (198)
Same description as above.

Anatomy and Control of Complex Organizations (237)
Same description as above.
Sociology of Art: Institutional Context of Change in Painting (250)
Same description as above.

1974-75
Same description as above.

Mathematical Models (198)
Same description as above.

Anatomy and Control of Complex Organizations (237)
Selected theories, case studies, and systematic analysis.

Sociology of Art (250)
Same description as above.

1975-76
Mathematical Models (198)
A research seminar which develops a new family of models each year.
1975-76: Structural models for the study of manipulations and power.

Anatomy and Control of Complex Organizations (237)
Selected theories and case studies of formal organizations extended to
more complex institutions such as markets and administrative
systems, with special attention to dual hierarchies.

Sociology of Art (250)
Effects of social context on artistic production and the roles of artists.
Students develop brief empirical studies, usually involving local
fieldwork of particular institutions or aspects of an art ‘world.’

1976-77
Mathematical Models (198)
Topic changes from year to year. 1976-7: Survey of selected models for organization and market structures, with special attention to methods of aggregation.

Anatomy and Control of Complex Organizations (237)
Same description as above.

Sociology of Art (250)
Same description as above.

1977-78
Mathematical Models (198)
Topic changes from year to year. 1977-8: a general survey based on a textbook.

Complex Organizations (229)
(with John Padgett)
Compares and contrasts perspectives on complex organizations from several disciplinary points of view. Sample topics include: behavioral models of choice, manipulations and anticipations, networks versus hierarchies, organized anarchies, and inter-organizational relations.

Sociology of Art (250)
Same description as above.

1978-79
Sociology of Art (126)
Effects of immediate and larger social contexts on artistic production and the roles of artists. Surveys three themes common across the arts: replacement of ‘audiences’ by ‘professional peers’; changing nature of realism; ‘styles as ideology.’

Mathematical Models (198)
Examines phenomena for possible hidden structure, expresses in mathematical form, derives consequences. Topics, which change each
year, include semi-group algebras for role structure, partial differential equations for commercial relations in oligopolistic markets. Markov chains of mobility within organizations, combinatorics of job searches, algorithms to identify network structures.

Organizational Processes in Historical Context (229)  
(with John Padgett)  
Examines operation of organizational decisions in broader historical context. Attempts to derive conclusions on long run structural and policy adaptation. Topics include the meaning of an 'ecology of games' in hierarchical, anarchic, bipolar, fractionated, and market institutional structures. Draws on historical and contemporary case studies.

Career Lines and Social Class (240)  
(with Ronald Breiger)  
Bridges gap between wholistic views of class and accounting schemes for individuals' contributions. Selected historical and contemporary contexts: labor markets, economic demography of mobility, rise of towns. Impact of politics, marriage, income inequality, and opportunity structures. An alternative to the 'causal path' analysis of Duncan, Blau, Hauser, and Jencks.

1979-80  
Sociology of Art (126)  
Same description as above.

Mathematical Models (198)  
Same description as above.

Organizational Processes in Historical Context (229)  
(with John Padgett)  
Evolutions in different institutional spheres (science, economy, religion, government) and social settings (caste, class, pastoral). Disentangling purposive from 'natural.' Contemporaneous interaction
within populations of organizations. Case studies from various historical periods.

1980-81
Sociology of Art (126)
Effects of immediate and larger social contexts on artistic production and on reputation and careers of artists. Emphasis on painting, theatre, and literature. Compares arts with one another and with selected sciences, especially in use of metaphor.

Mathematical Models and Social Theories (198)
Surveys how different branches of mathematics contribute to qualitative understanding and to explicit theories of different social phenomena. Topics, which change from year to year, include differential equations models for social change, comparative statics treatments of terms of trade in production markets, algebras for role structure, combinatorics of social networks, and stochastic models of mobility and service.

Organizations in Historical Context (229)
Evolutions in different institutional spheres (science, economy, religion, government) and social settings (caste, class, pastoral). Disentangling purposive from 'natural.' Contemporaneous interaction within populations of organizations. Case studies from various historical periods.

Career Lines and Social Class (240)
(with Ronald Breiger)
Same description as above.

1981-82
Sociology of Art (126)
Same description as above.

