THE RELATIONAL BASES OF LIFESTYLE SIMILARITY
AND CLUSTERING OF LOCAL POPULATIONS

by

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This dissertation and research project
are fruits of a personal and selfish interest
which I thank God for allowing me to pursue.

This work is therefore dedicated to the LORD,
God of Abraham and of his descendants
thru Ishmael and Isaac, Esau, and Israel,
and in the name of Jesus of Nazareth.

May it help do His will on the earth
and find favor in His sight.

PREFACE

This writing has roots in my adolescent awareness of patterns of similarity and difference among families in my hometown. At the time I could not have articulated the nature of the differences. The concept of class was familiar to me in a popular way, but evoked distinctions between "old money", "middle class" families, and a romanticized notion of industrial laborers, which did little to explain patterns in my hometown where the first and third of these categories were largely lacking. As a college Freshman, I was exposed to sociology and read a little Marx. What Marx wrote about class made sense. The differences I saw did align at least roughly with relations of production. For a while I felt these social divisions had been explained to me, but as I saw that Weber's idea of status groups came closer to the pattern I knew, became familiar with critiques of Marx's arguments, and thought more on the symbolic underpinnings of social interaction, I came to view Marx's theory as insufficient to explain the lifestyle divisions I observed.

This writing is an attempt to offer a better explanation for the lifestyle divisions which divide local populations, synthesizing from other theories, building on Marx and Weber and Bourdieu, and drawing heavily on social network analysis. The model I offer reconceptualizes class and status group, grounding them in locally differentiated lifestyle groups that are the building blocks of the macrosocial class or social class phenomena, extending the causal mechanism from relations of production and property to social relations generally, and arguing for network analysis of lifestyle variation as the methodological foundation of class analysis. I assess this network theory of lifestyle differentiation in the context of a rural U.S. community, which I refer to as Tyboro.

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CHAPTER ONE

LIFESTYLE CLUSTERS

"Well I was born in a small town.
And I live in a small town.
Prob'ly die in a small town.
Oh those small communities.

All my friends are so small town.
My parents live in the same small town.
My job is so small town.
Provides little opportunity…

- John Mellencamp, lyrics from "Small Town", 1985

Tyboro[i]

Tyboro is a charming rural "boro" located in the northeastern United States. The population is approximately 11,000 people (roughly 8500 adults), with about half of those living in the village and the rest residing in the adjoining countryside (U.S. Census, 2000; Historical Society of Tyboro, 1998). It is the county seat of Tyboro County, located on a small river at the junction of valleys, and near an interstate highway that runs down one of the valleys. Tyboro is located in a scenic, rural area with a mix of family farms, rural homes, and woodlands in the surrounding countryside. Two smaller, neighboring

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[i] In the interests of protecting the privacy of residents of the community, the pseudonym Tyboro is used to refer to the research site. That pseudonym is also used to refer to the county in which the site is located, and in substitution for the name of either the boro or the county when those names are part of the name of some local feature or organization. Names of other features or organizations that might be used to identify the site have also been suppressed, slightly altered, or replaced with pseudonyms. The description of Tyboro in this chapter draws on a community history, referred to pseudonymously as *The History of Tyboro* (1998), written, edited and published by the local historical society, referred to as Historical Society of Tyboro.

towns and two tiny hamlets (one of which is close enough that it is included in the research area) are located within ten miles of the village center, but the nearest places of equal or larger size are each at least twenty miles away.

Activity in the borough focuses on two areas: the historic center around the village square and a few adjoining blocks of downtown businesses and offices, and a stretch of chain stores, fast food restaurants, and a few offices that has developed over the past thirty-odd years near the interstate exit. A third stretch of businesses and a small industrial park are found along the first mile or so of the main road out of the village, and a scattering of other businesses are interspersed with residences and farms along other primary roads radiating from the boro.

Architecturally the downtown is a mix of historic storefronts and post-WWII buildings, anchored by the courthouse, county and local government administrative buildings, Depression-era post office, local bank, and three main churches, two of which are large, historic stone structures. The only labor union of sufficient size to have a local union hall, associated with industry of the largest local manufacturer, is also located here. Moving outward from this downtown area, a number of large older houses have been converted into professional offices, mostly of doctors and lawyers. Others have been divided into apartments, often poorly upkept and occupied by low-income residents, while many others remain family residences.

Between about 8am and 6pm Tyboro's downtown is typically active, with people going to the Post Office, shops, banks, or storefront restaurants. In the evening street activity diminishes and turns toward the handful of storefront bars. In warm weather teenagers and young adults hang out on the sidewalks. An afternoon walk or weekend drive through the borough encounters groups of children playing or riding their bicycles, and numbers of mostly middle-aged and senior residents chatting on the sidewalks or about town. On Saturdays in warm weather a small farmer's market and occasional local events, e.g. live music, draw residents to the village square. Churches draw congregants

on Sunday mornings. This part of town retains the nostalgic "Bedford Falls" feeling of small town America from decades past.

The commercial strip at the interstate exit has a more modern feel, with structures dating from the past three decades. It is a stretch of gas station convenience stores, fast food chains, and shopping plazas anchored by grocery stores, drugstore chains, and a Kmart. Traffic here is dominated by automobiles, drive-thru businesses, and parking lots. This is the part of town the passerby usually sees, a brief rest stop from driving along the interstate, filling the gas tank, and a bite of fast food. Commercially, this has become the more dominant part of town.

The village is composed primarily of traditional single-family homes, a number of which are historic. The historic homes include a few Victorian "gingerbread" homes, photos of which are featured prominently on some Tyboro tourism brochures, and in the *History of Tyboro* (1998). Scattered about are a number of other businesses, churches, the schools, a couple small factories, and a few contemporary developments of mostly two-story, single-family homes. A few newer apartment buildings, two of which are for senior citizens, a golf course, newer housing developments, modular home and trailer parks, and a few of the farms they are slowly replacing, constitute the edges of the village. The surrounding countryside has a mix of historic farms, post World War II two-story single-family and ranch homes, modular residences, and a couple trailer parks.

Community Life

Tyboro is the kind of small town setting often romanticized as characterizing an earlier, simpler time in our history. In this image the small town is a place were the traditional values of family, kinship, and community, God, country, motherhood, and apple pie still run strong. Where people are less busy, know their neighbors, and can enjoy a simpler life, perhaps nostalgically returning to childhood year or capturing an

idolized "Green Acres" experience. This idealized place is virtually without crime or social problems. People get along with each other, everyone is more or less equal, and as in Garrison Keillor's Lake Wobegon, all the children are above average.

More than a kernel of truth underlies this romantic view. Traditional values do run strong in Tyboro. American flags flew in front of many homes even prior to September 11, 2001. Home cooking is still common. The area is heavily Christian and both socially and politically conservative. Republicans outnumber Democrats by more than 2:1 (Tyboro County Board of Elections, 1999). In the countryside some people grow their own vegetables in gardens. Here and there roadside produce stands front farms along primary roads. The arts of baking and pickling are kept alive, and celebrated at the county fair. Kids bicycle and play ball in the back streets. You find hopscotch patterns chalked on the sidewalk. An older residents of Tyboro may express to you how blessed he or she is to live a small town life for which many others yearn. Many people own firearms, and in the Autumn deer season is celebrated almost as a holiday.

Much of the town tunes in to the morning show on the local radio station to be kept abreast of community news and happenings. The headline of the weekly paper is likely to be a story on a recent or upcoming holiday (e.g. First Baby of the year, Santa's visit to the village square, the schedule for Easter, Halloween, Memorial or Veteran's Day, or the county fair) or at worst such major local news as a fire destroying a home, heavy winter snowfall, significant traffic accident, or a child in a medical crisis.

The police blotter suggests criminal incidents are limited to about one every two days.[ii] While every couple years a homicide occurs in Tyboro County, there had not been

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[ii] These kinds of headlines, along with reports on local volunteers aiding disaster relief in a distant community, the success of Tyboro student athletic and academic teams, and a museum exhibit characterize nearly all of the headlines of the *Tyboro Weekly* for a ten month period of 1999. Analsysis the police blotter for the same period, of incidents in Tyboro plus those in nearby communities that involved Tyboro residents as perpetrators or victims, yielded just 109 incidents: 32 driving under the influence of alcohol, 5 sale or possession of drugs, 14 vehicle infractions where there had been an auto accident, 5 apprehensions of fugitives and probation violations, 5 were domestic disputes, 16 harassments, disorderly conducts, and criminal mischief charges, 2 abandonment or mistreatment of dogs, 2 violations of deer hunting laws, 6

a homicide in Tyboro itself in over two decades. Crime hardly gets mentioned when residents are asked about local problems. The problems Tyboro residents cite are lack of activities for kids, unemployment, relative lack of shopping & restaurants, need to revitalize a stagnant downtown that is losing businesses, youth loitering on the streets, high taxes, prevalence of drugs and alcohol use, and disrepair of streets and sidewalks, which may seem quaint compared to metropolitan areas.

In a town of such small size the set of people any person knows well is more than a small fraction of the overall population. Most Tyboro residents recognize a great many of their fellow residents by face and name. Natives are often related by blood or marriage to a fair portion of other natives. Acquaintances meeting on the street who have not seen each other in a week or two may strike a conversation on the spot. A new resident mailing letters at the post office may find the postal clerk glancing at their return address and inquiring about the health of their landlord, based on knowledge of who owns what properties. Barbershops and beauty salons are hubs of news, gossip, and political comment. Most Tyboro locals tend to be friendly, wishing a good morning, holding a shop door, even striking up conversation with strangers, at least if the stranger seems to fit community norms.

The dark side of residents' strong traditional values is that Tyboro can be an unwelcoming place for those who are perceived as differing from community norms. A few long-time but non-native Tyboro residents expressed privately to the researcher that Tyboro can be an uninviting place for outsiders. A couple survey respondents who were "outsiders" noted on their surveys that they felt excluded by many Tyboro residents. Numerous instances in which White, presumably heterosexual Tyboro residents openly made implicitly racist or homophobic remarks or jokes were observed by this researcher,

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petit larcenies, theft of services, gasoline driveoffs, and writing bad checks, 5 grand larcenies, 5 burglaries, 3 possessions of stolen property, 1 breaking & entering, 2 statutory rape charges, and 7 sexual abuses of minors. The breaking & entering, 2 of the possessions of stolen property, and 3 of the burglaries were by teenagers (*Tyboro Weekly*, 1999).

and one instance of explicitly racist and racially hostile remarks made about African-Americans. Remarks made in the presence of an outsider who is openly researching the community hint at a more substantial racist and ethnocentric sentiment among portions of the community that they may not express or express only in close confidence. That homosexuality is a controversial subject in Tyboro was also suggested by a number of conversations with local residents, including a couple openly gay men very familiar with Tyboro. No overtly hostile incidents were observed in this regard, but subsequent to data collection, controversy on gay lifestyles simmered into public debate and – atypical of usual decorum – a minor anti-gay street demonstration in Tyboro.

Tyboro's relation to racial and ethnic, sexual, religious, and other varieties of diversity is likely both partly effect and cause of the highly homogeneous population. Racially, over 95% of the population is White (Census, 2000). There are few enough persons of color in Tyboro that they stand out, but just enough that they are not invisible. A few racial minorities in occupations that interact frequently with the public adds to visibility, e.g. a Chinese family that runs the local Chinese restaurant, and several medical professionals of Middle Eastern or South Asian descent. The distribution of sexual orientation is less open to observation, but there are very few openly gay men or lesbians in Tyboro. The norm of heterosexuality is presumptive and dominant.

The norm of Christianity is likewise presumptive and dominant. The percentage of residents who identify with non-Christian religions is small. There is a large minority who do not identify with any religion, but unlike those who practice other religions, these are largely presumed to be culturally part of the Christian majority[iii], and the clear majority identify as Christian. All the religious organizations in the community are Christian. It is not uncommon to pass a billboard or roadside sign citing a Bible verse or

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[iii] Most of these non-religious people participate at least nominally in popular Christian holidays, e.g. Christmas, Thanksgiving, Easter, and are kin with Christians. They tend to be viewed as non-practicing but still culturally Christian, part of the supermajority that makes Christian culture dominant and presumptive.

Christian message, or to see a cross or a picture of Jesus displayed prominently in a home or even a business. Church affiliations still have some social salience in Tyboro. The Presbyterian and Episcopalian churches are centrally located, historic stone churches. The main Methodist church is a more modern structure, but also prominently located. There are also large Catholic and Baptist churches in the downtown area, and smaller churches and meeting houses of a few other denominations scattered around. A couple small, old Methodist churches stand in the surrounding countryside. By size of congregation the Catholic and largest Methodist churches rank first and second, each having congregations about twice as large as the next largest church. A regional Christian radio station is popular with many residents on the religious right.

Almost 20% of the population are military veterans (US Census, 2000). There are relatively large active local chapters of the American Legion and Veterans of Foreign Wars (VFW). There is an active Chamber of Commerce. Other fraternal groups and voluntary organizations include Elks, Kiwanis, Knights of Columbus, Lions, Moose, Red Cross, at least one Promise Keepers group, Masonic Lodge and Order of Eastern Star (Historical Society of Tyboro, 1998).

Some residents are descendants of the earliest English or Scottish settlers, old families whose surnames appear repeatedly through Tyboro history. A few Tyboro farms have been passed down the generations from an original settler without ever leaving the family (Historical Society of Tyboro, 1998). Others are descendants of successive waves of Irish, Italian, and eastern European immigrants. A great many others are retirees who moved to Tyboro for its small town charm, scenic vistas, low cost of living, and maybe to be with other retirees and have ready access to businesses who cater to a retired lifestyle.

Lifestyle Clusters

Given the racial, ethnic, religious, and apparent sexual homogeneity, one might imagine that Tyboro is highly homogeneous with regard to lifestyles. Compared to the nation or a metropolitan area, a rural town like Tyboro is *relatively* homogeneous with regard to lifestyles, but even places as small as Tyboro are likely to exhibit a pattern of lifestyle clusters: The population is divided into subsets or clusters within which there is a high degree of homogeneity with respect to sharing a broad set of lifestyle traits or subculture, and between which there is heterogeneity or even discontinuity in the distribution of lifestyle traits. These lifestyle traits typically include but are not limited to similar patterns of speech and dress, consumption of products and services, daily routines, membership in community organizations, similar work and leisure activities, and frequenting particular stores, restaurants, parks, residential areas, places of worship, and places of entertainment.

To develop a good model or typology of these lifestyle clusters requires either close observation of a large number of persons as they go about their daily lives or a survey instrument via which respondent can report their lifestyle behaviors. This is because a large portion of behavior is not readily accessible to the public observer. However, even public observation of accessible behavior reveal patterns from which at least a crude typology may be drawn.

One type that may be identified in Tyboro might be called the ragged poor. Persons in this type tend to have a weathered face and hands, adding years of age to their appearance, and be of medium or short build, as if life has constrained their growth. The men tend to be drawn and on the thin side, with unkempt or slicked back hair, the women thin to slightly plump with hair worn in a simple ponytail. They usually have a slightly greasy or dusty look, missing teeth, and an odor of cigarettes permeates their clothing, which shows signs of wear. Many, perhaps most, are getting by on some form of financial assistance. Some have disabilities. Their access to health care tends to also be via government programs. Some make ends meet with part-time or odd jobs, often under

the table and below minimum wage. Many lack a car. They may not have a driver's license. If they have a car, it is an older economy sedan or light pickup truck, or if they have children, perhaps a very used full-size station wagon. The car often needs repair. Even when they have an operational vehicle driving is restricted by the price of gas and the lack of money. In Tyboro they tend to live in an area of poorly-maintained housing directly adjoining downtown. This area has a number of large old houses subdivided along the principal street, and lots of old, very small 1- or 1½- story closely-packed homes that are lucky to have a backyard or more than a strip of grass between stoop and sidewalk. Others live in one of two trailer parks in another part of town that is also not far from downtown, or here and there in other parts of the boro. Their clothing and home furnishings suggest material deprivation, in many cases salvaged from other people's discards, either directly or via a local thrift store. They scope of their lives is parochial. They rarely travel outside of Tyboro and almost never outside the county. They are often uninformed about national or even state news events, but they tend to be well informed abut local happenings and gossip. They speak a vernacular English with non-proper pronunciations and grammar that mark their relatively uneducated status and regional if not local heritage. Most have local kin.

A set of young adults tend to be the primary other residents of the same neighborhoods. These are folks who did not go to college and did not enlist for military service. Some are still single, but many have young children, and perhaps had children sooner than they intended. They may or may not be married. The women may work some pink collar or other service job part-time, having kin babysit the kids. The men may work blue-collar industrial job, do manual labor for a farmer, work for a building contractor, or perhaps as a mechanic in an auto repair shop. Tattoos and cigarettes are common. Couples are likely to share a single second-hand vehicle, unless her work situation requires a second and enables them to afford it. He likes to tinker with and tune the cars. If he has a steady paycheck and/or is single, he may have a motorcycle. They frequent

one or more of the downtown bars on perhaps a weekly basis. He and the guys one night, she goes with her girlfriends while he stays home and watches TV with the kids another night, and perhaps together as a couple one night if they can leave their kids with their parents or a sister.

Another type an observer may note are a set of college-educated parents, active in their church, involved in their children's sports teams, and likely involved in one or more civic organizations. They are in trim physical shape, and do not smoke, and find time for exercise (e.g. jogging, aerobics, basketball, etc). Both spouses work. They may work some solid white collar or clerical job one of the larger employers, or local government, or be teachers. They wear comfortable, casual clothing at home, business casual at work. They have two cars: one is likely to be a minivan. They live in a well-maintained village home in one of two neighborhoods further from the downtown or a post-1970 home in a development on the edge of the borough. Either way they have a front lawn and at least a bit of a backyard. If the kids are younger there is likely a swingset or playground in the backyard. Their homes show the signs of a busy life, but are furnished in a contemporary and typical middle class manner. They try to share household chores, despite a tendency for chores to be divided on a traditional basis. Their kids do well in school, and tend to be involved in extra curricular activities and play school sports. They balance the checkbook each month, feel their budget is tight, but do not lack for material items, are able to give some to church and other charitable causes, and still put a little money aside. They try to take a family vacation at least once per year. Usually at least one of the couple has parents and siblings who do not live near Tyboro, who they may travel to visit during Thanksgiving or Christmas.

Another type one may note might be referred to as community pillars. These are financially successfully middle-aged or retired men and their wives. Most of the men have a background in some kind of sales administration, whether currently with a local company or bank, having retired from an out of town Fortune 500 company, or an owner

of their own successful sales-oriented business (e.g. contractors, car dealers, etc). These are the clubby men one may see trading jokes at the country club or gladhanding one another at dinner. The casual attire of the men may be polo shirts, or dress shirt and sports jacket. Aside from golf or tennis clothing, the women almost invariably wear dresses or pant suits, heels, and jewelry, with hair dressed or permed. Cocktails are almost de rigeur hospitality. Keeping up appearances is important. The house may not be large but it is well-furnished, well-landscaped, and tidy: a showpiece. The homes of people in this cluster tend not to clearly segregated from those of people in other clusters. They do tend to be located either just within the edges of the village, in the nearest countryside surrounding the village, or in the grand old house on the main village avenue, where members of a antecedent cluster likely in a prior era. People in this cluster make a presentation of classic or refined culture in their home, with music, art, literature, wines, exotic travel mementos, or other form of cultural capital. They drive late model luxury sedans or in some cases high-end SUVs. They are likely to have his and hers vehicles. Their kids are either grown and raising families of their own, or are students at more or less prestigious liberal arts college.

Another common type are typical retirees, mostly couples with the occasional widow or widower. Some are locals, but the majority migrated from larger population centers specifically to retire in Tyboro. The men are retired from a mix of middle-class jobs. Many of them are veterans. The women may have have been housewives, but more likely worked as nurses, teachers, some clerical job, or perhaps light assembly. There may be two subsets. The larger set retire to modular homes – almost always a double-wide -- in one of several modular housing developments, and are more gregarious, playing cards with other couples in the development, joining various clubs and civic organizations, making a habit of going to Bingo, etc. They eat dinner early and enjoy watching Wheel of Fortune and Jeopardy on TV. Others of this set live instead in senior apartment buildings, with similar social arrangements. With increasing age, health

concerns, and the loss of spouse, older retirees are increasingly likely to relocate to these senior apartement situations.

The other set of retirees is likely to buy a relatively isolated lot in the countryside instead of a development, perhaps along a creek, or with a scenic view, or bordering a bit of publicly-owned forest, on which they have a home built, which are also often double-wide modular homes, but may be a more traditional frame house, or even a modern log home. They are more likely to garden or participate in rustic pursuits, and less likely to involve themselves in social clubs. Each set is likely to be living on retirement savings and/or fixed-income pension, and while the former set tends to create an active social network for themselves, relatively few members of this type have local roots.

