

NSF Proposal #00--

Longitudinal Social Network Studies and Predictive Social Cohesion Theory

In memory, to the inspiration of Thomas Schweizer Mar.1.99

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ABSTRACT

A new theory of social cohesion is developed for analysis of longitudinal social network data in anthropological field sites and historical network studies. Formal concepts of biconnectedness or sets of multiply connected actors are defined for social networks and implemented in a set of algorithms for large-network analysis. These sets are hypothesized to have greater cohesiveness related to bicomponent membership as a special form of social capital and as a social position that is more likely to receive cultural capital (e.g., inheritance and symbolic investments) from members of the bicomponent group. Pilot tests of hypotheses are reviewed for eight of the longitudinal fieldsite case studies, with positive results. A series of hypotheses are detailed for testing in a sample of the 36 case studies with the best longitudinal data that the PI has been able to locate and to established collaborative interest in testing the new methodology proposed herein. The new methodology is described. Further work with graph theoreticians and computer scientists will be undertaken to develop and implement the methodology, which is extremely well suited to analysis of large-populations where we have requisite genealogical or other network data. The significance is that we may be able either to predict, or to understand in a more rigorous fashion, how human institutions develop, which actors are likely to participate in them (as opposed, for example, to migration out of a local population), and how resources are differentially distributed in a population through time. A second major aspect is to understand and predict when institutional structures are likely to change as networks undergo critical transitions in bicomponent structure and density.

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