Mathematical Models and Social Theories (198)
Organization in Historical Context (229)
The focus is comparative state bureaucracies in Europe. Histories of selected European nations are contrasted to derive alternate forms of state administration and control from elite struggles in the arenas of taxes, military, and law. Organizational forms of interest include centralized bureaucracy, multiple hierarchies, aristocratic networks, and clientage.

Economic Sociology (253)
Markets as tangible structures are the focus: how they persist, and their cumulation into networks and broader systems. Operational models and theory emphasize how calculations and actions are guided by and also constitute observed behavior and structure. Selected topics from sociological analogues to or replacements for rational expectations, hedonic prices, the Walrasian auctioneer, the matrix of claims, input-output schemes, and topics in microeconomics (price theory) and macroeconomics (distribution).

1982-83
Sociology or Arts (126)
Same description as above.

Economic Sociology (155)
Shaping theories of economy to correspond to diverse historical contexts and societal forms. Current markets viewed as asymmetric interfaces between diverse sub-populations. Other forms of interaction and associated rhetorics, including neo-classical/microeconomic theory. Issues of aggregation and cumulation. Implications for selected policy problems.

Research Styles (210)
Seminar surveys and compares styles of uncovering social reality which produce major landmarks in research. Exegesis, survey, modeling comparative, participant, hermeneutic styles.
Organizations in Historical Context (229)
How struggles over control shape and are shaped by structural context. Examines mobilization of organizations in diverse periods, regions and institutional settings. Identifies distinctive architectures of interface and strings, such as multiple hierarchies, patronage trees, and area networks. Interplay between rhetorics and boundaries.

1983-84
Research Styles (303)
Same description as above.

Organizations as Agencies (229)
How struggles over control shape and are shaped by structural context. The course examines mobilization of organizations in diverse periods and institutional settings, as compared with episodes and cases in American business. The course identifies architectures of interfaces and strings, such as multiple hierarchies, patronage trees, and elite networks.

Economic and Business Sociology (155)
Economic systems from different areas and societies are surveyed briefly. The concepts of network process, role structures and inequality profiles are introduced. Tools are developed for applying these concepts to understanding what managers do, how firms are organized, and how they compete in markets. The course uses case studies from current American business to apply these concepts and tools in order to develop a general manager's perspective on control in and through markets and firms.

Sociology of Arts (126)
Same description as above.

1984-85
Mathematical Specifications of Social Theories (198)
The focus is applications of mathematical models to control problems in markets and firms. Recent developments in organization studies furnish the substantive basis. Students are to attempt solutions in depth as term projects or briefer surveys and comparisons; attempted solutions are discussed in seminar format. Stochastic processes, analytic calculus, and combinatoric techniques might be drawn upon as well as simpler aspects of control theory.

Sociology of Art (126)
Focus on how immediate and larger social contexts interact with the embedding of art production in local and general cultures. Changes in style are shown to emerge from such interactions. Careers and reputations of artists are a central concern. Visual arts are emphasized.

Economic and Business Sociology (155)
Same description as above.

Complex Organizations in Theory and Practice (229)
(with Robert Eccles)
How struggles over control shape and are shaped by structural context. The course examines mobilization of organizations in diverse periods and institutional settings, as compared with episodes and cases in American business. The course identifies architectures of interfaces and strings, such as multiple hierarchies, patronage trees, and elite networks.

1985-86
Business and Economic Sociology (155)
Same description as above.

Mathematical Specifications of Social Theories (198)
Applications of mathematical models to various theoretical contexts in social sciences. Recent developments in organization studies is one example, social networks is another. Solutions are discussed in seminar format, often with visitors. Students are to attempt solutions
in depth, or briefer surveys and comparisons as their term projects. Stochastic processes, analytic calculus, and modern algebra may be drawn on.

**Complex Organizations in Theory and Practice (229)**
(with Robert Eccles)
How struggles over control shape and are shaped by structural context. The course examines mobilization of organizations in diverse periods and institutional settings, as compared with episodes and cases in American business. The course identifies architectures of interfaces and strings, such as multiple hierarchies, patronage trees, and elite networks.