Commercially-successful family farmers are a type that almost needs to be sought out at their farms. You are unlikely to encounter them elsewhere, except church, unless on errands instrumental to the farm business. If it is just him driving, he is riding in a late model heavy-duty pickup truck, and may be hauling a load of something. As a family they are likely to be riding in a minivan because they likely have a large family. The kids participate in 4-H and Future Farmers of America. If their labor is not needed at home, the children may also play school sports. The homestead may be a dairy farm with a hundred or more Holstein or Ayrshire cows, a grain- or vegetable-producing farm, or a fruit orchard. Seasonally cash flow may be an issue, but the family has substantial assets in the farm, its buildings, and machinery. The farmhouse is furnished is a comfortable and up-to-date style.

In contrast to the successful commercial farmer, the rural area also has at least two other kinds of farmer. Weekend or part-time farmers may have a barn with a few animals, but rely on some other kind of full-time employment to pay the bills and who except for the existence of the farm have a lifestyle that is similar to some other type. There are also at least a few "hardscrabble" farmers. Often these are older couples or older men, with barn and farmhouse in relative disrepair, a few animals, and an ancient

rusted pickup truck in the driveway. Hunting, gardening, and the livestock are no doubt integral to the sustenance of these farmers, but how these are sufficiently supplemented to get by or bring in cash is not readily discerned.

These various types do not exhaust the lifestyle diversity of the population. They leave off sets of blue collar village and rural families, at least one set of merchants who sell various items from downtown storefronts but whose businesses are only barely able to turn a profit, a set or two of white-collar professionals, and various other sets of persons. With more observation of less readily apparent behaviors some of these apparent types may divide into multiple types or otherwise prove to have been crude or even inaccurate, but however crude such a typology may be, it nevertheless serves to show that Tyboro is divided into at least a handful of sets of persons who may be characterized by marked and patterned differences in life circumstances and behaviors.

Conceptualizations of Lifestyle Clusters

This phenomenon is not unique to Tyboro. The pattern described above is at least loosely similar to that observed in the small towns with which I was familiar as a youth. The phenomenon is probably typical of most small towns in the United States, and in a slightly modified form, may be characteristic of metropolises as well. Small towns like Tyboro may have less overall lifestyle diversity relative to metropolitan areas, but what diversity exists tends can usually all be exhibited within a single locale. In metropolitan areas there is broader overall diversity, but residential segregation into neighborhoods by lifestyle cluster may make many urban neighborhoods or suburban municipalities less diverse than a rural town, if they tend to each be monopolized by just a handful of the lifestyle clusters in the overall spectrum of the population.

Nor is it a new phenomenon. Similar patterned distributions of behaviors have been recognized in sociological and anthropological studies virtually as long as sociology

and anthropology have been formally recognized areas of study, and described using a number of concepts. The sociological concepts that most closely fit the pattern of lifestyle clusters as described above are associated with the study of stratification and inequality: class, social class, and status group.

Class

'Class' came into English usage around the 16th Century from Latin 'classis', which was "a division according to property of the people of Rome" (Williams, 1983). By the late 17th century it was used as a synonym for type or grouping, thus the term 'classification', and applied not only to groups of people but also flora, fauna, and objects. In the late 18th and early 19th century 'class' was applied to social divisions, being used in lieu of 'estate', 'order', or 'rank' (Williams, 1983; Webster's Dictionary, 1988). In this historic use the concept of class encompasses lifestyle differentiation, at least broadly. It also implies real, empirical distinctions or divisions between the classes: "natural" social classification or typology. Although the typology suggested in historic use of class is very coarse and the scale tends to be national, the essence of the class idea was the existence of relatively discrete groups with patterns of internal homogeneity and external heterogeneity with regard to a variety of behaviors and values. Empirically the concept of class was linked with property and occupational groups (see Madison, 1787, a well-known example), but had not yet become inextricably wed to economic situation, nor to any particular theory. We might today speak of lifestyle clusters as classes in the historic sense of the term, or perhaps as micro-classes (Weeden and Grusky, 2001), if class had not come to mean something more specific, tied closely to Marx's theory, and so lost key aspects of its earlier meaning.

At the foundation of Marx's theory is the principle of competing sociopolitical interests within society, each embodied in a distinct group of persons (i.e. a class) and

determined by the material, productive (i.e. economic) relationships among them, which are divided against those of other classes and the communal interests of the society (Marx, 1978a, p.160, 197). The classes Marx identifies are grounded in empirical recognition of patterns of similarity and dissimilarity among 19th century western Europeans with respect to material situation, lifestyle, political and economic interests, property, occupation, and patterns of thought (i.e. consciousness, attitudes, and morality). They are national or even international in scale. This use of 'class' is congruent with earlier usage, but Marx gave additional meaning to the concept of class by virtue of the central importance of class in his economic, political, and historical theorizing, and especially through his explication of the roots of classes in the wage labor relationship and other relations of production (Marx, 1978a, p.170). In addition to what it had meant, after Marx the concept of class specifically referred to a position in a set of material relationships identified with property and division of labor, and to a unit of analysis in political and economic history which was driven by conflict between these units.

In the empirical reality of 19th century industrial Europe it is quite plausible that these various aspects aligned empirically in the concept of class, but time and research increasingly exposed disconnects between aspects of this class concept. Perhaps those disconnects existed even when Marx wrote. In any case the relationship between position in relations of production (i.e. *objective class*), and social circumstances, lifestyle and behavior, and consciousness (i.e. *subjective class*) today is strong but far from perfect. Something has been missing from the explanation. The failure of theorized class positions to better coincide with meaningful divisions in lifestyle or other behavior has been a basis for various critiques suggesting that classes do not exist or the relevance of class has declined (Clark and Lipset 1991; McFarland and Lew, 1992; Pakulski, 1993; Kingston, 1994).

Marxian class analysts have tended to handle this problem either by retaining an 'objective' definition of class (e.g. Hout, Brooks, and Manza, 1993; Poulantzas, 1982

[1973]), modifying Marx's scheme in attempts to mend the apparent incongruence between position in relations of production and lifestyle patterns (e.g. Wright, 1985), or reconceiving class as the inverse of the gap rather than either of the two halves, i.e. as the tendency for lifestyle and consciousness to be structured by relations of production (e.g. Giddens, 1982). Some others (e.g. Vanneman and Cannon, 1987) focus on class consciousness but, with the main exception of those Marxian historians and historical sociologists (e.g. E.P. Thompson, 1968; Somers, 1992a) who focus on patterned life experience and consciousness as the core of the class concept, the matter of lifestyle groupings and the principle of boundedness have been typically viewed as peripheral to the main business of explaining historical patterns of economic and political behavior. Thus use of the term 'class' became largely divorced from those qualities which it would have shared with 'lifestyle clusters' and irrevocably wedded to economic position.

Status Group

Status groups or social classes are the main conceptual alternative to the Marxian class model. The status group concept originates with Weber's (1946 [1922]) recognition that the correlation between economic power, political power, and social power is often loose. Weber's trichotomy of class (i.e. situation with respect to economic power), party (i.e. situation with respect to political power), and status group (i.e. *Stände*, situation with respect to social power, or 'honor'), prefigured the later conceptual distinguishing of capital into economic, political, and social and cultural capital (Weber, 1946, p.180-181). In the concept of 'status group' Weber recognized groups that shared sets of status qualifications, were divided by relatively clear lines of status or honor distinction, constituted "communities", and were "normally expressed by the fact that above all else a specific *style of life* can be expected from all" their members (1946, p.187, emphasis in original). As such, status groups encompass all manner of status distinction, group

privileges, and broad differences in consumption patterns. Weber's examples make clear he is talking about qualitatively distinct types or bounded groups, not gradational strata. The status group concept subsumes occupational, racial/ethnic, and religious groups. Curiously the encompassing 'group' quality of status group is sacrificed by many later Weberian authors (e.g. Parkin, 1979) apparently because the patterns they observe do not show clear or crystallized lines of cleavage. Class and *Stände* often coincide empirically, but are conceptually distinct.

In Weber's terms, our lifestyle clusters are *stände* or status groups not class *per se*, except insofar as classes manifest themselves in or coincide with status groups. Yet it is Weber's status group concept not his class concept, that bears both the historic pre-Marx sense of class and the popular everyday sense of 'class' used in the contemporary US. Status group is the sociological concept that most closely matches the lifestyle cluster phenomenon described above. However there are two aspects of Weber's status group concept that warrant caution: his emphasis on honor or prestige, and the scale of the groups. At least some of his examples, focusing on social divisions within a Swiss Canton or in a city in the United States, suggest Weber may have envisioned status groups as local phenomena as those with which we are concerned, but other examples and modern use of the concept suggest more macroscopic, societal divisions. Weber argues that status groups spring from estimation of social honor, i.e. status. rather than true lifestyle clusters, but status seems more properly an effect than a cause of the groups.

Social Class

The status group concept has been largely supplanted by social class, a label that suggests macroscopic rather than local divisions. The term social class is applied to a variety of competing models of differentiation and inequality. Moreover, the distinction between 'class' and 'social class' is blurred by the former sometimes being used in lieu

of the latter term (Gilbert and Kahl, 1993; Fussell, 1983[iv]). Although usually applied to

national contexts, the social class concept has been used in reference to the division of

local populations on the basis of lifestyle clusters:

> "In Springdale it is possible to identify five class groups, two of which contain distinct sub-groups. These are: (1) The middle class, made up of independent entrepreneurs (13 percent), prosperous farmers (25 percent), and professionals and skilled industrial workers (9 percent); (2) the marginal middle class made up of aspiring investors (10 percent), economically and socially immobile ritualists (10 percent), and psychological idiosyncratics (2 percent); (3) traditional farmers (10 percent); (4) "old aristocrats" (1 percent); and (5) shack people (10 percent). … Classes are identified in terms of productive activity, patterns of consumption and other forms of social and economic behavior. The term does not necessarily imply a recognition of "belonging together" by the members of the class, though in some cases such a recognition may exist. … In short, the word "class" is used to distinguish particular groups of individuals who exhibit specified social and economic lifestyles."
>
> - Vidich and Bensman, (1958), p.52

To see, in capsule form, how the concept of status group morphed into a variety

of social class models, consider the work of W. Lloyd Warner. The approach used by

Warner and his students is linked to lifestyle difference but driven directly by status

ranking among local residents (Warner and Lunt, 1941 Chapters V and VI, 1942; Warner,

et al., 1960 [1949] Chapter 2, 1963; Davis, Gardner, and Gardner, 1988 [1941]). Warner

used two schemes for assessing status: a reputational ranking method called Evaluated

Participation (EP), and an Index of Status Characteristics (ISC). EP was an assignment of

persons into a local set of status equals based on the reliability of rankings reported by

local informants. Warner recognized that these groupings were underpinned by lifestyle

similarity and social interactions (e.g. intermarriage & kinship, neighborhood, club and

clique memberships), and made lifestyle profiles of these groups that show them to be

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[iv] Fussell's *Class: A Guide through the American Status System* (1983) is a humorous tour of lifestyle differentiation in the United States, but with little discussion of group boundedness, lacking explicit theory, and suffering the typical national rather than local perspective.

similar to the lifestyle clusters addressed in this research.[v] The reliability of residents' status rankings led Warner to conclude that these groups could be combined into six social classes, with relatively distinct divisions between them (Warner and Lunt, 1941; Warner et al., 1960). ISC provided a quick numerical score based on occupation, source of income, type of house, and neighborhood, the ranking of which closely approximated the local status ranking arrived at using EP. In effect ISC defined social class as the intersection of just a handful of status traits: occupation, income, and home (Warner et al., 1960; Gilbert and Kahl, 1993 p.31-32; Bell and Newby, 1971 p.192-195).

Using ISC or a similar index as a shorthand way of assessing social class further divorced social class from lifestyle divisions. Combined with a perception that social divisions in other communities were characterized by the same status traits, rather than by their own local lifestyle or interaction patterns, social class analysts saw social classes no longer as a phenomenon of local lifestyle and interaction patterns but as national phenomenon which could be described with a handful of key variables or sets of resources. Gilbert and Kahl (1993) list nine such variables or resources: occupation, income and wealth, prestige, association patterns, socialization (e.g. education, subculture, ideology), power,[vi] class consciousness, and social mobility. Similar models are found in widely used sociology textbooks (Henslin, 1998; Macionis, 2001; Giddens, 1996). Where the Marxian class concept retained relationality but lost the idea of lifestyle, the social class concept retained concern with lifestyle but lost relationality.

Lifestyle Segments

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[v] Warner's groupings are based directly on prestige and local identity and only indirectly grounded in patterns of lifestyle and interaction. They are more strictly status groups than lifestyle clusters.

[vi] As if power were a separate concept rather than a quality inherent in other variables on the list.

While Weberian social scientists have largely traded in status groups for social class, the concept of lifestyle segments (Claritas, 1997), also referred to as lifestyle clusters (Weiss, 2000), has become the rage of the marketing world for its utility in marketing goods and services. Lifestyle segmentation analysis offers a typology of typical life behaviors, particularly as they impact consumption, based on the recognition that certain types of activities and use of products and services related to them are "bundled" together with other activities, products, and services that tend to coincide with them, i.e. as sets of everyday behaviors that correlate with one another (Wilkie, 1990). The number of lifestyle segments varies across typologies. Claritas uses a proprietary system known as PRIZM to identify a set of 62 lifestyle segments (Claritas, 1997; Weiss, 2000). The main PRIZM segments in Tyboro include:

> "Big Fish Small Pond… married and family oriented… older and far more conservative. Best described as captains of local industry, they invest in their homes and clubs, and vacation by car in the U.S… Age: 35-54… White" (Claritas, 1997) Prominent lifestyle traits include: being a member of a country club, having a hot tub, Caribbean travel, being a moderate Republican (Weiss, 2000, p.214-215)

> "Middle America: Midscale Families in Midsize Towns… these are family neighborhoods… kids, dogs, fast food, sports, fishing, camping, and TV dominate their lifestyles" (Claritas, 1997)

> "Shotguns & Pickups: Rural blue-collar workers & families… mostly married with school age kids, and go to church… bowl, hunt, sew, and attend auto races… Age 35-64" (Claritas, 1997)) Prominent lifestyle traits include: chewing tobacco, tractor pulls, woodworking, hunting, fishing, auto races, owning a pickup truck, doing home gardening, being a conservative, independent-minded Republican. (Weiss, 2000, p.264-265)

> "Golden Ponds: Retirement Town Seniors… myriad of rustic towns and villages… where seniors in cottages choose to retire among country neighbors… not as old, urban, or affluent as other retirees, a few play golf by most prefer to adopt local customs." (Claritas, 1997).

> "River City USA: Middle Class Rural Families… solid blue-collar citizens… raising sturdy, Tom Sawyer-ish children in decent, front-porch houses… July 4th parades are still the big event…. Age 35-54, 55-64"

Both the lifestyle segment and lifestyle cluster concepts provide conceptual schemes for classifying behavior, but there are at least two potential differences. One, the lifestyle segment model may suggest an arbitrary imposition of boundary lines over a distribution of lifestyle behaviors perceived to be continuous, whereas the lifestyle cluster model suggests real world boundaries or break points between groups, forming a quasi-discrete, "lumpy" distribution of lifestyles. Segments are analytic categories, but need not be "natural" social categories. Clusters are conceived as having some basis in real world boundedness. Two, the conception of lifestyle clusters recognizes local variability in the distribution of lifestyles and thus implies a causal mechanism that is in some way location-specific, while the lifestyle segment approach perceives a national or at least regional distribution of lifestyles that suggests either a non-local causal mechanism or parallel local mechanism across communities, with local variation treated as noise. In any case, marketers seem to have little reason to study the causes of lifestyle clustering. For them it suffices that the concept successful target communication to improve the bottom line. For sociologists the issue is of more fundamental curiosity.

Bourdieu, Lifestyle, and Habitus

The author who has written most influentially about the division of society into various lifestyle groups is perhaps Pierre Bourdieu. Bourdieu recognizes a "social space" in which differences exist (at a symbolic level) as "*a space of life-styles* or… set of *Stände*… groups characterized by different life-styles" (Bourdieu, 1991, p.237, italics in original). For Bourdieu lifestyle encompasses both a system of everyday practices and a system of "perception and appreciation", i.e. 'tastes'. (Bourdieu, 1984, p.171-172). Weber's *Stände* are sets of persons with (visibly) similar qualities (i.e. similar lifestyles) that result from sharing similar systems of practice and perception, internalized in

habitus, which are the product of similar "conditions and dispositions", i.e. positions in the social space as experienced through the life course (Bourdieu, 1991, p.237).

"Weberian *Stand*, which people so often like to contrast with the Marxist class, *is the class*… perceived through the categories of perception derived from the structure of [the social] space" (p.238, emphasis added). Classes are "sets of agents who occupy similar positions [within the social space] and who, being placed in similar conditions… have every chance of having similar dispositions and interests [i.e. similar habitus], and thus of producing similar practices and adopting similar stances" (p.231). At least on paper. These classes "do not exist as real groups, although they explain the probability of individuals constituting themselves as practical groups…" (p.232). Ultimately classes exist insofar as members of the class use the name of the class as symbolic capital, i.e. identify themselves as a group.

The social space is a multidimensional 'field' of forces, i.e. power relations, in which each dimension is a principle of capital, one of various types of economic, cultural, or social capital; or symbolic capital (e.g. prestige, reputation, etc), which is a form other forms of capital acquire when they are recognized as legitimate, a basis of distinction. Symbolic capital is the essence of distinction, socially meaningful difference. Thus class is defined not only by economic capital (e.g. relations of production, occupation, income) but by the full set of various types of available capital. Bourdieu's *Distinction* (1984) is an attempt to explore and map the social space (of France), the class or *Stand* divisions within it, and the symbolic capital, particularly lifestyles (e.g. consumption, status symbols) which constitutes the distinctions among them. Bennett, Emmison, and Frow (1999) loosely replicate Bourdieu as applied to Australian culture, though they retreat somewhat from his conception of class.

Bourdieu introduces yet another parallel concept, *habitus*, that is central to his articulation of lifestyle groupings. Habitus is the set of dispositions at the essence of each person that generates lifestyle behaviors and tastes (Bourdieu, 1984, p.172). These

dispositions operate at the level of practices. They do not require conscious or even subconscious thought. In recursive fashion habitus is a product of personal history, internalized as "second nature", lived experience of the capital conditions of the social space, as perceived and shaped by itself, habitus. Thus early experience tends to be formulative and later experience continuative. Habitus does this not as essence but as dialectic (Bourdieu, 1991a, p.55). Habitus is not a precondition, but "a present past that tends to perpetuate itself into the future by reactivation in similarly structured practices" (p.54). The shared experience of similar conditions by a set of persons leads to collective, or class habitus, which creates distinct sets of shared practices and shared tastes, i.e. distinct lifestyle groups, *Stände* (Bourdieu, 1990, p.58-60; 1984, Chapter Three).

The Format of this Work

Beginning with the tenet that differentiation of lifestyle behaviors should be a primary focus of stratification research, the review of concepts to this point has argued that the pre-Marx class, Weberian status group, lifestyle segment, and our own lifestyle cluster construct are similar concepts. So similar are these concepts that it is supposed that whichever concept we employ, we are referring to the same underlying, real world phenomenon, which each is an attempt to elucidate. The core phenomenon of each is the partitioning of populations into clusters characterized by high internal homogeneity and heterogeneity across clusters with respect to an extensive set of behaviors. Insofar as the behaviors of each cluster form a cohesive package, recur, and distinguish the various clusters, the behaviors collectively constitute lifestyle, and a kind of identity. Lifestyle clusters are conceived not merely as analytic concepts, but as having a real world

existence by virtue of being grounded in the ways people live their everyday lives and perceive the world around them, and having more or less discrete, "natural" boundaries.[vii]

Having established the nature of the phenomenon, it the goal of this work to offer an explanation for this lifestyle clustering of local populations. A lumpy, clustered, and likely multi-dimensional distribution such as is suggested by the review in this chapter is a peculiar distribution. It begs for explanation. Why do behaviors co-occur in lifestyle packages rather than being independent of one another? Why do the lifestyles of individuals tend to clump into a grouped distribution?

This writing is an attempt to understand the social processes that divide local populations into subgroupings with different lifestyles, that is, to understand how this clustered distribution of lifestyle is created and continued. The remainder of this work offers a theory to explain these clusters and then reports an attempt to evaluate parts of that theory in the context of one small town. Chapter Two outlines a a theoretical framework for explaining the lifestyle clustering phenomenon. The proposed theory grounds the mechanisms that produce lifestyle clusters in fundamental social and cognitive process. It is a relational theory that expands from a Marxian understanding class as positions in relations of production specifically to understanding clusters as positions in a field of social relations generally, and which explicit articulates these relations as social networks. Chapters Three and Four relates the design of the research, particularly a mail survey of the local population, and the primary measures. Chapters Five and Six describe of the survey respondents and main lifestyle clusters. Chapter Seven presents causal analyses and Chapter Eight discusses findings and process.

