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STRUCTURAL MODELS IN ANTHROPOLOGY

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Structural models in anthropology

PER HAGE

*Department of Anthropology
University of Utah*

FRANK HARARY

*Department of Mathematics
University of Michigan*

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*To our parents
and their memory*

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We may classify objects according to their matter; as wooden things, iron things, silver things, ivory things, etc. But classification according to structure is generally more important. And it is the same with ideas.

Charles Sanders Peirce,
Letter to Signor Calderoni

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Foreword

Of the making of “structures” there is no end. So might any onlooker think when surveying the intellectual fashions that have enlivened the development of the social sciences during the last 75 years. The term has been used for a confusing succession of notions and concepts that have shared very little with one another except the label “structure” itself. Anthropology has been powerfully influenced by Radcliffe-Brown, Parsons, and Lévi-Strauss, each offering his own distinctive structural road to intellectual enlightenment. Parsons has had most of his following in sociology, but so too have Blalock and Duncan, with their very different understanding of what is meant by structure. The liveliest structuralist controversies have erupted on the borders of social science, as conventionally defined, over the structural Marxism of Althusser, structural linguistics, and above all, structural analyses of literature.

Our onlooker, if he or she is tidy-minded and likes ideas and practices to be pigeonholed unambiguously, might regret that so many different people, without consulting one another, have taken on the role of Humpty Dumpty and declared the word “structure” to mean whatever each wanted it to mean. Intellectual discourse, he or she might well think, would be much more effective, and much less frustrating, if the humanities and social sciences were to use a technical vocabulary closer akin to that of the natural sciences, with no ambiguity and just the right amount of redundancy. Then there would be no doubt about what people were trying to say.

Alas, this vision of an immaculate natural science is only a naive onlooker’s mirage. As for the humanities and social sciences, they are destined to remain permanently confused. For not only do they continually enrich the language of everyday speech with their own neologisms; they also draw on the fuzzy ordinary world, rather than on some neoclassical word factory, for terms that they can refine and provide with precise denotations. Attempts to confront, between the covers of a book, the diverse meanings of some much-used label serve mainly to chart the extent of confusion rather than to end it. For example, the symposium *Sens et usages du terme structure dans les sciences humaines et sociales*, edited by Roger Bastide, provides a fascinating catalogue of diversity but offers no prospect of con-

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Foreword

sensus. There are, I believe, important advantages in maintaining the permeability of the frontier between the languages of everyday life and social science, but there is also a price to be paid for it.

In 1965, Harary, Norman, and Cartwright published *Structural models: an introduction to the theory of directed graphs*. It is these sorts of structures that Hage and Harary discuss in the present volume, and it is these that form the content of the specialism now coming to be known as structural analysis. This kind of structuralism has grown out of the study of social networks and derives the majority of its analytical tools from graph theory, a branch of pure mathematics. Although many social scientists have contributed to the rise of structural analysis, many others have watched with somewhat skeptical interest. The specialism has been accused of failing to live up to its grandiose claims and of being excessively concerned with its esoteric techniques for their own sake rather than for their value in explaining social phenomena. Some critics have maintained that the anthropologist or sociologist who hopes to discover what goes on in the real world can gain nothing more from network analysis and graph theory than an unenlightening and unnecessarily complicated technical vocabulary in which to make imprecise quantitative statements about things we know already.

There has, in my view, been some force in this criticism, for in a rapidly developing specialty ideas do often race ahead of applications; progress would be slower if they did not do so. But now Hage and Harary have given us the answer to these critics. For here in this book they demonstrate with admirable clarity, and with an impressive range of illustrations, how the concepts and, more important, the theorems and techniques of graph theory can be applied to ordinary ethnographic evidence. They show convincingly that this application can yield results that could not have been obtained by unassisted common sense, results that add significantly to our understanding of the social and cultural processes taking place in the real world.

Hage and Harary have, in a sense, routinized or domesticated the analytical procedures of graph theory for use by practicing social scientists, anthropologists, and others. Several years ago, I drew a distinction between the use of the notion of social network as a metaphor and as an analytic tool. Unfortunately, most of the examples I could find at that time showed graph theory being used in quite a rough-and-ready fashion, as it were, for bush carpentry rather than for cabinetmaking. Here in this new book we have at last a comprehensive range of examples of graph theory being applied to data from the real world with the elegance and precision we rightly expect from pure mathematics. Yet Hage and Harary write with the innumerate and mathematically phobic social scientist clearly in their sights, so that no previous acquaintance with graph theory is needed. Here indeed

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is an opportunity for conquering that phobia which still hinders the work of so many social scientists.

We probably have to resign ourselves to living with confusion about what is meant by structuralism. But within this particular version of structural analysis, there is no excuse for confusion about what we mean by terms that are clearly technical. Regrettably, there is still a good deal of variation in the way in which different writers use terms that are derived from graph theory; indeed, some of the confusion stems from the pure mathematicians themselves. Hage and Harary provide us with a full and consistent technical vocabulary, and show us how to apply it in practical analysis. Let us hope that their usage will become generally accepted among social scientists. When notions taken from structural analysis pass into common speech (maybe with the next 20 years), we can expect confusion to grow again. But let's enjoy a Cartesian breathing space while we can.

J. A. Barnes

*University of New England
Armidale, Australia
24 February 1983*

Acknowledgments

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P.H.
 F.H.