**Identities and Social Formations (262)**
(with Alessandro Pizzorno)
New theoretical approaches which contrast with reductionist theories centered on individual interests, as in economics. Focus is emergence of middle range orders out of identity projects, and the reverse. Seminar members are to critique these approaches and begin specific applications to cases in various periods, institutions, societies.
HARRISON C. WHITE'S GRADUATE STUDENTS AT HARVARD UNIVERSITY (1963-1986)¹


Nicholas Creed Mullins, 1967 Social Networks Among Biological Scientists

Nancy Howell Lee, 1968 Acquaintance Networks in the Social structure of Abortion

Joel Harvey Levine, 1968 Measurement in the Study of Intergenerational Status Mobility

Mark Sanford Granovetter, 1970 Changing Jobs: Channels of Mobility Information in a Suburban Population

Barry Stephen Wellman, 1969 Social Identities and Cosmopolitanism among Urban Adolescents: Variation by Race, Social Status, and School Integration Experience

Michael Useem, 1970 Involvement in a Radical Political Movement and Patterns of Friendship: The Draft Resistance Community

Peter Brandt Evans, 1971 Denationalization and Development: A Study of Industrialization in Brazil

Siegwart Michael Lindenberg, 1971 *Aspects of the Cognitive Representation of Social Structures*

Michael Herman Schwartz, 1971 *The Southern Farmers' Alliance: The Organizational Forms of Radical Protest*

Francois Paul Lorrain, 1972 *Social Networks and Social Classifications: An Essay on the Algebra and Geometry of Social Structure*

Scott Archer Boorman, 1973 *A Frequency-Dependent Natural Selection Model for the Evolution of Social Cooperation*

Margaret Ann Theeman, 1973 *Rhythms of Community: The Sociology of Expressive Body Movement*

Paul Bernard, 1974 *Association and Hierarchy: The Social Structure of the Adolescent Society*

William Sims Bainbridge, 1975 *The Space-flight Revolution: A Historical and Ethnographic Study of the Technological Social Movement Responsible for the Development of Modern Space Rocketry*

Ronald Louis Breiger, 1975 *Dual and Multiple Networks of Social Structure: A Study of Affiliation and Interaction*

John Douglas MacDougall, 1975 *Agrarian Reform vs. Religious Revitalization: The Sardar and Kherwar Movements among the Tribals of Bihar, India 1858-1895*

Richard William Wilsnack, 1975 *Collective Behavior and Situational Stress: Problems and Responses of Graduate and Postdoctoral Physicists*

Susan E. Anderson-Khleif, 1976 *Divorced Mothers, Divorced Fathers and Children: A Study of Interaction, Support, and Visitation in One-Parent Families*

Brian Samuel Sherman, 1977 *The East Village: The Social Structure of an Alternative Urban Community*

Christopher Winship, 1977 *Problems and Models of Aggregation*

Joseph E. Schwartz, 1978 *Three Studies in Stratification*

Paul Joseph DiMaggio, 1979 *Culture, Stratification, and Organization: Exploratory Papers*

Robert Gibson, Eccles, 1979 *Organization and Market Structure in the Construction Industry: A Study of Subcontracting*

Wendy Griswold, 1980 *Renaissance Revivals: The Continuing Interaction between Culture and Society*

Richard George Schneider, 1981 *Environment by Design: Power and Market in Eight Consulting Firms*

Jerry Alan Jacobs, 1983 *The Sex Segregation of Occupations and Women's Career Patterns*

Richard William Lachmann, 1983 *From Manor to Market: Structural Change in England, 1536-1640*

Eric Matheson Leifer, 1983 *Robust Action: The Joint Determination of Outcomes in Social Relationships*

David Brain, 1984 *The Discipline of Design: Modernism and the Architectural Professions in the United States*

Kathleen Carley, 1984 *Consensus Construction*
Peter S. Bearman, 1985 *Relations into Rhetorics: Elite Transformation and the Eclipse of Localism in England, 1540-1640*

Calvin Keith Morril, 1986 *Conflict Management among Corporate Executives: An Ethnographic Study*
BIBLIOGRAPHY OF HARRISON C. WHITE'S WORK

1952 "Superlattice Stability" Quarterly Progress Report: Solid State Molecular Theory Group, Massachusetts Institute of Technology, July 15