[vii] E.P. Thompson (1968), wrote: "Class is a relationship…class membership is derived from incumbency of a social rôle… Class is defined by men as they live their own history, and, in the end, this is its only definition" which seems to well represent the concept so long as we understand that the defining of class may occur in a practical, intuitive manner in the patterns of life, rather than as a formal or articulated construct. He also wrote that class is "not a thing", but is not an intersubjectively recognized pattern of relationships a "thing"?

CHAPTER TWO

TOWARD A NETWORK THEORY OF LIFESTYLE CLUSTERING

"In contrast to the purely economically determined 'class situation' we wish to designate as 'status situation' every typical component of the life fate of men that is determined by… social estimation of honor. This honor may be connected with any quality shared by a plurality, and… can be knit to a class situation… In content, status honor is normally expressed by the fact that above all else a specific style of life can be expected from all those who wish to belong to a circle. Linked with this expectation are restrictions on 'social' intercourse."   - Max Weber, 1946, p.186-7

"Capital consists of raw materials, instruments of labour and means of subsistence of all kinds, utilised in order to produce new raw materials, new instruments of labour and new means of subsistence…. Capital, also, is a social relation of production… Are not the means of subsistence, the instruments of labour, the raw materials… produced and accumulated under given social conditions, in definite social relations? Are they not utilised for new production under given social conditions, in definite social relations? And is it not just this definite social character which turns these products… into capital?"   - Karl Marx, 1978c, p.207-8

Foundations

Any theory is founded on a set of assumptions and understandings, a conceptual framework upon which it is built. The relational theory of lifestyle clusters offered here begins with the premise that people experience and understand reality subjectively through what has been termed the "world of everyday life" (Berger & Luckmann, 1990 [1966], p.19), experienced "around the 'here' of [one's] body and the 'now' of [one's] present" (ibid, p.22). Institutions, macrosocial forces, and social categories are abstract concepts that represent complex, large-scale patterns of human interaction in simplified form. People rarely if ever experience these concepts or the impact of socially distant

persons directly, but rather through direct interaction with other people, subjects, and objects in their immediate environment.

Another foundational assumption of our theory is that the world we experience is constituted of a variety of objects, including other agents (e.g. people, animals), in various relations to each other (Berger & Luckmann, p.20; Coleman, 1990, Chapter 2). Any object, and any relation among objects, has some combination of three aspects: physical, symbolic, and social. Physical aspect is material existence. Anything that can be seen, heard, tasted, smelled, or felt, or can directly impact the physical aspect of other objects has physical aspect. Symbolic aspect is perception, meaning, and emotion: cognitive objects. Anything that can be thought or communicated has symbolic aspect. Social aspect is all that which can impact relations among people, or other agents.

To say a relation exists between objects means simply that action directed at or changes in one object can impact or causes changes in or upon the other object. Objects relate to one another in a great variety of ways. Meanings are symbolic objects that index relationships between the object(s) to which they refer, and other objects, including the meaning itself, and also typically some set of signs which signify the meaning and are themselves related to other symbols in a semiotic structure (de Saussure, 1986 [1916]). An identity is a meaning used to to define a particular object, or especially a person:[i]

> Identities are… formed… by a person's 'place' in a relational setting comprised of (breakable) rules, (variable) practices and discourses, binding (and unbinding) institutions. This setting must be conceived as a network of temporal and spatial relationships. (Somers, 1992b, p.4)

Another way in which objects may be related is that some objects may be contained within or as part of other objects, e.g. an egg in a basket, people in a company.

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[i] Identities and other meanings reside in the cognition of individual knowers, and are idiosyncratic based on how the person or object relate to others in their mind, but insofar as meanings are communicated, a shared or social meaning is created. Self identity or simply self refers to the meaning a person has in their own cognition. Insofar as other people are typically the most important elements of people's environments, social relationships are the primary relations which shape identity and self (Mead, 1962; Goffman, 1959; Berger & Luckmann, 1990 [1966], p.173-180; Somers, 1992a, 1992b, 1994, 1998).

Thus sets of objects and the relations among them can also be identified as a compound object (e.g. family, corporation, state) as a way of referring to a very complex bundle of objects-in-relations as a single, abstract object. The set of relations between objects constitutes a 'space' – also with physical, symbolic, and social aspects – that is the context in which we act. Focusing on one or the other aspect we may speak separately of a physical space, symbolic space, or social space, but the three are integrally melded. To change any of the three is generally also to change the others to some degree.

People and animals are agents: objects that possess a degree of agency (i.e. power, ability to influence other objects). As agents, people have power to alter, destroy, create, and use objects in ways that affect other objects, including other people, and thereby change their environment. Power can be typified as physical, social, and/or symbolic according to the aspects of the objects that enable it and that it has potential to affect. Though much human behavior is habitual, people can and often do act consciously.

People make choices about their life, but their choices are always made within the context and constraints of a physical, symbolic, and social environment that impacts their lives, includes the patterns of interaction among other persons. To paraphrase Marx: "Men live their own lives, but they do not live them just as they please; they do not live under circumstances chosen by themselves, but under circumstances directly found, given and transmitted from the past" (Marx, 1969 [1852]). The environment has historic continuity, though it is far from stasis. The present configuration of objects always derives from the configuration of the immediate past and structures the future present. Massive social discontinuities or disruptions are rare, and even when they do occur, much is retained from the immediate past. Even when one undergoes major changes on a personal level (e.g. finding life partners, changes of job, geographic relocations) they usually involve a great degree of continuity of objects and relations among objects across the change. Continuity is maintained not only by simple inertia, i.e. the continuance of physical, symbolic, and social configurations, but also because a version of the past is always

inherent in the habits and "muscle memories" that our bodies retain without conscious thought, in the qualities of our social relations that are "sedimented" (Berger & Luckmann, 1990 [1966]) from past experience, and especially in the symbolic space of memories, identities, history, and other symbolic representations of the past that exist at any present moment. Combined, various elements of these three aspects constitute the personal systems of disposition and appreciation that Bourdieu (1990; 1984, p.171-172) terms *habitus*, which likewise derive from experience of the past and contribute to continuity of the future.

Capital and the Social Space

The objects and relations among objects that enable us to *do* things, i.e. wield power to achieve desired outcomes, are known as capital and/or opportunity structure.[ii] Forms of capital or opportunity structure may be typified according to which aspects are primary in the objects or relations activated: physical capital (e.g. machinery, land, labor, energy), social capital[iii] (e.g. property, money, kinship, friendship), and symbolic capital

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[ii] The term capital originally referred to that portion of a person's stock, i.e. material objects in their possession, that was used to obtain revenue or increase stock, as distinct from the portion of stock which was consumed (Adam Smith, 1986 [1776]). Recognizing that stock consists not merely of material objects but also the skills, knowledge, abilities and labor power of the persons, the concept of capital was first extended to human capital (Becker, 1964), and then in recognition that cultural knowledge, and political and social relations could be used similarly, to cultural, political and "social capital", with the original sense of the term identified as "economic capital" (Grusky, 1994, p.3-4). Any object may be capital, if it may be used to alter, destroy, create or obtain other objects, or has potential to be used in that way. When focal agents have ability to influence or manipulate these objects and relations they are capital, but when the same objects and relations lie outside the ability of focal agents to influence, they are experienced conditions constraining or enabling action and are referred to as opportunity structure.

[iii] Social capital as used in this writing refers to the social aspect of any forms of capital. That is, social capital is whatever objects or relations among objects may be used to impact relations among people, or other agents. It thus includes the socially important parts of economic, political, cultural, symbolic, and human capital, as well as that which is commonly referred to as social capital. In typical social science usage, 'social capital' is something of a residual category: the significant varieties of social relations left over after economic, human, cultural, and other forms of capital are accounted out. The property that friendships, kinship, organizational memberships, business ties, and the like share, and which defines the 'social capital' category, that they are constituted of social relations, is shared by virtually all capital. What differentiates those other forms of capital are other qualities that the 'social capital' remainder lack. Property rights, knowledge, skill, and money are all largely social capital in the typology that distinguishes

(e.g. language, ideas, legitimacy). The overall environment may be thought of as a multidimensional 'space' in which each dimension is a form of capital, and which has three aspects. In explaining human behavior, physical, symbolic, and social aspects of the environment are all important, but insofar as behavior is socially relevant, it is the *social space* (Bourdieu, 1991, p.229-231), the domain of various forms of social capital, that is crucial. Physical and symbolic aspects of capital and opportunity structure shape human behavior, but where they do so in a way that is socially meaningful it is either indirectly by shaping social capital which directly shapes behavior or, where it is direct, the changes in human behavior across entire groups of persons at least reflected or manifest in the patterns of human social relations. Socially meaningful capital should thus always be manifest as social capital, meaning that study of social capital, broadly understood, should suffice to explain systematic patterns in human social behavior.[iv]

A Typology of Social Relations

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physical, symbolic, and social aspects, though they are different types in the typology that distinguishes economic, political, cultural, human, and social capital as conventionally used.

[iv] Each person has needs and desires they seek to satisfy in interaction with their physical, social, and symbolic environment. Physical sustenance is prerequisite for further human needs, but this does not mean, as Marx believed, that relations that provide for those needs are necessarily primary and others subordinate (Marx, 1978a p.155-156, 150). People will typically focus on satisfying basic physical needs when being able to do so is in doubt or threatened. In those instances the fabric of social life reduces toward naked material relations. Yet even in such dire circumstances symbolic and social aspects are often still valued. A starving person may die on the street rather than steal food. A person may sacrifice their life for a loved one, nation, or valued cause. Moreover, in the everyday course of most persons' lives, at least those living in industrialized nations, the material situation is not dire. Social and symbolic needs and desires may be just as significant as material ones in structuring people's social lives. The limitations of the materialist assumption are a principal reason that Marxian theory does not satisfactorily explain social positions (Bourdieu, 1991, p.244).

Nor does the social importance of economic capital reside primarily in physical aspects (e.g. land or machinery), but rather in the social aspects of economic capital (e.g. ownership, organization, and division of labor), as Marx noted (1978c, p.207). Physical aspects of capital may shape social aspects by directly enabling or constraining particular forms of social relations, and include the physical production capacities of the capital, but the social aspects of capital contain how it is used and who receives what is produced. Similarly the social importance of ideas and symbols lies not in their symbolic aspects per se but in their social aspect, the way they organize or structure social relations and their ability to inspire social action.

In an absolute sense every person may be in relation to every other person, but the impact a person has on the vast majority of other people, who are total strangers, is usually trivial. As typically used, the term social relation refers only to appreciable social relations. The number of persons who are likely to have an appreciable direct impact on the typical person probably numbers only a few thousand persons, and only a fraction of those likely to any major importance[v].

Social relations vary in a number of ways, including social content (e.g. affect, trust, authority, etc.), symbolic and physical content (e.g. information, money, goods and services, etc), symmetry or reciprocity, intensity, and issues of time (i.e. frequency, duration, recurrence), among others. For the present purpose, it may suffice to grossly oversimplify the diversity of these factors by broadly categorizing relations into three concentric sets (see Wellman, 1988b, p.27), recognizing that a continuous distribution exists across and within each of these three sets. The strongest relations are typically a small set of loved ones, close friends, and other persons with whom one's everyday life is highly intertwined. Mead (1962) refers to this group as significant others. These are the people who make an impact in one's life as specific individuals. These relations are typically characterized by strong affect and emotion, frequent, recurring interactions, and rich knowledge of each other as persons: idiographic rather than categorical identities. Significant others are the most powerful socializing agents in our lives. Within this set one's intimate and close relations can be distinguished from less significant others; friends and acquaintances known by name and face but less well, and who have somewhat lesser impact on one's life.

Outside this circle is a range of people one may know by face or name but who, individually, have minor impact on one's life, though they may be important collectively.

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[v] Estimates of typical personal network size are in the range of a few hundred to perhaps three or four thousand persons (de Sola Pool & Kochen, 1978; Killworth, 1990; Bernard, 1991; Hill & Dunbar, 2003). Consider as an exception the largely unreciprocated impact that a nightly news anchor, celebrity, author, or major political or religious figure, may have on an audience, readers, or constituents.

Relations with persons in this set are not characterized by strong affect or emotion. We may refer to these, combined with significant others, as specific others. Significant others are also specific others, but most specific others are not significant others. Often the impact of specific others is limited to a narrow field of interaction – in one particular social context – and specific others who interact with us in that context may be almost interchangeable in one's life. For example, the supermarket clerks we know and interact with not as distinct individuals but only in their capacity as supermarket clerks.

Outside this circle are people who have almost negligible individual impact on oneself or the objects of one's everyday life and vice versa; those one does not know as individuals but only as part of a categorical aggregate or abstractly as an undistinguished speck in the mass of humanity.[vi] For each of us the vast majority of the world population lie near the outer extreme of this category, an asymptotic edge approaching what we might call a "null relation". It is tempting to refer to these as general others, to contrast with specific others, but this might cause confusion with G.H. Mead's (1962) rather different use of that term. Mead's concept of the general other is not an opposite to significant or specific others. It refers to an internalization of the perspective of other people, the mind anticipating what others will think, say, and do, as an extrapolation from experience of significant and specific others to others generally (Mead, 1962). By contrast this third set of relations has almost no representation in our internalized sense of others. To avoid confusion, let us refer to this set as non-specific or categorical others.

Social Network Perspective

[vi] Collectively the sum of this mass of near negligible direct impacts on the individual is likely to be appreciable, but nevertheless minor relative to that of specific others. Of course, insofar as some of these non-specific or categorical others are specific others to one's own specific others, and so forth, their collective indirect impact is quite large, and is substantial the total subject of sociological inquiry.

Over the past half century a new paradigm has emerged in sociology and the social sciences: the social network perspective or social network analysis (SNA). The fundamental precept of this paradigm is that the social world should be understood and analyzed relationally, as networks (Scott, 1991, Chapter 2; Wasserman & Faust, 1994, Chapter 1; Wellman, 1983, 1988b; Wellman & Berkowitz, 1988; Barabási, 2002; Emirbayer & Goodwin, 1994). A network is simply a set of relations, also known as ties, edges, or links, and a set of objects that they relate or link, often referred to as actors (if they are agents), nodes, or vertices, all considered collectively as a pattern or structure that exists among them. Any kinds of relations and objects may be conceived of as a network. A *social network* implies relations among social agents, e.g. people or aggregate actors such as families, corporations, nations (Scott, 1991; Wasserman & Faust, 1994, Chapter 1; Wellman, 1988b; Wellman & Berkowitz, 1988). Relationality is an element of much sociological thinking, but conceiving of relationality in network terms is the hallmark of the network perspective.

The network perspective is heavily methodological, driven more by the central tenet, a handful of core concepts (e.g. density, centrality, cohesion, equivalence), and a variety of methods for handling and analyzing relational data than by coherent theory. The network perspective is not atheoretical, but its theory is a theory of form, concerning the impact of structural pattern rather than a theory of particular relational content. As such it lends itself to being synthesized with the theories of relational content of a wide variety of existing paradigms. Functionalists apply it to the relations that integrate the division of labor of a community or society to the functionalists. Marxians apply it to the relations that enable institutional control and ruling class cohesion. Rational choice and game theorists apply it to resource mobilization, relations of influence, and exchange games. Social psychologists apply it to interpersonal interactions.

In addition to providing a conceptual and methodological toolbox for handling relationality, social network analyses inform this theory as they have previously been

applied to a number of specific issues or contents, homogeneity of opinions and attitudes, and of consumption practices, interpersonal influence and the diffusion of culture, class, community studies, and positional analyses, each of which is discussed below. Social capital (see above) is a concept closely linked to social relations and often represented in network analytic terms (Lin, 2001; Lin, Cook, and Burt, 2001; Baker, 2000).

Network analysis often conceptualizes social networks in a way that either omits component objects from social relations or else subsumes them into the content of the relations, but such objects are at least implicitly part of the network of relations. It also often omits implicit relations, particularly when the content of the implied relations differs from the content of the focal relations. A property transaction might appear as a relation between just two exchanging actors, but it implies also a relation of each to the object being exchanged and relations between each of them as owners of the object to other persons who are not owners of the object. These implicit objects and relations should be kept in mind when using network analysis.

The network perspective has roots in small-group social psychology (e.g. Heider, 1946, 1958, 1979; Moreno 1953; *New York Times*, 1933; Sherif & Sherif, 1956), and in structural anthropology, most notably the Manchester school (e.g. Barnes, 1954, 1969, 1972; Bott, 1955, 1957; Nadel, 1957; Mitchell, 1969). The social psychological tradition drew upon the mathematics of graph theory (Cartwright & Harary, 1959; Harary, Norman & Cartwright, 1965), created sociometry, and cross-pollinated these advances into a variety of other research, perhaps most famously in Milgram's (1967; Travers and Milgram, 2006 [1969]) study of the small-world problem, from which the idea of six degrees of separation originates. The structural anthropological tradition, like the present research, was concerned with understanding local social organization, and related concepts such as class and community, as manifest in local social relationships.

The work of J.A.Barnes (1954, 1972) is of special note because it combined several ideas which prefigure and lay conceptual groundwork for the current research. It

was a study of a small locality, a Norwegian island parish, and it perceived of status

group or social class in network terms:

> "The third social field... is made up of the ties of friendship and
> acquaintance which everyone growing up in Bremnes society partly
> inherits and partly builds up for himself…. It is these ties which… may be
> said to constitute the class system of Bremnes. The elements of this social
> field are not fixed, for new ties are continually being formed and old links
> are broken…I find it convenient to talk of a social field of this kind as a
> *network*… We can of course think of the whole of social life as generating
> a network of this kind" (Barnes, 1954, p.43).

> "The organization of the population of Norway into social classes… may
> be said to manifest itself in Bremnes in the social network I have
> described. The term social class is widely used in general conversation…
> Marx had in mind definite groups into which the population was divided,
> which were mutually exclusive, collectively exhaustive….the study of
> class through clique membership, on the other hand, is closer to the idea of
> class as a network…I shall nevertheless look at class… as a network of
> relations between pairs of persons according each other approximately
> equal status." (Barnes, 1954, p.45).

That Barnes (1954, 1972) was among the earliest authors that had an explicitly

network perspective perhaps suggests a "natural" conceptual link between the issues of

class, differentiation, and social networks (Scott, 1991, Chapter 2; Wellman, 1988b,

p.22). However, Barnes' predated virtually all the methodological advances of network

analysis, and his intuitive conception of status group or social class as network provides

only a skeletal framework for understanding the mechanisms by which networks

structure status and lifestyle differences. The anthropological and social psychological

traditions came together with a group of researchers centered around Harrison White,

who pioneered algebraic models (e.g. blockmodels) and multidimensional scaling (MDS)

for analyzing relations, and popularized the network structural perspective (Scott, 1991,

Chapter 2; Wellman, 1988b).

Lifestyle

Lifestyle refers to a pattern of behavior and the cognitive state or consciousness (e.g. Marx) which they imply. Life-*style* implies behaviors that go together as a set or "package" and that recur over time, or at least have recognizable continuity. *Life*-style implies that it is a set of behavioral dispositions and schemes of appreciation (Bourdieu, 1990; 1984, p.171-172) at the heart of the way one lives life, i.e. constituted of and concerning everyday behaviors. Lifestyle is "reflected primarily in consumption patterns but applicable also to the evaluation of intangible and/or public goods…. [and] defined over a given collectivity to the extent that the members are similar to one another and different from others…" (Zablocki & Kanter, 1976).

Practices are the substance of lifestyle. Practices are everyday, usually recurrent, behaviors that exhibit recognizable thematic continuity as a "way of doing" one or more things. Lifestyle is a composite set of practices perceived as *the* way of life for a person or group, i.e. a person or group's manner of living (Bourdieu, 1990). Assuming the structuring processes within any person constitute an integral whole, i.e. each body is inhabited by a single "person", lifestyle should be understood to encompass all of one's practices in the sense that they are all shaped by that same structuring process, thus manifestations of a unified 'style'. However, not all practices are necessarily perceived as constituent of a lifestyle or of group identification with a lifestyle. Within a lifestyle some practices will be viewed as significant bases for identifying persons inclusively or exclusively, i.e. will be status markers, while others will not be considered important. Which practices qualify as relevant status markers, defining the 'style', varies across lifestyle or status groups. Behaviors that a group or person within a lifestyle perceives as defining the lifestyle may or may not be congruent with the perception of that lifestyle from the perspective of other lifestyles, since awareness of cultural and symbolic capital status markers of distinction is itself partly a function of one's *habitus* (Bourdieu, 1991, 1984). However, lifestyles are also symbolic objects about which there is a high degree of

communication, the use of which as social identities requires a degree of shared understanding of the defining qualities and boundaries of various lifestyles.[vii]

Any lifestyle cluster is a subculture, but only certain kinds of local subcultures are lifestyle clusters. In being shared way of life, lifestyle is cultural in a rudimentary sense of culture, though a naïve cultural explanation that lifestyle is the result of simple socialization or cultural transmission alone is insufficient to explain lifestyles (DiMaggio, 1997, p.267). Behaviors and the lifestyles they constitute are not simply a result of transmission of cultural, i.e. lifestyle, elements – what Darwinian theories of cultural evolution call *memes* (Castelfranchi, 2001; Mesoudi et al, 2004) – but also of choices, and these choices are made within the constraints and opportunities of the physical, symbolic, and social context (DiMaggio, 1997).

