Position Paper

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Homophily as Constraint and Opportunity

Space–time homophily suggests that many activities are local, in some sense. Localness is a type of constraint that is susceptible of exploitation. In this circumstance techniques such as multidimensional scaling can often yield locational coordinates. It may then be possible to analyze flows of information, or the movement of people, etc, using the space-time coordinates that describe where these events are positioned in this homophilyic environment. The localness of such events implies the possibility of estimating partial derivatives in time and space. If this is valid then a further suggestion is that one can interpret these as gradients, i.e., space-time vectors. An interpolation in space-time of individual vectors can then be performed to obtain a quasi-continuous vector field. The vector field, if it is a gradient field, will be curl free, a situation that should be tested. Integration, in the mathematical sense, of the vector field can then give one a scalar potential. This potential is of course determined only up to a constant of integration. And the potential should be that its gradient coincides with the original vectors; an iteration may be necessary to obtain this result. The final potential forms a compact description of the event situation.

Space–Time Cliques

Numerous indices and statistics have been developed in conjunction with two-way arrays. At the same time such data tables are increasingly available at several instances in time. One such example are from-to tables of geographic movement such as the several decades (1935–1940, 1949–1950, 1955–1960, 1965–1970, 1975–1980, 1985–2090, 1990–2000) of U.S. Census Bureau state to state migration tables. Another example are the regional input/output tables over time. I suspect that network indices have been developed or implemented for the analysis of such sequences, but I am not familiar with any. This needs to be looked at.