1953 "Connection Between the Many-Electron Interaction and the One-Electron Periodic Potential Problems" Quarterly Progress Report: Solid State Molecular Theory Group, Massachusetts Institute of Technology, April 15

1958 "Atomic Force Constants of Copper from Feynman's Theorem" Physical Review 112: 1092-1105

1958 (with Lee Christie) "Queuing with Pre-emptive Priorities or with Breakdown" Operations Research 6: 79-95

1959 (with Vilhelm Aubert) "Sleep: A Sociological Interpretation" Acta Sociologica 4: 1-16 & 46-54


1960 Research and Development as a Pattern of Industrial Management: A Case Study in Institutionalisation and Uncertainty Doctoral Dissertation, Princeton University


1963b "Cause and Effect in Social Mobility Tables" Behavioral Science 8: 14-27


1965a Notes on the Constituents of Social Structure Harvard University, Department of Social Relations, unpublished lecture notes

1965b Notes on Coupling and De-coupling Harvard University, Department of Social Relations, unpublished lecture notes

1965 (with Cynthia White) Canvases and Careers: Institutional Change in the French Painting World New York: John Wiley & Sons


1967 A View on Mathematical Sociology Harvard University, Department of Social Relations, unpublished memo
1968 Lectures in Sociology Harvard University, Department of Social Relations, unpublished lecture notes


1969b Memo on Consumer Needs For ALCOA- USRE Housing Plans, unpublished memo

1969c Notes on Finding Models of Structural Equivalences: Drawing on Theories of Roles, Duality, Sociometry and Balance Harvard University, Department of Social Relations, unpublished working paper


1970c "Stayers and Movers" American Journal of Sociology 76: 307-324

1970d "Simon out of Homans by Coleman" American Journal of Sociology 75: 852-862


1971b A Calculus of Social Networks Harvard University, Department of Sociology, unpublished working paper

1971 (with Francois Lorrain) "Structural Equivalence of Individuals in Social Networks" Journal of Mathematical Sociology 1: 49-80
1972a *On Sociology*, Harvard University, Department of Sociology, unpublished lecture notes

1972b *Do Networks Matter?* Department of Sociology, Harvard University, unpublished working paper


1973c *Equations, Patterns and Chains in Social Structure* Harvard University, Department of Sociology, unpublished working paper


1974b *Null Probabilities for Blockmodels* Harvard University, Department of Sociology, unpublished working paper

1974c *Multiple Networks in Small Populations II: Compound Relations and Equations* Harvard University, Department of Sociology, unpublished working paper

1974d *Development of Preliminary Work on Axioms for and Implications among Stability Conditions of Atruisits and Cheaters* Harvard University, Department of Sociology, unpublished working paper

1975 (with Ronald Breiger) "Pattern Across Networks" *Transaction* July-August, pp. 68-73
1976a *Subcontracting with an Oligopoly: Spence Revisited* Harvard University, Department of Sociology, RIAS Program, unpublished working paper

1976b *Extending Spence's Market Models* Harvard University, Department of Sociology, RIAS Program, unpublished working paper

1976 (with Scott Boorman and Ronald Breiger) "Social Structure from Multiple Networks: Blockmodels of Roles and Positions" *American Journal of Sociology* 81: 730-780

1976 (with Scott Boorman) "Social Structure from Multiple Networks: Role Structures" *American Journal of Sociology* 81: 1384-1446


1977a "Probabilities of Homomorphic Mappings from Multiple Graphs" *Journal of Mathematical Psychology* 16: 121-134

1977b *Modelling Ideology as Configurations for Action* unpublished paper presented at the American Sociological Association Annual Meeting

1977c *Roles and Blocks from Winship Boxes: An Initial Survey*, unpublished notes

1978a *Markets and Hierarchies Revisited* Harvard University, Department of Sociology, unpublished working paper

1979a *On Markets* Harvard University, Department of Sociology, RIAS Program, unpublished working paper

1979b *Markets as Social Structures*, unpublished talk for Plenary Session: Theory and Research American Sociological Association Meetings

1981a "Where Do Markets Come From?" American Journal of Sociology 87: 517-47


1982a Markets as an Interface Defining Product Harvard University, Department of Sociology, unpublished working paper

1982b "Fair Science?" American Journal of Sociology 87: 951-956, review essay

1982c "Ideology between Process and Structure" Contemporary Sociology 11: 169-172, book review