Outline of a Theory of Lifestyle Clusters

A theory of lifestyle clusters is not an explanation only of lifestyle similarity and dissimilarity, homogeneity and heterogeneity, but of the "bundling" together of behaviors in lifestyles, and the division of the distribution of lifestyles into relatively distinct groupings or clusters, whose behaviors tends to closely match the pattern of others in their cluster. Lifestyle behaviors would vary even if lifestyle was simply random, but the variation would not exhibit recurrent or systematic patterns, e.g. divisions and bundling, such as we do observe. The roots of these patterns are no mystery. The corpus of sociology is testament that people's lives are shaped by the world in which they live,

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[vii] Applying the analogy of art to this paragraph may better illustrate the points. Every aspect of the work of a given painter or perceived "school" of painters are manifestations of the style of that painter or school since all aspects are shaped by the underlying manner, knowledge, training, routines, and outlook of the painter or school, but in appreciating the body of artwork, observers generally recognize a subset of these manifestations (e.g. characteristic brush strokes, preferred color palette, subject, etc) as characterizing or defining the style of the artist or school. Different observers may recognize different aspects as defining, since this recognition is a characteristic not of the art alone, but of the relation between the observer and the art. However, a level of intersubjective agreement regarding what constitutes each style of art is often achieved as a result of communication among observers.

particularly the social relations in which they are embedded. Systematic variation in lifestyle results from differences in how persons relate physically, symbolically, and socially to other objects and persons in their environment. That is, from differences in capital and opportunity structure. A theory of lifestyle clusters should begin with an understanding of the impact of capital.

Capital

Capacity to act is vested in capital. The possibility of any behavior and the probabilities of various outcomes that might result depend on the capital situation, which varies across persons, all but ensuring variation in behavior. Insofar as a person's capital situation remains more or less stable over time, the probable behaviors and outcomes of those behaviors are likely to remain similar also. Recurrent, even routine patterns of behavior typically result (Berger & Luckmann, 1990 [1966]; Schank & Abelson, 1977) as the person adopts behaviors that satisfice (Simon, 1957, p.204-205, Chapters 14 and 15) for operating in the given context. Conversely, changes in capital create new behavior possibilities and alter the probable outcomes of existing behaviors, causing new practices to emerge. In this way capital directly creates variation in lifestyle. Ceteris paribus, insofar as two persons have similar capital and opportunity structure their lifestyles are likely to be similar and insofar as they have different capital or opportunity structure their lifestyles are likely to be dissimilar.

Marx's theory of class is the archetypic illustration of this principle using a classic definition of capital (Marx, 1978a, 1978b), but every extension of the concept of capital offers a new set of objects that impact lifestyle, whether it be human capital (Becker, 1964; Braverman,1974), occupational traits (Wright, 1985; Davis and Moore, 1945; Duncan, 1961), cultural capital (Bourdieu, 1984; Bennett et al., 1999), 'social capital' (Bourdieu,1983; Coleman, 1990; Putnam, 2000; Portes, 1998; Lin, 2001; see footnote

iii) or other types of capital (Grusky, 1994, p.3-4). In various instances certain of these forms may have greater impact on lifestyle than others. As previously noted, those that provide material sustenance tend to predominate wherever basic human survival is a challenge, but it is unwise to presume that particular forms of capital are universally dominant over others. Their importance lies in whatever their actual impact is in people's everyday lives.

Broadly, there are three kinds of mechanisms by which capital and opportunity structure impact lifestyle. The first of these is direct capital constraints and prerequisites: objects that one must have access to, and perhaps consume, to engage in the behavior. One cannot buy without money, cooperate without interaction, or communicate without signs. If one lacks the needed resources one may be precluded from the behavior. If one has access to the resources the behavior is possible.

A second impact of capital derives from the first. The differential experience provided by capital differences creates differential habitus. Each person is exposed to a different fraction of the physical, symbolic, and social space. Each is faced with different life chances, depending on their relations with other people and objects; and each has access to different amounts and forms of capital which shapes how they behave and how they think.[viii] These differences create people with different habits, different dispositions, different tastes, different idioms, different consciousnesses.

> "For as soon as the distribution of labour comes into being, each man has a particular, exclusive sphere of activity… He is a hunter, a fisherman, a shepherd, or a critical critic." Marx, *The German Ideology*, p.160.

> "This mode of production… is a definite form of activity of these individuals, a definite form of expressing their life, a definite mode of life on their part. As individuals express their life, so they are. …The nature of

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[viii] Part of the physical context for each person is their body and its capacities, e.g. physical differences between men and women. A portion of lifestyle differences are a result of variation in this body capital. However, body differences are a relatively minor portion of overall capital difference in modern society. Differing social contexts would create a distribution of lifestyles even if people were physically identical.

individuals thus depends on the material conditions determining their production." Marx, *The German Ideology*, p.150.

Because experiences differ, especially early socialization, people acquire different expectations about how various people and objects interact with one another: different understandings of their world and different *ways* of understanding, i.e. different modes of perception for evaluating and appreciating what they experience (Bourdieu, 1990, 1984), different likes and dislikes, different self identities. Each person develops their own toolbox of habitual practices, model behaviors, routines, "scripts" and predispositions for negotiating their environment and achieving desired outcomes, i.e. satisfying their needs and desires, in interaction with other persons and objects in their world: different habitus (Bourdieu, 1990, 1984; Swidler, 1986; Schank & Abelson, 1977; Abelson, 1981; DiMaggio, 1997; Goffman, 1959). Habitus emerges recursively from experience of the world as it is perceived via one's mode of perception and values and as it is guided by one's practices and predispositions, i.e. as structured by itself (Bourdieu, 1990, 1984).

The third kind of capital mechanism relevant to lifestyle are processes by which capital may be used shape or alter the distribution of capital. These include use of capital to accumulate more capital (e.g. the wage labor relation as a class polarization process detailed by Marx), and translating given forms of capital into other forms of capital (e.g. use of money as liquid capital).

Isomorphic Processes

Differences in capital situation alone can account for variation in the distribution of lifestyle[ix], but cannot explain the tendency for the distribution of lifestyle to cluster. Beyond the simple variation in lifestyle caused by having different positions within the 'social space', there must be other *isomorphic* processes (DiMaggio & Powell, 1983) or

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[ix] See Mark (1998a) for a simulation that illustrates how differentiation can emerge from first principles of interaction process and network structure.

social forces that create separation between groups and homogenization of lifestyle within groups. This coalescence of behaviors is attributable to a combination of at least five factors: (1) mimicry, (2) differential utility of lifestyle elements, and (3) structured social relations, along with (4) cognitive simplification and (5) other feedback behaviors.

Mimicry

The primary motor of lifestyle clustering is mimetic isomorphism (DiMaggio & Powell, 1983) or mimicry, the borrowing of behavior models from other people. Mimicry is a basic social process that reduces effort and improves success rates in a world of uncertainty (Kelman, 1961, "internalization", p.65-69; Bandura, 1974; DiMaggio and Powell, 1983, p.151). People negotiate each situation that presents itself to them with some combination of practices learned from past experiences and other persons, and spontaneous behavior. Usually the less familiar the situation, the less basis there is for relying on learned practices and the more spontaneity is necessary, but negotiating fresh social interaction requires effort in the reiterative, interactive process of reading situation, anticipating possible outcomes, and designed behavior toward other people and objects. It also entails higher level of uncertainty about outcomes and may yield inconsistent results. To reduce effort and uncertainty, people develop routine practices and "scripts" for dealing with familiar, recurring situations in ways that can usually be relied on to achieve satisfactory outcomes, and that they can often apply to some extent even in unfamiliar situations (Schank & Abelson, 1977; Abelson, 1981; Goffman, 1959).

Behavioral practices and scripts may be acquired in a variety of ways. Some are developed initially from spontaneous behavior, hit upon accidentally, or develop through trial and error. Insofar as one's practices originate in this way, they are likely to be idiosyncratic and of little significance socially. Other practices may be premeditated, designed for dealing with foreseen situations. Insofar as others may face similar situations and plan similarly, these are more likely to be socially significant scripts. Much

of the effort, uncertainty, and error involved in developing satisficing practices in either

of these two ways, especially trial and error, can be avoided by modeling practices from

other people, borrowing those that appear to work successfully for other people in similar

situations, though even practices obtained in this way usually require testing and

refinement through repeated personal use and experience. As children much of what we

learn comes from copying what our parents, siblings, and peers do. Even as adults we

pick up behavior patterns from spouse, colleages, media, and especially tend to adopt the

strategies of those we perceive as successful. Practice makes perfect. With repeated use

behaviors that satisfice[x] (Simon, 1957) become habitual and almost effortless, requiring

little or no conscious attention unless something disrupts the course of our activity.

Mimicry may be viewed as a process of diffusion. Any constituent element of

lifestyle is, to invoke an epidemiological metaphor in which people "catch" behaviors

like a disease, a contagion. Diffusion involves at least two distinct processes (Rogers,

1983; Potts & Allison, 1999). The first process is one whereby the person comes into

contact with the contagion, i.e. is exposed to the behavior, taste, or idea. The second

process is adoption of or succumbing to the contagion, or – conversely – rejecting or

resisting it. Adoption of lifestyle elements often depends heavily on the utility of the

lifestyle element for the potential adopter.

Utility of Lifestyle Elements

Exposure alone is no guarantee that a person will adopt or manifest a particular

element of lifestyle. Another key factor is the utility of the behavior to the potential

adopter. Most practices achieve something for the persons who use them, but some

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[x] Satisfice, a portmanteau of "satisfy" and "suffice" coined by Simon (1957), refers to behavior intended to
achieve satisfactory or sufficient results rather than a maximal outcome.

potential practices may be better than other in achieving particular goals[xi]. The utility of lifestyle contagia to different people varies by virtue of their different capital situations and interests that derive from those situations: their position in relation to other objects, and how the behavior fits with the rest of their lifestyle. For any given context and set of needs or desires some practices, predispositions, and modes of thought are likely to yield satisfactory results and others are not. Generally people will only adopt practices, predispositions, and modes of thought that will at least "get them by" or satisfice [x] (Simon,1957) their basic expectations, needs and desires, which can cause divisions in the distribution of lifestyle. Moreover, among satisficing possibilities a few may be most optimal, providing best success or returns for a given situation and goals, so that people will further tend to favor these few, accentuating the concentration of lifestyles of persons who share a particular social context.

Consideration of the survival and cultural transmission of cultural elements, referred to as *memes*, as a function of their differential utility with regard to ecological contexts is the essence of evolutionary theories of cultural transmission (Dawkins, 1976, Chapter 11; Castelfranchi, 2001; Mesoudi et al, 2004) and, with respect to how they fit with other cultural elements, of Cultural Ecology (Harris, 1974). The utility of strategies for negotiating in a social or physical environment as a basis for their adoption is also a central premise of rational choice theory (Coleman, 1990) and game theory (Von Neumann and Morgenstern, 1953, Section 3), both of which explicitly consider issues of optimization of preferences and contingency of utility on situational context, although they focus on generally applicable rather than idiosyncratic strategies.

[xi] Specification of utility, i.e. what constitutes "better", is mainly a tangential issue. I mean only that, over the long run, individuals may have different evaluation of the usefulness and desirability of various lifestyle elements, whether it be the level of "return" the practice yields, its "costs", the ratio of return to costs, or other aspects of the practice.

Structure of Social Relations: Communication of Lifestyle Elements

Mimesis causes people to behave more similarly to those whose behaviors they mimic, but if behavior was mimicked randomly, this would not tend to cause lifestyle clustering. To cause lifestyle clustering, mimesis must be shaped such that either the availability of model lifestyle elements, or the utility of adopting them, or both, are differentiated in a more or less consistent way. Capital situation or opportunity structure can do this in various ways (see *Capital* above), but the impact of the structure of social relations in this regard warrants special attention as a crucial third factor interacting with mimicry and the utility of lifestyle elements to produce lifestyle clustering.

People can only mimic behavior patterns that are communicated to them by some agent of socialization. The adoption portion of the diffusion process is moot if there has been no exposure. Behavior models may be communicated via broadcast media (e.g. television), or narrowcast (e.g. school, church), or interpersonal channels (i.e. specific others). Recorded media can communicate across time allowing people in the present to model behaviors from the past. The structure of communication channels shapes the diffusion of behaviors, tastes, and ideas through a population (Rogers, 1983; Axelrod, 1994, 1997; Potts & Allison, 1999; Friedkin & Cook, 1990).

Clustering is likely wherever behavioral contagia diffuse through interpersonal or narrowcast channels. Simulations show that even when a network has a highly ordered and regular structure, e.g. a lattice, subcultural clusters or "bubbles" may form within the network, because social influences are limited to those other persons with whom one is proximate creating "local" similarity, and the probabilities of adopting or resisting a particular contagion vary randomly, or as a function of cultural similarity (Axelrod, 1994, 1997), making it unlikely that a particular behavior will spread universally (Mark, 1998a, 1998b; Nowak, Szamrej & Latané, 1990; Nowak, Lewenstein & Szamrej; Axelrod, 1994, 1997; see also Abelson, 1979). Mimicry and the mere presence of structured channels of

contagion is thus shown to be sufficient in at least some instances for clusters to form, without any special network pattern, and regardless of the cognitive utility of the contagion or feedback processes discussed below.

Uniform lattice networks are mainly an heuristic concept, virtually non-existent in the real world. Real social networks tend to exhibit structural diversity: knots, k-cores, n-cliques, bridges and cut points (Scott, 1991; Wasserman & Faust, 1994). Such structural diversity, particularly the presence of structural holes (Burt, 1992, 2001), increases the likelihood of subsets of persons whose mutual cross-influences and relative lack of outside connections protect them from adopting cultural contagia. In such instances subcultural divisions ought to tend to map onto networks divisions because the relative lack of connectivity restricts the transmission of lifestyle elements. The diffusion of practices through network channels emphasizes the importance of network adjacency or cohesion in shaping lifestyle similarity: people who are connected to one another are more likely to be similar.

Structure of Social Relations: Adoption of Lifestyle Elements

The structure of social relations not only affects lifestyle via communication of lifestyle elements, it also impacts the process of adopting a contagion to which one is exposed. The utility of the behavior or idea and other conditions impacting whether one adopts the behavior are likely to be most similar among people who have similar social contexts, i.e. similar relations to other objects in their environment. In other words among people who are likely to have similar lifestyles already, and who are likely to have similar appreciation of the behavior and how it fits their overall lifestyle. Differential access to capital costs or prerequisites may impact capacity to adopt particular lifestyle elements (see *Capital* above). Moreover, the success of behavior is generally conditional on context and the goals contained within it. The meaningful social aspect of the general context is the social relations within it. Thus the social relations in which a person is

embedded impact the utility that adopting various lifestyle elements is likely to have for them.When the social relations are thought of as a social network, the relevant principle is that of equivalence. Persons occupying highly equivalent positions in the overall social network are likely to experience similar utility in adopting various lifestyle elements and thus, conditional on exposure, should be likely to have similar lifestyles. This tendency is further augmented by persons to emulating other persons who are similar to themselves.

Specific types of social relations can be capital-polarizing mechanisms which contribute directly to clustering. This tends to occur with social relations that gives one set of persons a capital advantage at the expense of another set, i.e. a systematic pattern of net transfer of capital in one direction. This might be a definition of exploitation (see Wright, 1985, p.36-39 & 73-77). Where a relationship of this type is common and the sets of people at each end of the relation tend to be mutually exclusive, e.g. one is not likely to simultaneously be a wage laborer and a capitalist, the relation will transfer capital from the disadvantaged group to the advantaged group, polarizing the parties into distinct classes with respect to that form of capital. The classic example is the wage labor relationship at the heart of Marx's economic analysis, in which capitalists must provide laborers with payment of lesser value than what their labor is worth to the capitalist. The same thing is possible with retail exchange relations, or with non-economic relations.

Erickson has shown how attitudinal similarity among individuals is created by network relations, particularly via equivalence or network position, and how cultural genres, most of which imply lifestyle practices, are shaped by network relationships as well as life course experience. She also challenges the conceptualization of class in occupational terms by showing that sharing of cultural genres via occupation and workplace connections is less than statistically significant (Erickson,1988, 1996). Fischer also offers evidence that social network relations other than those associated with occupation, underlie "subcultures" of lifestyle practices and identity (Fischer, 1982,

Section V). Cardon and Granjon (2005) illustrate the network underpinnings of shared lifestyle practices in three different patterns among French youth.

Together the three factors of mimicry, differential utility, and the structure of social relations are the core causes of lifestyle clustering: a kind of social gravity pulling people's lifestyle practices toward those who are similar and apart from those who are different. Adoption of differential behavior patterns from those who are proximate and similar to oneself, recurring across time and operating across a population, creates lifestyle clustering. As clusters coalesce the homogeneity of the lifestyles and the capital situation in which they operate increases, making further behavioral similarity more likely in a self-reinforcing cycle, unless there are counter forces.

Cognitive Data Reduction

Another factor that contributes to lifestyle clustering is the cognitive utility of simplification. Since success in interaction depends on anticipating the behavior of others, it is useful to be able to distinguish people according to their likely behaviors and the behavior of others toward them. The main basis for estimating the future behavior of a person and of others toward them is knowledge of past behavior by and toward them, and the inferences about motivations, situations, practices and predispositions that it yields. However it is cognitively taxing to remember every experience of even a small number of people, or even just oneself. The task quickly approaches the impossible as the circle of people is widened about whom we desire such knowledge. Necessarily the abundance of data must be reduced by identifying patterns and devising schema (i.e. models or explanations) for those patterns (Schank and Abelson, 1977; DiMaggio, 1997). We use schema to simplify identity, even our self-identity. Schema allow us to focus on experiences that represent the significant patterns that we see as characterizing the person, and filter out much of the rest.

The better we know a person and the greater impact they have on our lives, the more richly detailed and idiographic their identity is likely to be for us. These identities are likely to have a narrative form: stories about who a person is, and how they relate to other objects, especially to other people (Somers, 1994). Identities of less well known or minor figures in one's life tend to be far less detailed, because the value of the details is of less importance to the knower, but also because one has less exposure to these people and thus less opportunity to learn the details. Our narratives regarding people who we know passingly tend to cast them as bit parts, and the identities of non-specific others are mere status categories, because that is cognitively efficient and it generally satisfices.[xii]

Each person faces a related problem in interactions with people whom they have never met, a common situation in modern life. How is one to anticipate what a person they have never met before will do? In part this problem is solved by social norms and first impressions of actual behavior, but also with stereotypes, i.e. categorical identities cognitively linked to readily apparent sensory cues. A person reads status cues in the

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[xii] Statuses are categorical elements of identity. They are typically understood as encoding and communicating a trait of the person (or object) identified which, being abstracted, may also characterize other persons (or objects). Statuses should instead be understood as encoding aspects of relationality. Achieved statuses arise via interaction patterns, so their basis in relations is obvious. The relational bases of ascribed statuses are less readily apparent. The personal attributes on which ascribed statuses are based are unaffected by, and temporally precede, interaction. However, what is really being characterized are interaction patterns, i.e. relationality, which observers associate with the personal attributes. The personal attributes are only the indirect basis of the codes. Historical changes in the definition and salience of various racial and ethnic statuses, for example, strongly suggest that the meaning of race lies in patterns of social interaction, i.e. relations among people, not any set of constituent biological or other essentialist qualities of the people so characterized.

The concepts of role and status, relation and social position are closely linked, but authors disagree on the precise relationships among the concepts (see Wasserman & Faust, 1994, p. 348-350 for an overview with regard to network analysis). As used here, statuses are not generally social positions. A status is a marker or label that is abstracted from some aspect(s) of relations, and as an abstract may be applied to whatever set of positions may share similarity with respect to the relevant aspects of their relations. A position is a full relational context, i.e. a location in a network, which may usually be characterized by a set of statuses rather than a single status. A highly specific status, e.g. Provost of XYZ University, may in effect equate to a specific network position if the relations encoded in the status are essentially the full set of relations of the position. Or, when the relational content of a network is very simple, a status might correspond directly to a position in the context of that limited network. A role is a behavioral expectation, and a potential relation type. In most instances relations may be described to a great extent by reference to the roles they entail, though relations are not limited to roles and may in some instances lack roles entirely. For conceptual clarity, this writing focuses on relations and positions and largely avoids the role concept.

stranger's appearance and manner, and by comparing the cues to those of others with whom they have experience, places that person in an identity that initially consists solely of statuses, with an initial expectation that the other person will behave accordingly.

