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--R.L. Breiger

WHITE, HARRISON

Harrison Colyar White (b. 1930), American sociologist, structuralist thinker, network phenomenologist, and mathematical modeler, contributes theory, models, and

conceptualization that focus on concrete, interconnected sets of actors beyond the level of the individual person or group but below the level of total cultures or societies. Having earned doctorates in theoretical physics (at MIT) and in sociology (at Princeton), White addresses problems of social structure that cut across the range of the social sciences. Most notably, he has contributed (1) theories of role structures encompassing classificatory kinship systems of native Australian peoples and institutions of the contemporary West; (2) models based on equivalences of actors across networks of multiple types of social relation; (3) theorization of social mobility in systems of organizations; (4) a structural theory of social action that emphasizes control, agency, narrative, and identity; (5) a theory of artistic production; (6) a theory of economic production markets leading to the elaboration of a network ecology for market identities and new ways of accounting for profits, prices, and market shares; and (7) a theory of language use that emphasizes switching between social, cultural, and idiomatic domains within networks of discourse. His most explicit theoretical statement is *Identity and Control: A Structural Theory of Social Action* (1992), although several of the major components of his theory of the mutual shaping of networks, institutions, and agency are also readily apparent in *Careers and Creativity: Social Forces in the Arts* (1993), written for a less-specialized audience.

The relation of White's work to strands of classical European structuralism is evident in his first book, *An Anatomy of Kinship* (1963), which includes in an appendix a translation (by Cynthia A. White) of a portion of Chapter 14 of Claude Lévi-Strauss's *Elementary Structures of Kinship* (1949, English translation 1969). Like André Weil, a mathematician who endeavored to formalize a portion of Lévi-Strauss's kinship theory, White is interested in the algebraic modeling of social relations. In his 1963 book, however, White brought to bear several distinctive themes that he has been developing throughout his later work. One of these is based on the observation of a certain similarity between charts of kinship roles among native Australian peoples and tables of organization for modern businesses. The more general concern is what White termed "structures of cumulated roles." In his first book, this preoccupation with roles led to the formulation of eight axioms relating clan structure to marriage rules for Australian societies (e.g., children whose fathers are in different clans must themselves be in different clans), derivations of ideal-type models of all possible societies that conformed to the axioms, and comparison of these models against extant anthropological accounts.

In subsequent work, White and collaborators loosened up the models (moving from algebraic group theory to the algebra of semigroups) so as to make them applicable to organizations and informal groups in a modern, Western context; now he defined role structures as positions of

social actors across multiple networks of social relations (such as friendship, enmity, and the provision of help). In particular, in a seminal 1971 paper, White and François P. Lorrain defined "structural equivalence" with reference to sets of individuals who are placed similarly with respect to all other such sets, to the extent that relations and flows across multiple networks are captured by an aggregation of detailed relations. This equivalence concept allowed the representation of complex networks by reduced-form images that were obtained by aggregating equivalent actors. Further loosening of the underlying mathematics led White and collaborators to many analyses of social networks under the term *blockmodeling* (reviewed in White 1992).

Another concept that bridges several of White's contributions is duality. Anthropologists' notions of dual organization appeared in White's first book to motivate his interest in classificatory kinship systems that are invariant under transformations of matrilineal into patrilineal descent conventions. In the modeling of social mobility presented in *Chains of Opportunity* (1970), White defines duality as invariance in models of social structure and process under the interchange of named individuals and named jobs. A key innovation of this work was to stand conventional mobility modeling on its head, as applied to certain systems of moves of individuals between organizations. Vacancies, not individual persons, are free to move between categories according to fixed-transition probabilities, in White's view; therefore, conventional mobility models such as Markov chains should be applied to a study of the vacancies, not directly to analyze the mobility of persons. The latter can nonetheless be inferred from White's system models for mobility in organizations, as illustrated in his empirical analyses of the mobility of Episcopalian, Methodist, and Presbyterian clergy among congregations. In this work, careers of vacancies are seen not only as dual to, but as causally prior to careers of persons. More recently, in *Markets from Networks* (2002), the duality concept appears in White's characterization of the relation between upstream markets (with their emphasis on buyers "pulling" from their suppliers) and downstream markets (where producers are "pushing" their chosen volumes of product). Upstream and downstream markets are dual in the sense that producers' commitments are not directly governed by the underlying network of firms' concrete relations, which nonetheless constrain them. White therefore characterizes the upstream-downstream relation as a duality of decoupling and embeddedness.

In addition to concepts and principles (such as cumulated role, structural equivalence, duality, and reduced-form, ideal-type images of social networks) that cut across many of White's contributions and provide some considerable degree of unity to them, there has also been, over the course of his work to date, an evolution away from a formal structuralism and attendant concern for abstract patterning

of relations and toward an enhanced focus on action, agency, cultural meaning, and concern with institutional practices. Searches and struggles for identity and control are taken as the trigger for all social action in White's 1992 volume rethinking network theory. Here the ties in networks are seen in their narrative aspects, and a social network is conceptualized as a network of meanings. "Switching" is a concept that White and Ann Mische use in their exploration of how conversations transit across multiple domains and sets of expectations, and in *Markets from Networks*, White also uses the concept to indicate shifts between the different market modes, noting that switching implies agency (purposive action) and disruption.

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See also Network Theory; Structuralism

FURTHER READINGS AND REFERENCES

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