1982d Irvine Notes: Organizations in Comparative Historical Context Harvard University, Department of Sociology, unpublished working paper

1982e Notes on where to Go with a Theory of Markets as Role Structures Harvard University, Department of Sociology, unpublished working paper

1983a "Getting into Traffic .." Urban Affairs Quarterly 18: 473-484

1983b "Interfaces" Connections VI: 11-20


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1986 Notes on Agentry in Social Structure Harvard University, Department of Sociology, unpublished working paper


1986b (with Robert Eccles) "Firm and Market Interfaces of Profit Center Control" pp. 203-220 in Approaches to Social Theory edited by S. Lindenberg, et. al. New York: Russell Sage Foundation


1988 (with Eric Leifer) *Markets as Pumps and as Arenas* University of North Carolina, Department of Sociology, unpublished working paper


1990b "Control to Deny Chance, but thereby Muffling Identity" *Contemporary Sociology* 19: 783-788, book review


1992e review of 'Strategy and Choice' *Contemporary Sociology* 21: 838-840


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1993d *Network Moves* unpublished paper prepared for the Third European-American Workshop organized by S. Lindenberg July 23-25, 1993 at the NIAS Center in Wassenaar, the Netherlands

1993e *Narratives into Times* Columbia University, Department of Sociology, unpublished working paper

1994 "Values Come in Styles, which Mate to Change" in *The Origin of Values* edited by M. Hechter, et. al. New York: Aldine de Gruyter


1995b "Network Switchings and Bayesian Forks: Reconstructing the Social and Behavioral Sciences" *Social Research* 62: 1035-1063

1995c *Where Do Languages Come from? Part I. Switching between Networks* Columbia University, Paul F. Lazarfeld Center for the Social Sciences, Pre-print No. 201

1995d *Where Do languages Come from? Part II. Times from Reflective Talk* Columbia University, Paul F. Lazarfeld Center for the Social Sciences, Pre-print No. 202

1996 *Markets Mobilize Networks around Quality* Columbia University, Paul F. Lazarfeld Center for the Social Sciences, Pre-print No. 206


1998c Constructing Social Organizations as Multiple Networks Columbia University, Paul F. Lazarsfeld Center of the Social Sciences, Pre-print No. 201

1998 (with Ann Mische) "Between Conversation and Situation: Public Switching Dynamics across Network Domains" Social Research 65: 695-724

1999a Action from Networks talk addressed to the Swedish Sociological Association Annual Meeting, Stockholm

1999b (with the collaboration of Matthew Bothner) Markets in Networks: Social Construction Models from Economic Networks, Columbia University, Paul F. Lazarsfeld Center of the Social Sciences, manuscript

1999 (with Matthew Bothner) Strategic Moves Across Kinds of Markets: An Analysis of Consumer Perception and Scale Economies Columbia University, Paul F. Lazarsfeld Center for the Social Sciences, unpublished working paper

2000a "Modeling Discourse in and around Markets" Poetics 27: 117-133 Special Issue, edited by J. Mohr


2002c *Strategies and Identities by Mobilization Context* Columbia University, Center On Organizational Innovation, unpublished working paper


Reviews of Harrison C. White’s Books

Markets from Networks: Socioeconomic Models of Production, 2002
Moody, James 2002 Social Forces 81: 2: 663-664

Careers and Creativity: Social Forces in the Arts, 1993
Berezin, Mabel 1998 Social Forces 76: 1571-1572
Crane, Diana 1995 American Journal of Sociology 100: 1362-1363

Identity and Control: A Structural Theory of Social Action, 1992
Abbott, Andrew 1994 Social Forces 72: 895-901
Abell, Peter 1994 American Journal of Sociology 99: 1083-1085
Balfe, Judith 1994 Sociological Focus 27: 382-384
Boudon, Raymond 1993 Contemporary Sociology 22: 311-314
Calhoun, Craig 1993 Contemporary Sociology 22: 314-318
Knottnerus, David 1994 Social Science Quarterly 75: 242-243
Scott, John 1994 British Journal of Sociology 45: 711-712
Tilly, Charles 1993 "Finnegan and Harrison" Contemporary Sociology 22: 307-309
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