Stereotypes feed back into patterns of social interaction, shaping behavior and promote lifestyle clustering. When people interact with others based on a stereotype, as a behavioral expectation, they exert social pressure for the others to act in accordance with the stereotype (Goffman, 1959). The other persons may act against the stereotype if they see it as hostile or coercive, but it is often convenient to act in a manner consistent with expectations.[xiii] Stereotypes can be communicated, and insofar as they maybe shared by large segments of a population, can become self-fulfilling in pressuring conformance to a categorical identity. People may even regulate their own behavior to more closely match a desired or socially expedient identity. These stereotypes feedback mechanisms can augment clustering of lifestyle or reinforce existing clusters.

Homophily

Another feedback mechanism is homophily, the tendency for persons to prefer others like themselves in forming and maintaining peer relations (McPherson, Smith-Lovin, and Cook, 2001). The familiar is understandable, comfortable, and usually most proximate, so people tend to develop cohesive peer relations with others who have similar experiences, similar stories and statuses, and similar behavior patterns. This can lead to cliquishness in the pattern of social relations based on lifestyle differences, which can create or intensify lifestyle clustering (see above). Furthermore peer social relations are transitive. People are more likely to be introduced to and become friends with friends of their existing friends, so cohesive relations may get reinforced with more cohesive relations, which can lead to individuals being exposed to the same or very similar

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[xiii] Behavior that is inconsistent with or defies expectations, or is difficult to explain, may incur various social costs: stress, less successful or more uncertain outcomes, sanctions, etc.

behavior models from a several different social relations, further augmenting the tendency toward cluster homogeneity, ceteris paribus .

Social Closure

Insofar as the values associated with particular lifestyles may depend on the exclusivity of the lifestyle, people may engage in acts of social closure, either exclusively restricting group membership or access to the identity, even intergroup hostility, to defend the values and privileges of their lifestyle and identity, or attempting to usurp those values and privileges by adopting a lifestyle and identity with which they are associated (Parkin, 1979). Closure is achieved largely through recognition of status symbols or cultural capital (Bourdieu, 1984), sometimes popularly referred to as "walking the walk" and "talking the talk". This encourages people to conform their lifestyle and cultivate their social relations appropriately, if they wish to achieve or maintain the values of a particular identity. This is another feedback loop by which clusters are reinforced.

Residential Segregation

Another specific feedback mechanism is the housing market. Capital constraints and self-selection into neighborhoods, on the basis of tastes, create residential segregation of lifestyle clusters, which underpins residential segregation by social class and race. As already similar persons come to reside in the same neighborhoods and towns, their social relations tend to become more homogeneous. The objects and people to whom they relate are likely to overlap as they share almost the same physical environment, and thus also likely to have similar symbolic and social environments. Homogenization of relations tends to create even greater lifestyle similarity.

Socialization into Relations

Perhaps the most important feedback mechanism is transitivity of social relations intergenerationally as part of the socialization process. People are not born with a random set of relations to other persons or objects in their world. Generally they are born with one key social relation, a mother, then at an early age may acquire other family relations, e.g. father, siblings, etc. and develops further relations transitively from this base as he or she is introduced to kin, neighbors, and other members of these persons' personal community (Salzinger & Hampson, 1988; Ladd et al, 1988; Cochran & Riley, 1988; Feiring & Lewis, 1989; Holland & Leinhardt, 1972; Feld & Elmore, 1982; Wellman, 1983). Similarly they develop relations with various physical objects (e.g. furniture, toys, house, yard, school, etc) and symbolic objects (e.g. mode of speech, vocabulary and use of other symbols, knowledge, etc.) as transitive extensions of their relations with family members and family members' relations with these objects. The process builds outward to new agents and new physical and symbolic objects, such that the set of relations in which a person is embedded at any time can be traced back as emerging historically from their set of social relations at any prior time. Kids tend to become friends with their friends' friends. Adolescents' relations expose them to opportunities, new interests and experiences. Couples inherit new relations from their partner's network, and change existing relations as time and attention is redirected toward the partner or spouse. Having a child, finding a job, divorce, and other life changes each depend on existing relations, have potential to disrupt old relations, and causee new relations to form. Thus the child's adult lifestyle derives, via their life course, originally from the lifestyle cluster(s) of their parents, often collaterally with other children whose parents are from the same lifestyle cluster(s) and whose experiences develop in parallel directions. This is the process underlying inheritance or reproduction of social class. We do not start out in a world of randomly distributed individuals who coalesce into lifestyle clusters. We start out in a world that it is already gravitated into lifestyle clusters and these existing clusters shape our own relations and lifestyle clusters.

Dynamic Clusters

Lifestyle clusters are dynamic. As the environment of relations among people and to physical and symbolic objects change, lifestyles change. New objects and new symbols are created. Old ones disappear. New people are born, existing people relocate, age with resulting changes of relations, and ultimately die. When these things happen differentially across lifestyle groups the overall ecology of lifestyle groups changes. Relations between particular sets of lifestyle groups may evolve. Portions of clusters or individuals may slip or break away, or new persons merge into an existing cluster. Clusters evolve.

Which Relations Matter?

Although some types of relation are certainly more powerful than others, focusing on particular types of capital seems misguided.[xiv] Any and all types of social relations can be relevant to lifestyle groups. The relative impact of various types of social relations on lifestyle depends on the various specific processes whereby capital is used to achieve effects, accumulated, and translated between types, on subjective appreciation of those effects, on the ecological mix of various types of relations. A few specific types of relation warrant special note.

Wealth, Property, and Exchange Relations

Prevailing models of stratification focus on the distribution of resources, goods, and services (Rose, 2000; Kerbo, 2000 p.11; Grusky, 1994, p.3; Duncan, 1961; Davis & Moore, 1945), rather than on lifestyle per se. While it cannot be denied that economic

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[xiv] Theories of social differentiation usually emphasize particular relation contents as primary, e.g. material relations of production (Marx, 1978a); occupational relations (Wright, 1985; Blau & Duncan, 1967; Davis & Moore, 1945; Durkheim, 1984 [1893]); authority (Dahrendorf, 1959); economics, politics, and prestige (Weber, 1946). Bourdieu (1984) highlights relations of symbolic distinction, but is clear that all forms of capital are relevant (1987, especially p.3-4). Parkin (1979) focuses on a form, social closure, rather than on a particular content.

situation has major impact on overall lifestyle (Zablocki & Kanter, 1976), wealth and material resources are of little significance in isolation from lifestyle, except maybe as some kind of symbolic social status marker or "score". What makes resources meaningful is the impact they have on differences in social behavior and life chances. If it was not true that knowing a person's wealth told us at least something about how they are likely to live and how they are likely to interact with other people, the distribution of income or wealth would be of almost no interest.

Wealth is economic capital. The locus of wealth is social relations, particularly social relations regarding material objects. Property, the usual form of wealth in modern society, is a social relation between owners, who have rights of access, use, and/or benefit regarding a set of one or more property objects, and non-owners who are excluded from rights to those objects (Somers, 1992b; Lametti, 2003; Screpanti, 2001, p.24). Wealth exchange is a social relation between former and future owners of exchanged objects. Collectively exchange relations constitute a market, and goods or services available for trade are commodities.

Lifestyles involve consumption, so much so that lifestyle is often equated with pattern of consumption of material goods and services (Weber, 1946; Weiss, 2000; Claritas, 1997). To be part of a lifestyle group one may need to live in an appropriate neighborhood in an appropriate home decorated in appropriate style, drive or ride in appropriate vehicles, wear an appropriate style of clothes, and engage conspicuously or inconspicuously in appropriate consumption patterns. To the extent material objects are requisites of various lifestyle practices or requisite status markers for social closure, access to relevant forms of wealth enables lifestyle and lack of access precludes it.

The more highly commodified a society is the more validity and utility wealth alone is likely to have as a predictor of lifestyle. When forms of material wealth are easily interchangeable one for another, or into other types of capital relations (e.g. human, cultural, 'social', political, etc) a lifestyle may, in effect, be purchased in the

marketplace. This is less true in less commodified societies, and has limits even in ours. People may access lifestyle requisites through mechanisms other than exchange. Insofar as a market may be inefficient, people may experience different costs for accessing the same objects via the market. Unless a society is perfectly commodified, not all requisites will be accessible via the market. Some objects and many relations are difficult to buy, so wealth alone does not guarantee access. Perhaps most importantly, having the requisite wealth enables but rarely requires a particular lifestyle. For these reasons wealth alone is not generally sufficient to explain lifestyle.

Money is wealth in abstract, commodified form. A thing is money to the extent that it approaches an ideal of being perfectly storable, perfectly liquid and divisible wealth, and a universal medium of exchange. Money is stored both symbolically and in financial relations, e.g. savings, credit, or investment accounts. It has the capacity to be translated into other types of social relation or, by activating an exchange relation, to access services or goods. In our society both wealth and income, which is the flow of wealth received over a given time period, are generally accounted in terms of monetary values, i.e. as exchange-values (Marx, 1978b).

Education

To the extent symbolic objects are required for various lifestyle practices or requisite status markers for social closure, access to relevant forms of knowledge and cultural capital enables lifestyle and lack of access precludes it. One needs the vocabulary, speech patterns, manners and etiquette, tastes, and cultural knowledge to fit the lifestyle. Like the market, which in modern culture it overlaps, education is a mechanism by which cultural, and human capital is accessed. Education also directly provides lifestyle elements in the form of model behaviors, values, and experiences.

Occupational Relations

In our society when two people are introduced, among the earliest information likely to be communicated is each other's occupation. Occupation matters because for most people in our society the relations occupation encompasses are a huge portion of their total set of relations. Most persons depend on occupational relations for sustenance and to provide money, economic power which enables many of their other relations. Most people dedicate a plurality, if not a majority, of their time and energy to these relations, perhaps half their waking hours, for decades of their lives. Thus most people also come to strongly self-identify with these relations. Occupational relations are usual among those of greatest priority in the identity of other people in our minds, especially for less well-known specific others. Still, occupational relations are never the totality of our relations.

Other Types of Relations

In earlier societies, *gemeinschaft* relations of family, kinship, and community were more important in structuring lifestyle than they are in modern western society. Today they constitute a smaller portion of our relations, yet they are still very important. They include, by definition, the stronger, recurring interpersonal relations in our lives, which remain among the most powerful agents of socialization in our lives and still are a major force in the shaping of lifestyle. Many of the life course junctures at which dramatic lifestyle changes tend to occur are associated with these types of relationship: marriage or cohabitation, birth of a child, relocation to a new community, etc.

Most types of relations include communication as part of their content, and thus can be a channel of transmission for the diffusion of cultural contagia. All types of relations shape the context in which we operate and thus may be relevant elements of capital. No particular type of relationship is necessarily of primary significance in shaping people's behavior or consciousness. Lifestyle is not determined by any one type of relation, but the full set of relations in which one is embedded.

Importance of Significant & Specific Others

Each person is embedded in myriad relations with other people and objects. Most involve non-specific others. Most existing theory on class, social class, or differences among identity groups, has focused on such general relations with non-specific others: how one relates to the broad domain of others in a society by virtue of wealth, ownership of productive property, occupation, authority, race, ethnicity, sexuality, et cetera. Because these relations are between one person and an extremely large, usually unspecified number of persons that often approaches being *all* other persons ($n\rightarrow\infty$), and for reasons of cognitive simplicity, these general relations are often thought of as personal attributes or statuses, e.g. class, race, or occupation, rather than as the myriad component relations which those labels represent. Yet in principle each general relation consists of, and can be conceptually disaggregated into a multitude of component interpersonal relations, with either non-specific others or specific non-significant others. For example, occupation typically involves a web of relations that includes coworkers, bosses, subordinates, corporate shareholders, suppliers, dealers, customers, etc. The reverse is not true: specific relations cannot be reduced back to general relations. The pattern of social relations in which a person is embedded can be thought of as a set of specific relations, and also general relations that can be reduced to their specific relation equivalents in a particular pattern. Analysis of general relations alone will overlook specific relations that may strongly influence lifestyle, whereas analysis of specific relations should also capture general relations. At least it should if people disaggregate and recognize their general relations as relations. However, in practice the specific relations that constitute a general relation may be so inconsequential that people disregard or fail to consider them when asked about specific relations, even if the general relationship of which they are part is crucial to their lifestyle and identity.

The impact of any relation on lifestyle depends not only on the set of relations, but on the identity of the persons (i.e. alters) with whom one has the relations. Being the spouse of a monarch is likely quite different than being the spouse of a manual laborer because the monarch and the manual laborer are located at very different places in the overall network. The identity of one's alters depends, in turn, on their relations and the identity of their alters, and so forth. One may experience social mobility with regard to lifestyle and identity without any of one's direct relations changing, if the lifestyle and identify of one's alters change as a result of their relations, their alters' relations, etc. Social status is not strictly a function of one'slocal position but also of one's position in the global network of relations. Unless one can distinguish the relevant identities of alters a priori, or otherwise place the local network in a larger context, analysis of a persons direct relations (i.e. ego network) in isolation is insufficient to understanding their situation in the social space. Analysis of the larger network context might, in principle, extend to the entire planet if that were feasible. In practice some boundary specification is necessary (Wasserman & Faust, 1994, p.30-33; Scott, 1991, p.53).

Importance of Locale

Though ultimately the context that shapes every person is global, for most persons a large portion of their direct relations are geographically local. As a result of advances in transportation and communication, modern society involves people in more relations that span large geographic distances than perhaps any previous era. Even so a large share of most persons' relations to specific others and non-kin significant others are with people who live near them, in the same metropolitan area, even the same urban neighborhood or same rural town. Fischer (1982) found that about one-third of non-kin significant others of people in non-rural areas, and almost half of the non-kin significant others of people living in semi-rural areas, lived within 5 minutes of them. About four-fifths of non-kin

significant others of people in all communities lived within an hour of them. However, college graduates and post-graduates had more distant non-kin significant others and relatively fewer who lived close to them (Fischer, 1982). Extending Fischer's analysis to include specific others generally would most likely increase these proportions because people interact with others primarily in contexts that constitute the typical orbit of their lives, i.e. home, work, neighborhood, work, religious group, clubs & associations, shops & leisure activities. Interaction in these contexts tends to occur close to home or work. Not only do they constitute a large portion of most person's relations, but they tend to include more significant and specific others, whereas relations to distant persons tend to be less influential. Proximate persons and objects may have more influence in a person's life simply because of the greater exposure likely with proximate objects and persons (Huckfeldt, 1983). The research traditions of community studies (Lynd & Lynd, 1929) and ethnographies (Gans, 1962, 1967; Fricke, 1998) explicitly recognize this.

The impact of locality is compounded across not just one's immediate relations, but one's alters' relations, and alters' alters' relations, where the same individuals are likely to be in the local portion of many overlapping social networks. Collectively all such relations among a local population constitute an (open) local ecology or system, which is embedded in the larger, global context and underlies the distribution of lifestyles within that locality. Within that system will be sets of people who have highly similar patterns of relations to largely overlapping sets of individuals, objects, and symbols. Local relations constitute a major portion of the immediate relations that shape most lifestyle clusters, and thus lifestyle clusters are to some extent a function of a local ecology of relations, even given that they are nested in a larger, global context (Wellman and Leighton, 1979; Wellman 1988b).

Failure to consider local context may be one reason that some social science research fails to perceive distinct social classes or lifestyle clusters. The prevailing mode of inequality research uses national and cross-national sample data which analyzes

individuals in isolation from their local context, and with sampling rates where at most a handful of persons are considered from any one locale. Variation in lifestyle due to local lifestyle clusters could slip through the coarse sieve of national sample studies unexplained, obscuring distinct local divisions.

Furthermore, local variations or idiosyncrasies can give the lifestyle clusters associated with a locality, or a regional set of localities, distinct flavor. Even when people in other locales have similar patterns of relations they will not be with exactly the same individuals, physical or symbolic objects. Some such objects may be particular to a region or local, which could make lifestyle groups that particular region or locale unique. For these reasons, lifestyle clusters should be studied in a context of their locale.

Cohesion and Equivalence

Two network concepts are of particular importance in understanding the pattern of social relations behind distribution of lifestyle: cohesion and equivalence. Cohesion, also known as adjacency or connectivity, is the extent to which direct relations exist among a set of two or more persons. Two persons, a dyad, are adjacent if a direct relation exists between them. A number of network concepts relate to the cohesion concept. Network density, ranging from 0.0 to 1.0, is the relative frequency of direct relations that exist from all those possible among a set of persons. A group of persons among whom it is possible to trace a path of connectivity from any one person to any of the others by combination of direct relations is known as a component. A clique is a group of persons each of whom has a direct relation to each of the others (Wasserman & Faust, 1994, Chapter 7; Scott, 1991, Chapters 4 and 6). Structural holes are "empty spaces" between two or more relatively cohesive sets of persons, defined by the relative absence of relations between the sets of persons. The few ties that may link these otherwise divided sets are referred to as bridging relations, or simply bridges (Burt, 1992).

The importance of cohesion to lifestyle clustering lies primarily in the first part of the diffusion process, by which persons come into contact with lifestyle contagia. Insofar as behavior models are transmitted by channels of specific interpersonal relations, rather than broadcast, exposure to them depends on properties of cohesion within the network. One can only be exposed to the contagion in that situation if one is adjacent to a person who already has the model. The spread of lifestyle contagia within a population under such conditions depends on the extent to which the network of relations is divided into components and cores, on variation in density the network, on the presence and location of structural holes and the relations that bridge those structural holes (Burt, 1992), and the extent to which the network is a "small world" (Milgram, 1967; Watts, 1999). Cohesion is particular relevant to the diffusion of rare contagia, e.g. those that are new and/or not widely known, and those where the process of adopting the practice is complex or requires expert knowledge of the contagion.

The prevalence of mass media in modern society should tend to reduce the impact of network cohesion. If model behaviors and tastes are generally available through mass media and readily adopted, cohesion is unlikely to be of general import to the distribution of lifestyle (Burt, 1978). However, even in a mass media society a substantial portion of behavior may still be communicated via interpersonal relations with specific others. That may be more characteristic of a small rural boro than in contemporary society generally. To the extent that is true, cohesion may still have some effect on lifestyle clusters.

When a set of persons occupy identical positions in the overall pattern of relations, i.e. have identical patterns of relations to similar or identical other persons, they are said to be equivalent (Wasserman & Faust, 1994, Part IV; Scott, 1991, Chapter 7). As positions are rarely perfectly equivalent, equivalence is usually expressed in relative terms: persons have high equivalence to the extent the positions they occupy are very similar. There are a variety of specific equivalence concepts, each using different rules to define patterns of relations and other persons as equivalent. In principle equivalence

should not be limited to relations among persons, but also include relations to physical and symbolic objects. In practice equivalence with regard to interpersonal relations alone should suffice, based on the premise that any socially meaningful relations with physical or symbolic objects will be reflected in patterns of social relations. Pairs of persons can be equivalent without being adjacent, adjacent without being equivalent, both equivalent and adjacent, or neither.

Equivalence of network position should be important to the distribution of lifestyle regardless of whether the relevant contagia transmit via channels of specific relations or are broadcast. Diffusion research that emphasizes the impact of equivalent network position in diffusion outcomes supports this supposition (Friedkin & Johnsen, 1997, 2003; Burt, 1987). Equivalence is a measure of similarity of capital – similar patterns of relations to other persons and objects – which impacts the second part of the diffusion process, adoption, by shaping predispositions and structuring the utility of adopting or rejecting a particular practice or taste. Equivalent persons have similar patterns of cohesion with respect to similar others, so they should generally have similar access to lifestyle contagia, except where a model is highly localized within the network or idiosyncratic (Burt, 1978). Highly equivalent actors should engage in similar lifestyles.

Cohesion may also have an impact dependent on equivalence. Among persons who have a high degree of equivalence, and thus have similar lifestyles, cohesion offers an additional dynamic of direct interactions that exert social pressure toward peer conformity and increase sharing of model practices and tastes, which should make lifestyle clustering even more likely.

Brief Summarization

The roots of lifestyle clustering are in social relations. Lifestyle is distributed in the first instance by experience of relations of capital, i.e. relation of each person to other

persons, things, and symbols, through the prism of individual propensity, valuation, memory, and predisposition, i.e. *habitus*, which prism is itself a product of these factors processed recursively through the life course. Whereas socially significant capital is manifest in social relations, consideration of the set of social relations generally suffices as a reduction of the overall 'space' of capital relations. Social relations are crucial to various mechanisms, particularly mimicry and the utility of adoption, by which lifestyles become more similar or differentiated, creating clusters. Stereotypes and other feedback mechanisms shape social relations and thereby reinforce lifestyle clustering.

Persons who occupy highly equivalent positions in the network of social relations should share lifestyle cluster membership. Where persons are equivalent, if there are also cohesive relations among them they may have even more similar lifestyle. The global network is not accessible for analysis, but the social network of a geographic locale can provide a proxy. The quality of this proxy is likely to be best in a rural locale that is likely to have greater natural boundedness and exhibit a broader spectrum of lifestyle clusters for a given population size.

Illustrations

This outline of a theory has thus far been presented with limited illustration of how the mechanisms described play out in people's lives. It is useful to provide some concrete illustrations here. In that it is difficult without formal analysis to know much detail about the relations that shape one's lifestyle, the examples provided are necessarily sketchy and incomplete.

Consider the lifecourse changes of a man who was a founding partner and president of a mid-size protective services firm in a large northeastern city. Most of his social network consisted of relations with employees and corporate clients. He also had connections with other people in his industry and with metropolitan, state, and national

law enforcement personnel. His personal friendships were almost entirely derived from his business relations. His other major set of significant relations were his family, and his several siblings, most of whom lived within a half hour commute.

The early years of his career involved him in almost nightly dinner meetings and inter-corporate social events. He developed a taste for American luxury sedans, which he would trade in every few years. He moved from a middle class urban neighborhood to a large house in an upscale suburb. His neighbors were medical professionals, attorneys, and his fellow corporate executives. He joined the local country club. The house had space for a home office, but more importantly had rooms for hosting dinners or small social gatherings. He began collecting antique books, historic documents, and minor original works of art which were displayed throughout his home. He dressed in quality business attire. He became a regular patron of Broadway shows (but always had been a frequenter of cinema), and donor to a prominent hospital. He ate in upscale restaurants (though he also enjoyed traditional Italian and popular seafood restaurants), stayed in the best hotels, and often vacationed in Europe. His daughters attended private liberal arts colleges. As the most materially successful of his siblings, he saw himself as family benefactor. He cautiously invested in the stock market and rental properties, staying closely tuned to business media advisors. He enjoyed having service, tipped liberally, and habitually gave those with the ability to do it a "little extra" to ensure they would get him the best table or seats, upgraded features or better service, put him at the front of the waitlist, et cetera. He had a maid and handyman part-time, and company chauffeur when he desired one. After his wife passed away he hired a woman to cook evening meals.

His daughters grew up and moved away. He retired, removing him from most of his business relations. Most of his friendships withered. He sold his house and moved to a new mid-size home in a gated Florida retirement community, distant from his siblings, where his new neighbors were retired schoolteachers, nurses, and "middle class" folks. His old relations have mostly been replaced by new relations with neighbors and

community staff. Though he communicates with his family by phone regularly, he sees them only a few times a year. He sold most of his antique books, historic documents, and artwork, and stopped vacationing in Europe. He began shopping in Walmart and Home Depot and eating in Cracker Barrel restaurants, not due to any economic constraints but as a result of social and geographic context. He adopted a pattern of landscaping around his new home from his neighbors, and decorated his home in nearly an exact match of one of the developments model homes. He typically dresses in a casual fashion.

These changes came about in part because of a change in his social relations which ended portions of his lifestyle associated with those relations. He no longer needs books or art. His change in social relations is so major that he can shed much of his old lifestyle. Changed social environment and new friends separated him from Broadway, led him to more cinema, and made him less likely to shop boutiques or eat in fine restaurants and more likely to shop in discount super-retailers and eat in chain restaurants that focus on retirees. In many regards his old tastes carry through, but he also adopts patterns of his new peers and a way of life largely shared by a portion of other Florida retirees.

This illustration shows the direct impact of mimicry and of the differential utility of various lifestyle elements dependent on one's social position. It also strongly implies the impact of specific social relations in determining that social position and of feedback mechanisms in deliberately fostering certain kinds of relations as a form of impression management. It suggests the existence of two lifestyle clusters, a more exclusive one that he had been part of and a more popular one to which he moved, and demonstrates how one's lifestyle cluster can change over the lifecourse. But this example focuses on the individual. What do these mechanisms look from a lifestyle cluster perspective?

My own lifestyle clusters provide a second illustration. When my wife and I relocated several years ago we were, apparently, transitioning between clusters. The cluster we had belonged to consisted of relatively well-educated couples most in their late twenties or thirties, who did not have kids, were typically employed in white-collar

corporate or government jobs, and who enjoyed outdoor recreational activities such as hiking, biking, camping, kayaking or canoeing. This cluster also enjoys dining out, ethnic foods, wine, and at least occasionally "gourmet" cooking at home. Many of our friends who share a similar lifestyle attend a Unitarian Universalist church, and ecumenical religious ideals are pervasive. We listen to National Public Radio (NPR), which plays to our education, cultural tastes, casual environmentalism, and generally liberal political orientation. We shop, among other retailers, L.L. Bean, and are a target lifestyle segment for the Subaru Outback. The values of quality, durability, being properly equipped for adverse conditions, and desire to take the back roads are part of the symbolic space in which this cluster identifies itself and part of the image of these products. In the local context of the rural university town into which we moved, many members of this cluster were faculty at the university. When we first moved into the area we went to a social gathering that included other people who had similar lifestyles. At some of these as many as half the vehicles parked outside were Subaru Outbacks! It is no accident that L.L. Bean and Subaru offer the L.L. Bean edition Subaru Outback, since both brands sell well to this market segment, or that Subaru underwrites NPR programs.

What makes this a more interesting illustration is that as our daughter became a toddler our cluster membership changed somewhat, as perhaps has the membership of certain other couples who we know. Having a young child around reduces opportunities for outdoor recreation and introduces significant amounts of time focused on the child's activities, both at home and in the public sphere. It brings contact with parents of other children who are involved in these public activities (e.g. library reading time, preschool, gymnastics class, etc). It changes the utilities of various behavioral practices. In our case the Subaru Outback was replaced with a minivan to accommodate the new rationales of our life. Many of the tastes remain, but there is less time spent in social gatherings and more time spent on family life. We find ourselves reading children's books, arranging

play dates with other families, etc. Becoming parents is more than a new label; it entails a significant shift in our behavioral practices, lifestyle cluster, identity, and consciousness.

Throughout our locality there are other couples who appear to have made similar transitions, some few of whom we know personally, but presumably many who we do not know. This suggests that it is not so much internal diffusion driven by cohesive ties that drive lifestyle clusters but rather similar relational position or equivalence with respect to the material world, symbols, and especially to other people, which shapes the capital and opportunity structure of the individuals, makes the utility of various practices similar for them, and combines with cognitive simplification and other feedback behaviors to create a recognizable lifestyle and identity.

Expectations

The remainder of this writing sets forth a method for assessing aspects of the theory that has been laid out in this chapter, particularly as it a bears on the systemic partitioning of a local population into separate lifestyle clusters and the importance of patterns of social networks to explaining lifestyle similarity, then reports the findings of a study in which that method was applied to the study of a small town in the northeastern United States. The expectations of this research are:

One, that the distribution of lifestyle in a local population (of sufficient size) will tend to be divided into rather distinct lifestyle clusters.

Two, that there is a correspondence between persons' position in the overall network of social relations and the lifestyle group to which they belong, such that a set of persons whose social position is highly equivalent will tend to be part of the same lifestyle group, i.e. share highly similar lifestyles, and persons in the same lifestyle group will tend to have highly equivalent positions in the social network.

Three, that the degree of lifestyle homogeneity within such equivalence groups will be greater in proportion to the existence of cohesive relations within the group.

Four, that the correlation between occupational factors, education, or wealth and position in such lifestyle groupings is indirect, mediated through the influence such factors have on patterns of social relations.

CHAPTER THREE

METHOD I: DESIGN & PRACTICE

"[Total Design Method] utilizes social exchange theory to guide the careful integration of specific procedures and techniques… posits that questionnaire recipients are most likely to respond if they expect that the perceived benefits of doing so will outweigh the perceived costs of responding. Thus every visible aspect of the questionnaire development and survey implementation process is subjected to three design considerations: the reduction of perceived costs (e.g. making the questionnaire appear easier and less time-consuming to complete), increasing perceived rewards (e.g. making the questionnaire itself interesting to fill out by adding interest-getting questions), and increasing trust (e.g. by use of official stationery and sponsorship) that the promised rewards will be realized."   - Don Dillman, 1991, p.233

A case study of a single locality and analysis of variance in the lifestyles among sets of relationally-equivalent persons within the locality was used to assess the relational theory of lifestyle distribution presented here. Social network positional analysis and hierarchical clustering were used to identify sets of relatively equivalent persons. High lifestyle homogeneity within sets of highly equivalent persons was expected, with low lifestyle homogeneity across sets. Dyadic analysis was also conducted on the correlation between network equivalence and lifestyle similarity.

Prior Network Analyses of Community

Network methods have been used to study the concept of community. Studies often focus on "personal community": how sense of community and/or access to social support is related to patterns of egocentric networks (Fisher, 1982; Wellman, 1979,

1988a; Feiring, 1989; Burt, 1984; Schweizer, Schnegg & Berzborn, 1998), perhaps most popularly by Putnam (2000). The link between personal community and shared opinions and subcultural genres has also been studied (Erickson, 1988, 1996). However studies of egocentric network patterns do not provide an overview of a community structure nor allow positional analysis. Analysis of the relations among a set of persons is required to be able to determine if equivalence of social position underlies lifestyle similarity.

Some researchers have explored networks among subsets of larger populations (Stack, 1974) or among community elites in studies of community power structure (Laumann & Pappi, 1973; Laumann, Marsden & Galaskiewicz, 1977). Researchers analyzed "complete" networks among populations of organizations (Galaskiewicz, 1979; Galaskiewicz and Krohn, 1984; Mintz and Schwartz, 1985; Mizruchi, 1982, 1992, especially Chapter 9), including interorganizational relations in community power structures (Perrucci and Pilisuk, 1970; Perrucci and Lewis, 1989). Sociometric mappings of populations of natural persons have typically been conducted with small populations in isolated circumstances, such as psychiatric institutions (Doherty, 1971), an Antarctic research camp (Johnson, Boster & Palinkas, 2003), boys camp (Sherif & Sherif, 1956), college dormitories (Bochner, Buker & McLeod, 1976; Perl & Trickett, 1988), monastery (Reitz, 1988), or within corporations (Krebs, 1996, 1998; Burt, undated). These works demonstrate how cohesive subgroups and/or equivalent network positions correspond to socially salient differentiation and subgroup similarity within the studied populations. Research on full networks of larger populations of natural persons has probably been conducted (e.g. mapping of terrorist networks), but to my knowledge there are no extant reports of network mappings of "natural" residential locales with populations of more than a few hundred persons. This may be due to the scope of such a project. It may also be because this kind of project relies on voluntary participation, and thus is unlikely to yield a high response rate, in contrast to network studies of isolated or organizational populations where authorities within the organization may expect people to participate in

the research. Moreover, these studies are interested in issues other than lifestyle: often with foci on social support and well-being, power and leadership, information and resource flows, organizational competencies and social capital, etc.

The Concept of Equivalence

Social Network Analysis has produced a few different measures of equivalence, with a somewhat different definitions (Doreian, 1988; Wasserman & Faust, 1994). Our theory suggests that similar lifestyle behaviors, i.e. the degree to which the types, timing, and locations of a person's everyday routine activities match those of other persons, should be expected when persons have *similar patterns of relations to and from similar others*, which is how we have defined similar network positions. This kind of similar position is known as regular equivalence (Doreian, 1988; Scott, 1991, Chapter 7; Borgatti & Everett, 1993; Everett & Borgatti, 1994; Wasserman & Faust, 1994, Chapter 12).

To understand regular equivalence, it is useful to first have an understanding of a slightly simpler type of equivalence: structural equivalence (Scott, 1991, Chapter 7; Wasserman & Faust, 1994, Chapter 9; Lorrain & White, 1971; Sailer, 1978). Two people are structurally equivalent when they have identical ties to the same specific other persons. Consider the example of Figure 3.1, a matrix representing relations among nine people, numbered 1-9, each represented by a row and column in the matrix. Each matrix cell represents the presence (1) or absence (0) of a relation from the column person to the row person for a single type of relation. Diagonal cells have no value reflecting that for this type of relationship a person can not have a relationship with him or herself. Figure 3.2 is a graphic map of the matrix presented in Figure 3.1. Here each person is represented by a numbered circle, and the analog of a matrix cell is an arrow, or lack thereof, from one circle to another.

[FIGURE 3.1 ABOUT HERE]

[FIGURE 3.2 ABOUT HERE]

Permuting the order of rows and columns in the matrix to put those with the most nearly identical patterns of relations near each other yields the matrix in Figure 3.3. Here we can see that certain pairs of persons have patterns of relations with specific other persons, represented by ones and zeroes in the rows and columns, that are nearly identical. We might say there is a high degree of structural equivalence between the nodes in each pair. In this example there are no pairs of perfectly structural equivalent persons. That is no two nodes of the network matrix have identical relations to the same other nodes. Nodes 6 & 8 are close, as are 2 & 4, 5 & 7, and 1 & 3. Perfect structural equivalence is rare in real world networks, so analysts often measure the relative degree of structural equivalence using, for example, the correlation of the two persons' relation profiles, i.e. the extent to which they have similar relations to identical other persons.

[FIGURE 3.3 ABOUT HERE]

[FIGURE 3.4 ABOUT HERE]

If we collapse the pairs from this example so that each is represented by a single row and column, we get a reduced matrix representation shown in figure 3.4. This is known as a blockmodel (White, Boorman, and Breiger, 1976; Boorman and White, 1976). Each row and column represents a set of nodes that share identical, or nearly identical, patterns of relations with the nodes in each other block. Each cell is marked by a one if all of the nodes in the row have a relation to all of the nodes in the column, and a zero if none of the nodes in that row have a relation to any of the nodes in the column. An asterisk marks the two cells in which some of the row nodes have relations with some of the column nodes. Typically in the process of making a blockmodel some decision rule would be used to designate the asterisked cells as either one-blocks or zero-blocks.

The asterisked blocks in this blockmodel suggest the concept of regular equivalence. Nodes 1 and 3 are not structurally equivalent because 1 has a relation to 5 and 3 does not, while 3 has a relation to 7 that 1 does not, but 5 and 7 are themselves very

similar nodes, having identical relational patterns except for the difference in relations from 1 and 3. If the definition of equivalence is relaxed to refer not just to identical relations to identical others but analogous patterns of relations to similar others, we have the concept of regular equivalence.

Regularly equivalent persons have analogous ties to similar persons, i.e. to persons who are themselves regularly equivalent. Two persons are regularly equivalent if for every tie one of them has to or from some other node for each type of relation, the second has a tie of the same type to or from either the same other node or one that is regularly equivalent to it. That is, persons i and k are regularly equivalent if for each person j having a relation (R) with i, there exists a person m having the relation with k where m and j are themselves regularly equivalent and if for each person i having the relation with j, k has that relation with person m, where m and j are themselves regularly equivalent (Wasserman and Faust, 1994, p.474-5).

Conceptually, our theory of lifestyle clustering suggests that sets of persons who are highly regularly equivalent will constitute clusters with highly homogeneous lifestyle elements, and that among those clusters, those with more dense cohesive relations will tend to be even more homogeneous than those with no cohesive ties or low density. In the example above 1 & 3 should have similar lifestyles, 2 & 4 should have similar lifestyles, 6 & 8 have similar lifestyles and 5 & 7 have similar lifestyles, but each pair should have different lifestyles than those of the other pairs. Persons 1 & 3 should have the most similar lifestyles because they are the only pair with cohesive relations between them.

The example above considers the pattern of just a single type of relationship, but the networks of interest to us involve many relations, i.e. are multiplex. Each relation type would be represented by a separate matrix. The matrices could be thought of as stacked one atop another, forming a three-dimensional matrix with width and height of n persons in the network, and depth equal to the number of relationship types, R. The

network of relations in a locality might involve dozens of different types of relations, and instead of the nine persons in this example, thousands of inter-related persons.

Strict regular equivalence is rare in large, real world networks. It is thus common to assess the degree of equivalence between persons, which is typically measured using algorithms (e.g. REGE or the regular equivalence algorithm in UCINET) that iteratively assess the proportion of relations that each has which are similar to that of the other, weighted by the equivalence, estimated from the prior iteration, of the others to whom they are related (White, Boorman, and Breiger, 1976; Borgatti and Everett, 1993; Borgatti et al. 1999; Wasserman and Faust, 1994). Because the calculations for any one person in the network are dependent on the similarities of *all* the other persons in the network which are in turn dependent on the entire pattern of relations in the network, regular equivalence can not be estimated in an easy, unbiased way from sample data. For this reason this research sought to conduct a survey of an entire local population rather than draw a sample from a local population.

Measuring Relations

Although lifestyle may be shaped, to varying extents, by all varieties of social relations, rather than being determined primarily by one or a few types, and though the classification of relations into types is primarily a post facto attribution, some pragmatism is required in method. It is infeasible to be able to measure all varieties of social relation, and necessary to provide survey respondents with some rubrics for reporting their social relations. The strategy for measuring relations was to ask respondents to focus on those persons who they recognized as important to themselves and those who they encountered on a frequent and recurring basis, then ask them to "describe in a word or two how the person relates" to them and to select from a open-ended list of interactional content those which characterized their relation, as described more fully later in this chapter. This is in

contrast to the common name generator approach of having respondents identify persons with whom they had particular types of relations. The relations reported should constitute the core of each person's actual set of personal relations. Though people vary in the number of people they list with whom they have a relation, also known as alters, and the larger part of each person's network, consisting of less significant alters, will not be listed this must suffice for the purposes of this project as a reasonable measure of the pattern of social relations in which each were embedded, since no pragmatic superior alternative exists. Relational types emerged according to how respondents described or categorized their own relations. Their responses were later coded as a set of 25 relationship types: spouse[i], child, parent, child-in-law, parent-in-law, sibling, sibling-in-law, landlord, tenant, boss or superordinate, employee or subordinate, coworker, neighbor, friend, ex-spouse, grandchild (i.e. child's child), grandparent (i.e. parent's parent), other kin, church member, clergy, client or customer, persons who service is received (e.g. personal aid, lawn care person, etc.), medical professional, legal professional, and unknown.

Relation Type Equivalence

This researcher originally intended to use a regular equivalence algorithm such as that found in UCINET to measure the degree of regular equivalence between pairs of persons as a primary independent variable in this study. However, it became clear after data had been collected and analysis begun that this was not feasible with a large network. The time involved in the computer operations for that algorithm are on the order of N^5 (Borgatti, Everett, and Linton, 1999, p. 131). For a network of approximately 10,000 persons, this is about one hundred quintillion (10^{20}) computations per relationship type. With PC computer processors processing gigabytes (10^9-10^{10}) of data computations

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[i] The spouse category included those relationships identified as boyfriend, girlfriend, or significant other.

per second, this would still require something on the order of 10^{10} seconds, i.e. hundreds of years, to compute! An alternate algorithm for assessing equivalence was necessary.

The first alternative considered was UCINET's categorical regular equivalence (Borgatti, Everett, and Linton, p.128), a faster algorithm intended for analyzing binary and categorical relationship data. It classifies persons into distinct categories of regular equivalence rather than giving them a quantitative score for the degree of regular equivalence between them. With a timing order of N^3 (p. 129) this algorithm takes only a few minutes to handle a network of about 10,000 nodes. Unfortunately in a large, multiplex network such as a local population, where no two individuals are likely to have perfectly identical patterns of relationships, this algorithm tends to put nearly everyone in equivalence categories consisting solely of themselves as the single member, and offers no metric of similarity among the various categories. Another alternative was needed.

One of the factors contributing to the high order of computations involved in computing regular equivalence is a "weighting" function. When equivalence is being estimated between persons i and j, the algorithm looks for equivalence scores between every possible person m with whom i has a relation and every possible person n with whom j has a relation. Another thing that increases time involved is that, in effect, the algorithm looks for an equivalent tie for *every* relationship. The computation effort could be greatly reduced by: (1) considering each *type* of relation that exists between i and j just once per iteration rather than for every instance of a relation of that type, (2) only weighting by one pair of alters – whichever pair gives the maximal weight – per relation type, and (3) structuring the algorithm in a way that weights are only calculated when both i and j have the particular relationship type, rather than across all the nodes for all types of relation in the network.

To see how this might be done, consider that for each pair of actors for each relation type in each direction, outgoing and incoming, there are just three possibilities: either one has a relation of that type and the other does not, neither have relations of that

type, or both have a relation of that type. These possibilities can be scored for each

relation type as an indicator of similarity: 0 if one has it but the other does not, 1 if

neither has a relationship of that type, or 1 multiplied by the maximal equivalence

between any alter of the first person and any alter of the second person, ranging between

0 and 1, if both persons have relations of that type. These scores can be summed across

relation types to yield a calculation of similarity for each pair of persons. This shall be

referred to as relation type equivalence. As with regular equivalence algorithms, the

calculation process is iterative. The weights used in each round of calculation are the

equivalence scores of the single most similar pair of persons to (or from) whom each has

a relation of that type of relation from the previous iteration of the algorithm. If both i and

j have that type of relation with highly similar others, m and n, then the weight will

approach one. If they have the relationship to very dissimilar others the weight will be

closer to zero.

[FIGURE 3.5 ABOUT HERE]

Two persons are relationally equivalent if for each relation of a given type that

one of them has with some alter, the other also has a relation of that type with a

relationally equivalent alter. Figure 3.5 provides an illustration of what regular type

equivalence means conceptually.[ii] Networks are shown for three types of relations,

coworker (R_C), neighbor (R_N), and friend (R_F), as they might exist among nine persons

(A-I). The first iteration would yield a matrix of the dyadic equivalence scores as shown

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[ii] Relation type equivalence is conceptually very similar to role equivalence. "Individuals are role equivalent if… for every role relation associated with each individual, there is at least one…. identical role relation associated with the other individual", where 'role relation' means a relation of a particularl type between the individual and one of their alters (Winship & Mandel, 1983). The main conceptual difference is that role equivalence accounts for the differential equivalence of alters by including compound relations, e.g. neighbor's wife's friend, up to some specified number of relational steps (ibid, p.321). Relation type equivalence includes only direct relations, but accounts for the relative equivalence of the alters by iterative weighting. Retrospectively it might have been desirable to include compound relations in relation type equivalence. This is a conceptually simple extension, would be much stronger conceptually and, if quite limited to length (e.g. length 2 or maybe 3), should still have been feasible with the basic algorithm. This author is uncertain as the computational feasibility of traditional role equivalence with networks of several thousand persons (Winship & Mandel, 1983; Wasserman & Faust, 1994, p. 483-493).

in Figure 3.6, revealing intial equivalence classes of: ABCD, having R_C and R_F but not R_N; EF, having all three types; G, having only R_F; and HI, having R_N and R_F but not R_C. In the second and subsequent iterations the mutually shared types of ties are weighted by the equivalence scores of the prior iteration. As a result the AD coworker tie would be differentiated by a weight of two-thirds from the BE and CF coworker, and similarly the EF friendship tie from the DE and DF friendship ties, the HI friendship tie from the GH and GI friendship ties, and the EH, EI, FH, and FI neighbor ties from the EF and HI neighbor ties. Iterations continue, with potential further differentiation, until a relatively stable result is reached. In actual use, there were 25 different basic relation types, each treated asymmetrically, e.g. having a friend and being a friend were distinct.

[FIGURE 3.6 ABOUT HERE]

An algorithm was written by the researcher to calculate relation type equivalence scores using an Access database Visual Basic module and Access tables. This was run twice: once without including imputed relations and once including imputed relations (see Chapter 6). The relation type equivalence scores calculated by this algorithm for each pair of persons, derived from the network relations they reported in a network survey, are the primary independent variable of this study. These data are used to identify sets of persons who were highly equivalent, in the expectation that persons within a set should be likely to have similar lifestyles, and that this tendency will be strongest in sets that have higher internal cohesion.

Isolates and Mavericks

In identifying blocks of equivalent persons, most people are likely to be highly equivalent with some set of other persons in the network and thus be part of one or another of the blocks. However, it should be expected that some minority of persons in this network will not be highly equivalent with any other persons in the network. Each of

these people could be thought of as a one-person block by him or herself, mavericks, with highly unique patterns of relationships, of whom we should expect rather different lifestyles. Their uniqueness makes these mavericks unsuitable for inclusion in analysis of variance of lifestyle elements.

We should also expect what Romo and Anheier (1991) have termed an "omega" block. Empirically, it is often the case that there is one large block consisting of isolates, individuals who have no relations to other persons in the network. Such a block is a special kind of network "position". As a result of their shared isolation they might be expected to have some lifestyle commonalities, but insofar as local relations channel lifestyle and these individuals lack such relations, are essentially free from the local context, it expected that lifestyles among the omega block may vary considerably. Methodological limits relating to the artificial boundedness of the network being analyzed as a subset of a larger, conceptually unbounded network require a caution in making assumptions about the network position of apparent isolates and peripheral persons with few connections within the analyzed network. Analysis of individuals in these small components is likely to suggest a high level of equivalence among them as an artifact of their apparent isolation or peripheral location, but it may well be that most of their network is located outside the analytic network, e.g. those who they live in locations outside the focal geography, in which case their true relational positions may be quite varied from those of other persons who appear equivalent in the analysis.

Lifestyle

The dependent variable is similarity of lifestyle, a concept fraught with several difficulties. The first arises because lifestyle is a pattern concept. While the actual behaviors that persons engage in may be concrete, real phenomena, recognition of a pattern among them is necessarily a subjective "fitting" of the data. Even so much as

identifying categories of behavior or recognizing a particular action as being within a given category involves subjective understanding of the meaning of an action. For example, consider that owning and riding horses has a rather different meaning for upscale folks living on estates on the periphery of metropolitan New York, Boston, or Philadelphia than it does for rural farm families in the Appalachian foothills. Distinguishing lifestyles depends not only on behaviors, but on perception of those behaviors as packaged together, having a certain meaning, and representing a way of life (Bourdieu, 1991, 1984). Perception and evaluation of behaviors are themselves aspects of lifestyle. Thus any identification of lifestyles is the subjective view from a particular lifestyle or an inter-subjective composite, not an objective reality.

A second difficulty is that lifestyle is an amazingly broad concept, conceivably including *all* of a person's actions. As a practical matter it is necessary to focus on some subset of behaviors, which even if very extensive, is likely to be a fraction of the overall subject. Which then should one choose? Defining lifestyle as a person's recurrent behaviors and manners, and the proclivities, spirit, and tastes which 'style' their practices, following Bourdieu, lessens the scope somewhat, but it is still broad. The best choices would be those that distinguish one lifestyle from another, which returns us to the first difficulty of subjectivity – we only know those perceptions secondhand as we perceive them – and gets to the third difficulty which is that which practices and tastes identify a class or status group, e.g. are relevant status symbols of belonging to a group, as defined by themselves or by others, may vary across the groups. There is no single set of lifestyle characteristics or behaviors. Variables useful for distinguishing some groups may not be helpful for distinguishing others. This is a potential catch-22. Constituent behaviors are needed to identify the various groups, but the groups must be defined to identify the constituent behaviors. However, in practice these difficulties are probably much less severe than they may appear. Despite some differences in the schema by which we understand lifestyle, people are to a great extent able to communicate their perceptions of

lifestyle differentiation with one another, which demonstrates a degree of shared understanding concerning what the distinctions are.

As a practical approach to these issues, the tactic used in this research was to begin by developing an extensive list of lifestyle activities, in a variety of categories, which might be typical of various sets of persons living in the research locale, on the assumption that such a list was likely to include many of the behaviors at the core of various lifestyle groups in the research locale and that such groups could be identified empirically from the set of behaviors by measuring overall lifestyle similarity between people across a wide variety of activities, even if those activities included a number that were irrelevant to the definition of a particular group, or even to any of the groups. A further consideration was that the activities could be put in a survey in a way that would allow respondents to quickly indicate which activities they did, and how frequently.

The list of lifestyle activities was developed partly by brainstorming and partly through consideration of the life activities listed on a few consumer products and other surveys (Buyer's Choice, 1996; Family Values Survey; Shopper's Voice; Lifestyle Market Analyst, 1997). Activities on the list were categorized into: daily schedule, work, household, health-related, religious, political, membership in clubs & associations, recreational and leisure activities including sports, travel, and consumption choices in food, clothing, furnishings and furniture, vehicles, art & media, use of tobacco and alcohol products, and patronage of local restaurants, stores, and services. Each category was developed by brainstorming other activities of that type that were likely within the context of the research site, with an eye toward activities that might tend to distinguish people of different social sets. A number of other activities were added to the construction as a result of survey participants' responses to open-ended survey questions.

The set of lifestyle activities so developed became the foundation of the survey questionnaire. Ultimately some activity types, e.g. those involving sex and use of pornography, were discarded on the grounds that people would be unlikely to answer

them, unlikely to answer honestly, and put off from answering other questions. Space limits in the survey questionnaire resulted in sacrifice of over a third of the activities generated. A number of the activities, e.g. eating at restaurants, were of a general type that required knowledge of the local context, so before the questionnaire could be fully developed, it was necessary to select a research site and become familiar with it.

Selecting a Research Site

One of the first major decisions required in doing a study of a local population was selecting a locality to study. Since the study was to be of the network of relations among and around the population in a given locality, it was necessary that the selected locality be small enough for a population survey to be feasible. The limitations of time, labor, financial resources, and the capacities of network analytic software result in a practical limit to the population of about ten thousand adult persons. Yet it was also necessary that the site be large enough to offer a probability for the existence of clusters with more than a handful of persons in each cluster. For this reason, a population minimum of five thousand was deemed appropriate.

In metropolitan areas a study of a locality of a few thousand people would be a small suburb or neighborhood. In rural areas it could be an entire town. The small town is the preferred situation because people segregate residentially. While metropolitan areas generally have greater diversity of lifestyle, the tendency of people to live with others similar to themselves and the sheer numbers of people in a metropolitan area makes it likely that an urban neighborhood or small suburb would yield only a few lifestyle clusters. Also, the network in such a locale is likely to have a higher portion of ties to people in other parts of the metropolis, outside the neighborhood. Having a lot of such ties would like adversely impact the equivalence analysis. Conversely a rural town is likely to have less diversity of lifestyle, but a local study is likely to get the full range of

what is there with just a few thousand persons. No place is truly socially isolated in the modern world, and in the U.S. particularly, but rural towns are likely to among the more socially isolated places in U.S. society. A relatively high percentage of network relations are likely to be with people in the town, giving greater confidence in the calculation of equivalence scores.

Locales with populations between five and twelve thousand people which were not part of a Metropolitan Statistical Area were selected from 1990 U.S. Census data of select states, yielding a list of 114 potential sites, with 100 of these having populations less than ten thousand. For reasons of personal convenience potential sites were selected only from the north central and northeastern United States. Sites on the list were typically the largest population center in a rural county, frequently the county seat.

Employment, industry, age, and income distribution were considered in screening potential research sites, using Census data (U.S. Census, 1990). "Company towns" dominated by a particular occupational type or industry, as well as college towns and towns adjacent to military bases, were avoided lest the particular pattern of relations within a single organization dominate the overall network. Locales where over 25% of employed individuals worked in health services, educational services, or public administration were screened out, as were locations in which over 50% worked in manufacturing (durable and non-durable goods combined) or retail trade, or over 33% worked in either durable goods or non-durable goods manufacturing. For similar reasons obvious retirement communities would have been avoided, though in practice no sites were eliminated on the basis of age distribution. Several sites were screened out because of unusual income distributions, e.g. lack of any people in the higher income ranges. A few sites were eliminated due to unique ongoing or historical circumstances which gave them national attention or might make them atypical of similarly sized communities. Locales immediately adjacent to other towns of similar size were also removed.

The screening process left 59 suitable sites. Personal visits were made to twenty-seven of these potential sites in four states, of which nineteen were preferred sites. Two preferred sites were downgraded as a result of a visit, due to apparently serious economic problems. As a practical matter to allow the author to reside in the research community and financially support himself, and as a means of selecting a final site in a quasi-random way, the author sought employment within commuting distance of each of the remaining 17 preferred sites. The site selected, pseudonymously known as Tyboro, was chosen because the author was offered desirable employment within commuting distance of it. An overview of Tyboro is given in Chapter Five.

As a prerequisite to a population survey, it was necessary to define the exact geographical region within which the survey would be distributed and to blocklist all residential mailing addresses within that region. The principle is to geographically define a population among whom there is a relatively high level of interaction in daily routines. In an ideal world the point of geographic definition would correspond with relative breakpoints in the social network, though in practice the correlation between geographic and patterns of social relations is often weak and the network was unknown to the research at the time that the geographic boundary was being determined. The area was initially defined using a map of the local school district, centered on Tyboro as its focal village in the belief that school district membership ought to correspond, at least loosely, with the population likely to frequent Tyboro village and engage in everyday interaction with other Tyboro residents. In the course of blocklisting, this area was modified somewhat based on the contiguity of residences, so that it included a small part of a second school district whose residences were more proximate to the focal school district, and excluded some peripheral residences that were separated from the bulk of other residences by stretches of land without residences and/or by distinct topographical breaks (e.g. greenbelts, substantial and steep elevation changes, etc). The radius of the research

area so defined, as driven along existing roads, ranged irregularly from three to seven miles from the village center.

Social Network Survey

The principal research instrument used to measure both lifestyle and social networks was a survey questionnaire mailed to every residential address in Tyboro. A Social Network Survey was developed to measure three core concepts: (1) the overall local social network as a composite of the individual ego-networks, and specifically the position of each respondent in that overall network, (2) the lifestyle behaviors of each respondent as a mean assessing similarity of lifestyle among respondents, and (3) demographic and control variables, such as education, occupation, income, wealth, race, gender, age, and education. Prior surveys designed to collect information on lifestyle or consumption patterns (Buyer's Choice, 1996; Family Values Survey; Shopper's Voice), and prior surveys that involved network name generators (Fischer, 1982, Appendix B; Burt, 1984, undated; General Social Survey, 1985) were drawn upon in drafting the Social Network Survey but there was no prior survey to draw upon that combined both elements. Even if there had been, it would have been necessary to tailor it to the local context when asking questions about local stores, restaurants, use of public and quasi-public spaces, and travel.

The independent variable portion of the survey instrument was designed to provide information on the significant and specific social relations that each person in the local population was embedded in, in the hope of constructing a quantitative network 'map' of the overall set of relations of the community, in matrix form, which could then be used to determine the regular equivalence of pairs (or larger sets) of persons. The intention was to get approximately all the persons with whom each respondent regularly interacted along with all those considered significant others even if the respondent did not

interact with them regularly. The sole exception to this is that respondents were asked not to include relations with persons under the age of 18. This was done because it was felt such relation were not vital to the project, because such inquiries might be perceived as intrusive or threatening to respondents, and to conform with Human Subjects guidelines which give special respect to the privacy of children. It was not known how exhaustive the relationship types identified *a priori* would be of the potential types respondents might list, so measurement of relationship type was left open-ended,[iii] though the inclusion of examples in the network generator prompts might have predisposed respondents toward the types identified *a priori*. It was an understood limitation of the research that data would be self-reported relationships, rather than "actual" networks. This was accepted as there was no practical way to obtain data on the relationships of an entire community via direct observation.

Survey questions designed to elicit the names of people with whom one has some relationship, i.e. what network analysts as one's alters, are known as network generators or name generators. The network generator in the Social Network Survey was modeled in part on those from prior network studies (Fischer, 1982, Appendix B; Burt, 1984, undated; General Social Survey, 1985) and the Relationship Closeness Inventory (Berscheid, Snyder, and Omoto, 1989).

To ensure people understood the idea of social relations and understood who to include as a relation, and because the "social network" concept is not widely used in everyday conversation, the generator was carefully worded to ask respondents to list the names of people if they "either: A) are someone you see, talk with, or interact with daily or every few days, or B) are a significant person in your life, even if you interact with them less often." Respondents were explicitly instructed to include only "living persons

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[iii] Survey pretesting suggested many of the more common relation types, but others were infrequent enough not to have been observed in survey pretesting.

age 18 or older". A series of contextual prompts were also included in the question, mentioning people who lived in the respondents home, other relatives, people they knew from work or school, people with whom they had personal business (e.g. tenant, landlord, handyman, physician, business associates), people they knew from church, clubs, or other groups, friends and neighbors, and a final catch-all prompt that asked them to review for anyone who should have been listed but might have been missed.

Respondents were asked to list the names of persons in their network on a grid that took up one full page of the survey and had rows for 30 entries. At the bottom of the page a note indicated that if they had more than 30 persons to list they could continue the list on a separate sheet of paper or contact the survey helpline to obtain extra copies of the network form. Respondents were asked to please list the full names of their alters, with an explanation that this was necessary to allow the researcher to match names among surveys. Most respondents did this, though a few dozen respondents chose to give only first names or initials, which made matching names difficult or impossible. It is possible that the request for full names may have had an adverse impact on the response rate of the survey.

In columns across the page respondents were asked: to indicate the town or city in which the person lived, used to facilitate matching of names; to circle M or F to indicate the person's sex; to circle D, R, or O to indicate if they interacted with that person daily, regularly, or "on occasion"; and to write a word (or two) describing the relationship of that person to themselves. A column was provided to indicate a variety of qualities about the relationship (e.g. whether the relationship involved "love", "close friendship", or "dislike"; whether there was an exchange aspect to the relationship; whether this was someone with whom the respondent spent free time, whether they ever ate together, etc.). However, only a minority of respondents completed this column, so that aspect of the survey was largely dropped from analysis. The instructions for the network generator questions ultimately took up a bit over one full page of the survey, divided into a larger

section that preceded the network answer sheet and explained who and how to list persons, and a smaller section with the directions for the information about each listed relationship. See Appendices E and F for more details.

The majority of the survey was the dependent variable portion. It was designed to collect information from each respondent on lifestyle, including: (1) their typical activities and (2) timing of their typical daily routines, (3) consumption patterns, (4) the local shops and restaurants they frequent, (5) the public and quasi-public local spaces they frequent, (6) services they patronize, (6) their appreciation of cultural genres (e.g. in literature, music, movies, art, etc.) and (7) areas of knowledge/skill. The intent was to have as exhaustive a range of lifestyle elements as could be measured in the available space of the Social Network Survey. In negotiating the tension between the ideal of an exhaustive list and the practical limits of space and time, items were included based on their perceived contribution toward an overall picture of lifestyle, perceived likelihood of the element being a marker of distinction between various local lifestyle clusters, and with the idea in mind of maximizing response rate with questions that people would be willing to answer, could be easily understood, and quickly answered.

Development of specific questions began with brainstorming of various activities, cultural genres, types of shops that could be frequented, and products that could be consumed. This brainstorming borrowed from items used by Bourdieu (1984), and from a small assortment of marketing and other lifestyle surveys (Buyer's Choice, 1996; Shopper's Voice; Family Values Survey; Lifestyle Market Analyst, 1997). Items were grouped by type into timing of daily routine; work activities; household activities, financial activities, and health-related activities; religious activities; political activities; club and organization participation; athletic and sport activities, and leisure, recreation, and hobby activities; consumption of food and related products; clothing styles; furniture & furnishing styles; art & media genres; vehicles; frequenting of local banks, grocery stores, drugstores, restaurants, bars, and other stores; frequenting of local public and

quasi-public spaces; and travel. Sections on sexuality and criminal activities (e.g. drug use) were discarded prior to the first draft of the survey instrument, because people might be put off by them and unlikely to answer them truthfully. With editing and early pretests sections on household, financial and health-related activities were merged, as were sections on athletic, sport, leisure, recreation, and hobby activities.

The lifestyle questions comprised over six pages of the survey plus the back cover. On timelines that represented the hours of the day, respondents were asked to mark the times they typically woke and went to bed, went to and returned from work, and ate each meal, once for a typical weekday and once for a typical weekend day. Respondents were asked how often they did each of a variety of activities as part of their work, using a matrix response format. Respondents circled "D" if they did the activity nearly daily, "R" if they did it regularly or often, "O" if they did it on occasion, and made no mark if the activity was something they rarely or never did. Using a similar format they were given a list of household, financial, and health-related activities and asked to indicate how often they did each activity. They were given similar questions about religious and political activities, though in several instances these questions did not offer the "D" or "daily" response option. Open-ended questions about the respondent's political and religious identity were placed near the corresponding matrix, activities questions. Respondents were asked to indicate what local clubs & associations they were members of or active in, and given a list of a variety of popular local membership organizations as a prompt. This was followed by a matrix format set of athletic, sports, leisure, recreation, and hobby activities, on the same format as prior questions except they did not offer the "D" or "daily" response option, and a set of open-ended follow-up questions contingent on indicating participation in particular activities. As was done in every matrix set of questions, lines marked other were included with space for open-ended writing in of activities not included on the questionnaire. In the few instances where more than a

handful of respondents wrote in the same things, these were coded as a distinct category of activity in the analysis.

Subsequent sections of the survey addressed consumption of food, clothing, and household furnishings. Respondents were given a matrix format question about consumption of coffee, tea, soda, bottled water, candy, and various forms of alcohol and tobacco. This was similar to prior matrix questions but with different response options: "3" for products used three or more times per day, "D" for products used almost daily, "R" for products used regularly or often, and no mark if they used it only once in a while, rarely, or never. Follow-up questions asked about the brands of cigarettes, beer, and soda respondents used most often. Respondents were asked to list foods they typically ate for each meal, and what they consider favorite foods. The survey then asked respondents to indicate where they got clothing using a checklist of possible responses, with follow-up questions to identify the particular catalogs or stores used, and to list the types of clothing they generally wore "at work" and "around town". A similar checklist format was used for sources of furniture, but when asking about specific types of furniture, technology, and household furnishings, a checklist of specific items was used in place of open-ended questions. This likely reduced the possible answers, but ensured that respondents would consider each of the items listed. Specific items listed included bookshelves, personal computer, woodstove, CB radio or scanner, piano, videogames, cell phone, firearm, and others. An open ended question asked respondents to identify if they had a car or other vehicles and indicate the make and year. In the last question of the section, respondents were asked to identify travel destinations and indicate whether they were places they visited repeatedly or only been to on occasion.

The next to last section of the survey was a list of local banks, grocery stores, drug stores, restaurants, pubs, and other local stores that respondents were asked to indicate if they frequented daily, regularly, on occasion, or rarely or never. A similar question followed with a list of local public and quasi-public spaces (e.g. post office,

library, nature park, etc.). The last section of lifestyle questions was on the back cover. It consisted of a short matrix format asking about the frequency of using various media genre (e.g. listing to radio, reading newspaper, watching a movie, visiting a museum, etc.) followed by open-ended follow-up questions on which media and media genres (e.g. musical tastes, movie genre) they accessed.

The bottom half of the inside back cover consisted of demographic questions, including year of birth, race/ethnicity, education, marital status, number of children, income, and whether they owned or rented their residence. Gender was determined by response on the network form and in the rare instances where that was not possible, inferred from responses to other survey questions. Questions about work status were placed early in the survey for proximity to the work activities section. Appendices E and F provide more details concerning the survey.

Local Content

To become familiar with the local context, the researcher lived in and participated in the everyday social life of the community, paid attention to local media (e.g. radio, newspapers), and formed relationships with local residents to learn more about the community. Several sections of the survey required content particular to the local context. It was necessary to become familiar with area banks, groceries, drug stores, restaurants and taverns, and other local stores to develop the section on frequenting of stores and restaurants. The question on frequenting of local public spaces required similar familiarization. The response categories for travel question required familiarity with places that local people typically travel to, both regionally and for vacation purposes. In other parts of the survey (e.g. media genres) this was less necessary because the relevant questions in those sections were mostly open-ended.

In paring down the lists of most other kinds of activities listed in the survey, decisions were made to exclude a number of possible responses because space was limited. One standard used for deciding what to include or exclude was a perception of what activities might be characteristic of various local lifestyle clusters. That perception was also informed by personal experience in the research locale, so which activities were included in other parts of the survey is also often sensitive to the local context.

Survey Layout

The overall style of the survey and supporting materials was designed with Dillman's Total Design Method (TDM) in consideration, although asking people about their social network made strict adherence to TDM guidelines infeasible. Surveys were sent first-class mail in hand-addressed large white envelopes with a local return address. Each packet included a personalized cover letter, two survey booklets, more if there was reason to believe that more than two adults lived at the address, tickets for entering the cash prize drawing[iv] that was used as an incentive to improve survey response, and a pre-addressed and stamped manila envelope in which to return the completed survey(s). Packets from the follow-up mailing also included several coupons good for discounts at various local merchants (Dillman, 1978; Dillman, 1991; Salant and Dillman, 1994).

The cover letter was printed on project letterhead that indicated the project's affiliation with the University of Michigan and Center for Research on Social Organization (CRSO). The letter explained that the purpose of the survey was to explore how social networks were related to lifestyle. It also indicated the survey was conducted by a graduate student at the University of Michigan who had been a resident of the community for the past couple years. The letter explained how respondents would be

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[iv] The state wagering board was consulted regarding the legality of having a cash prize drawing and whether or not it would be considered a raffle, subject to licensure and state and local ordinances. The wagering board advised that in their opinion a cash prize giveaway was entirely legal and not a raffle.

contributing to understanding the relationship between social networks and lifestyle, and explicitly asked recipients to participate in the study. The cover letter assured respondents that all survey answers would be completely confidential, explained why I was asking for names on the network question, and thanked them for participating.

The letter explained why Tyboro was chosen for the research, and provided a local telephone number people could call for assistance with the survey or to have questions about the survey answered. Lastly, the cover letter also announced that, as a way of thanking the community, money would be donated to a widely-used publicly-accessible community organization – this money was donated after the survey period was over – and that as a thank you to individual participants, those who wished to could return the tickets included in their survey packet and be eligible for a cash prize drawing. Fifteen cash prizes were offered in the initial mailing of the survey, with a top prize of $500, others of $100, and mostly $50 amounts. The cover letter in the follow-up mailing was similar but mentioned the number of completed surveys from the first wave and had fewer cash prizes, with three top prizes of $100 and several more $50 given out.

The questionnaire was printed in saddle-stitched booklet (8.5" x 11") form, in black ink on white paper, in an easy to read font. The set of questions initially drafted were strenuously edited to fit a 12-page limit (including front cover), and to minimize the time and effort involved in answering them. Matrix format questions were relied on heavily. The front cover was blank except for the name of the survey, the words "Survey Booklet & Instructions", and some horizontal lines near the bottom. The inside front cover of the survey briefly explained the purpose of the study, again assured the respondent that his or her answers were strictly confidential, explained that respondents could skip any questions they chose not to answer by writing the word "SKIP" on the answer line or next to the question, and indicated the estimated time involved in the survey as 40-45 minutes. Respondents were offered the option of having someone go over the survey with them either by phone or in person – four people did opt for one or

the other of these alternatives – and were again provided with the local help number to call if they need help reading the survey or had questions (Dillman, 1978; Dillman, 1991; Salant and Dillman, 1994).

The survey questions began at the bottom of the inside cover with an everyday activity timeline question. This question was chosen to lead because it was easy to answer and formatted in a way that was somewhat visually intriguing and different from the rather mundane format of the rest of the lifestyle questions. Media genre questions were placed on the back cover for the similar reason that it was thought that respondents glancing at the back cover might be more intrigued by that set of questions than any other that would conveniently go there. The network generator was placed late in the survey, followed only by the demographic questions on the inside back cover, and the media questions, because these were felt to be the most off-putting questions and placing them deep in the survey ought to have minimized people not completing the survey on account of those particular questions. The matrix format with the same basic response categories was used throughout much of the survey because it facilitated respondents breezing through the questions. These were interspersed with open-ended questions that it was hoped might sustain interest in the survey. At the bottom of the back cover respondents were thanked for completing the survey (Dillman, 1978; Dillman, 1991; Salant and Dillman, 1994).

The Social Network Survey was designed to conform to University of Michigan guidelines concerning research on human subjects, most notably in specifically asking respondents to include only relations with persons age 18 or older. The research and survey instrument were given a human subjects review and approved by a University of Michigan Institutional Review Board (IRB) prior to the research.

Survey Editing and Pretesting

The final form of the survey was arrived at via considerable revision and editing. The initial draft for the network portion of the survey alone was initially seven pages long. That was ultimately condensed into just over 2 pages of material. The lifestyle activities, consumption practices, and genres were less dramatically edited, but some categories of questions were excluded, others reduced and in some instances combined. Approximate a third of the lifestyle questions initially drafted did not make their way into the final survey instrument. There were four major revisions of the survey.

The survey was given two rounds of pretesting. In the first round of pretesting a near final version of the survey was given to half a dozen assorted family and friends of the researcher. Comments from this round resulted in the elimination of one question and minor modifications to several other questions. In the second round of prestesting the final form of the survey was mailed to fifteen persons randomly selected from a phone list of residents of a hamlet that was quite near the research locale and should have been nearly as familiar with the local places referenced in the survey as the actual research subjects would be. They received the survey in a packet similar to what the actual recipients would receive, with a cover letter indicating that it was a pre-test of a survey. This round of pretesting turned up no particular problems in question wording or response categories, but did suggest the survey might have a low response rate. Only 5 of the surveys were completed and returned. Phone inquiries with non-respondents about why they didn't participate focused on the overall length of the survey and the network question in particular as elements that discouraged participation. However, no practical alteration to the survey instrument could be arrived at that would be likely to improve the response rate without sacrificing crucial questions, particularly the network generator. Appendix A provides the final form of the survey, with size slightly reduced to fit on the pages of this work, and local content replaced with generic equivalents or ellipsed.

Blocklisting

The research area was blocklisted to provide mailing addresses for the population survey. A list was made of every residential building and mailing address that could be seen from a street, alley, or public roadway or identified from aerial photographs in the defined area. This was done by traversing the perimeter of each block in the area, one at a time, and taking audio-recorded notes. Village blocks were traversed by foot. Outlying blocks were traversed by car. A determination of the number of separate residence units in each building was made from the street address numbering as well as the number of mailboxes, entrances, telephone services, electric and gas meters, and available parking spaces. In this way a list of every potential mailing address was created that included the street address and the approximate physical location of the residence. Residents' names and phone numbers were also included when it was available on the mailbox or a sign, e.g. "The Smiths". The information was stored in a computer database.

The blocklist was cross-referenced with three other lists. One of these was a list of over 2000 real estate owners in the research area drawn from the county property tax office, another was a list of over 5400 entries from the local telephone directory, and the third was the Tyboro County Board of Elections (1999) list of registered voters. The first two of these lists were entered into databases, and used as a check on the accuracy of the addresses in the blocklist and as a cross-reference to provide names for many residential addresses where they were not available on the property or mailbox. The registered voters list was used, where possible, to find the names of residents for blocklisted addresses when names were not known and as a cross-reference on names from other lists.

Since every physical residence was identified, and since it was impossible to know whether local post office boxes were in use, whether they were residential or commercial, and what physical residential addresses they may correspond to, local post office boxes were not included in the address list, except in instances where the survey

could not be delivered to a physical address and the corresponding post office box number was known.

A handful of institutional living situations existed within the locale. Attempts were made to obtain mailing addresses for each of these quarters. Senior housing centers were unwilling to provide information about residents but agreed to distribute copies of the survey to residents. The county jail refused to allow inmates to participate in the survey. Another institutional residence refused to provide addresses or distribute the survey. It was possible to include a fraction of the residents of this institution by addresses obtained from other sources.

The resulting list included 5188 addresses[v]: 4808 of which were residential and 380 non-residential. Names of one or more residents were known for about 3860 of the residential addresses. About 940 were residences without known names. 148 of the residential addresses turned out to be unoccupied, leaving 4660 valid residential addresses. Many of these appeared vacant in the blocklisting process, but were mailed surveys anyway to avoid falsely assuming they were unoccupied. The blocklisting process took several weeks.

Mailing

An attempt was made to improve likely response rates by publicizing the survey locally prior to sending out the questionnaires. Advertisements were placed in the local newspaper and classified ad "Pennysaver" bulletin prior to the survey mailing to inform people that it would be arriving. These were 4"x6". A summary of the project and the mailings was distributed to the local newspaper, which became the basis for a short news story in the local newspaper that appeared a couple weeks prior to the survey mailing.

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[v] The list had 5192 address entries when the survey was mailed, but 4 of these proved, in the process of mailing the surveys, to be non-existent errors. There were 5188 actual addresses.

Radio advertisements were recorded and aired on the local radio station, with a thirty second radio spot airing three times daily for two days prior to the survey mailing, and another thirty-second spot and two different fifteen second spots airing for the first two weeks of the survey once each day, i.e. total of three spots per day, on a morning, midday, and late afternoon rotation. Additional thirty second spots aired generally twice per day for two more weeks. The researcher was invited to and did participate in a morning live radio interview show for approximately forty minutes on the local radio station a few days prior to the initial mailing of the surveys. A number of local residents with whom the researcher was personally familiar reported seeing or hearing these advertisements or expressed a favorable opinion of the radio interview, yet informal questioning of other residents suggests that very few of them remembered having heard or seen the advertisements or the radio interview.

First Mailing

The first wave of survey packets was mailed at the end of September 1999. Each potential non-institutional residential address was mailed a large white envelope containing a survey packet using first class US postage stamps with U.S. flag motif. Envelopes were hand addressed for residents whose names were available, the vast majority by two women who were recruited for having neat, attractive handwriting and paid for addressing the envelopes. Where resident names were not known, packets were addressed to "Resident". The return address was stamped with the name of the project and local post office box address. Unaddressed survey packets were distributed to two senior housing centers for distribution. A number of surveys were completed by residents of these two institutions.

In addition to the 148 addresses determined to be vacant, the post office returned 126 survey packets from the first mailing for a variety of reasons: 1 addressee refused

delivery, 3 packets were insufficiently addressed, 3 were addressed to persons who had relocated for whom there was no active forwarding address, 22 indicated there was no mail receptacle at the designated physical address thus no such mail address, and 99 were simply "undeliverable". In cases where the addressee no longer lived there, a second mailing was made to "Resident" at the same address. In instances were there was no mail receptacle an effort was made to determine if there was a Post Office Box alternative address. If the correct P.O. Box alternative could be determined then a second packet was mailed, using the post office address. Unfortunately in most of these cases a P.O. Box address could not be determined.

Two weeks after the initial mailing, standard postal service postcards were sent to each address from which surveys had not yet been received for which an addressee's name was available. The postcards reminded the recipient that they should have received a survey packet, asked for their participation, mentioned the cash prize drawing, and provided the telephone number for the help line. The postcards were addressed with a computer-printed mailing label.

A total of just 827 completed surveys were returned from the initial mailing mostly coming in the first two weeks after the mailing, but coming first steadily, then trickling one every couple days, through early November. Nearly all of those who completed the survey included tickets for the cash prize drawing. Seventy-six persons sent back the survey with an indication that they would not participate and/or called the help line to indicate they were declining to participate in the survey. A few cited physical inability to participate. Four letters were received from the kin of deceased addressees. Two other letters were received from survey recipients without returned surveys, one of which advised the researcher to accept Jesus as his personal savior.

Help Line

Roughly seventy people called the help line phone number, which was equipped with an answering machine to take messages when the researcher was not available. Roughly half of those who called did so primarily to say they were declining to participate in the survey. Eleven of the callers requested to be sent surveys, three of whom said they had never received one, the other eight of whom said they had misplaced or thrown out their survey or that their survey was damaged. Three persons called to schedule in-person interviews, and one called to do the survey via a phone interview. Several callers asked questions about the survey and/or the researcher, including a representative of the local Chamber of Commerce who said that the Chamber had gotten a number of calls about the survey. A majority of the calls included complaints about the survey. Sometimes that was the sole purpose of their call. One caller said she was "completely appalled at the intimacy of the questions… and the desire for names". Eleven callers left messages with no name or phone number. A few used profanity.

Second Mailing

A second wave of surveys were intentionally delayed to avoid mailing over the busy Christmas holiday. They were mailed in March 2000 to addresses from which no completed survey had yet been received. A second cash prize drawing was conducted. Included in each follow-up packet were discount coupons donated by local merchants, an incentive to encourage participation. Surveys in the second mailing were only sent to addresses for which residents' names were available, none were sent to "Resident". Envelopes in this mailing were not hand-addressed. A set of one minute radio advertisements were aired five to ten times per day during the first week of the second mailing. Otherwise the second mailing was very similar to the first. By August 2000 data collection concluded. A total of 1205 surveys were returned by that time.

Data Entry and Cleaning

Data from surveys were initially entered in a series of FoxPro databases, with separate databases for each section of the lifestyle variables, a separate database for demographic variables, each of which had individuals as the unit of analysis, and another database in which network data were entered, with dyads, i.e. pairs of persons, as the unit of analysis. This facilitated using SQL queries and Foxpro scripts for data entry and initial cleaning. The separate FoxPro databases were later translated into tables within just two Access databases: one for the network data, and one for all the other data.

The several databases/tables containing lifestyle and demographic data had a 1:1 correspondence. These tables each had 1205 records, one for each survey respondent[vi]. There was 1:N correspondence between these databases/tables and a larger database/table "key" that had a record not only for every survey respondent, but every individual listed in their networks. This key database/table contained certain variables that could be used to uniquely identify each (e.g. id, name, geographic location, gender, race, et cetera), which was necessary for data cleaning, particularly for matching the identity of persons named in the network portion of one survey with the same person named in the network portion of other surveys. This key file was erased at the end of the project to protect the confidentiality of survey participants and their alters.

Each record in the network database was a relation between a survey respondent and some other person with whom they had the relation.[vii] There were thus two different 1:N correspondences between the key database/table of all persons and the database of

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[vi] Three of the 1209 respondents returned blank surveys accompanied with written comments. One survey, lacking network data, was forwarded to the researcher several months after the data collecting phase, and most of the data cleaning, of the study was over. Data from that survey and what little data could be gleaned from the written comments of the three other surveys were entered directly into SPSS files.

[vii] At least this was true of all initially entered relations. Later imputed relations were added, derived from the reported relations. These imputed relations could be between any two persons in the data set, even if neither had completed the survey.

network relations: (1) those persons in the key table who completed the network portion of the survey were the subject person for however many relations they listed, and (2) each person in the key table might be the object persons for any number of relations listed by other persons.

Records were keyed across all the databases with a twelve digit identification code consisting of nine random characters plus three data integrity digits derived as functions of the nine random characters. Each survey respondent and each person listed in network generators (N=11,256) was assigned a unique identification code.

Most lifestyle and demographic variables were of one of four types: binary (e.g. check boxes), closed-ended categorical, open-ended short answer, or longer open-ended questions. Most binary data were entered using 0=No, 1=Yes coding. Gender was code M=Male, F=Female, or G if gender was unknown or in the case of an alter that was actually a group of persons of mixed gender. The most common categorical variables involved the D=Daily, R=Regularly, O=Occasionally categories or a variant of them. Data cleaning of these items was relatively easy and consisted primarily of running frequency analysis of these variables to look for erroneous and impossible values, and in a few cases doing contingency checks of codes relative to the values of related variables.

Data cleaning of short answer questions and open-ended lists began by sorting the list of response values and copying it to a text file, where each standard response and its set of variants were identified, and frequencies counted. Typically binary indicator variables were constructed to reflect the most common short-answer or list item response values. This was a lengthy process. Longer open-ended questions that were not used in categorical analysis were not categorized or cleaned.

Data cleaning of network data was labor intensive. It began with cleaning of the key table of all persons. Since survey respondents were often listed by other survey respondents as part of their network and since the same residents might be listed in the networks of multiple respondents, a number of persons had multiple records in the key

table. The data entry script was written in a way that allowed the possibility of identifying any person listed in a network as someone already existing in the key table of persons, based on their name and location, and sometimes context clues (e.g. name of spouse, relationship links) which greatly reduced redundant records, particular in instances were husband and wife submitted surveys with largely overlapping networks. However in some instances the same person might go by several names (e.g. maiden vs. married surnames, hyphenated compound surnames, nicknames), multiple residents might share the same proper name (e.g. Robert Smith), or it might otherwise not have been clear from the information on a given survey that the person referred to was already in the file. There were also issues of legibility and misspellings of names. Inevitably there were a number of redundant entries to collapse, and one instance of an entry where what was originally thought to be a single entry had to be separated into two distinct persons who shared the same name.

The name matching process involved sorting first by surname, then by first names, manually looking for individuals whose names were identical or close and then trying to determine if they were the same or different persons. After those with identical or extremely similar names had been reviewed, an algorithm was written to score *every* pair of persons based on the similarity of characters in their names as a way of identifying "fuzzy" matches (e.g. pairs that might otherwise have been missed because of a variant or misspelling) and again determining if high scoring pairs were actually the same person. Pairs of persons were also scored and reviewed by the similarity of relationships they had with the same individuals. In most instances it was possible to deduce that two records were or were not the same person based on the other persons with whom that person was linked relationally, by location, or other contextual clues. A set of about thirty possible redundancies that could not be resolved in this way were resolved by checks with a set of key informants, or by phone calls to the persons who listed the persons in their network, or to the named persons themselves. Even after exhaustive name matching and cleaning,

about three dozen pairs of records remained where the pair could possibly refer to a single person but could not be resolved, because one or both of the names in the pair was partial information (e.g. just initials). After data cleaning the key table of all persons had 11,256 records, or whom 5231 were Tyboro residents.

Changes from data cleaning the key table of persons were also changes in the network database, because id numbers of relations that corresponded to variant entries of the same person, both as subject and object person, were changed to the standard id for that person. When the key table was cleaned and the ids for the network database were ready, the network database also underwent a direct cleaning. Respondents had been asked to provide a word or two that described how each person related to them. They were also asked to use numerical codes to indicate specific relationship qualities, phrased in everyday English, to indicate level of affect, exchange of money, goods, or services, flow of advice or information, and prestige or authority differences or peer relationships. However, these codes were used by fewer than half of respondents, so they were disregarded in analysis. Most of the alters listed were individuals, but some were groups of persons. The researcher distinguished between the two by coding an indicator variable for groups. Some alters were almost certainly under the age of 18. In cases where parents under the age of 35 listed their children as alters, responses regarding numbers of children in various age groups from the demographic section of the survey were cross-referenced, where that data was available. In all such cases it was determined that the children were under the age of 18. In the few instances where age of children of young parents could not be confirmed from the demographic section of the survey, it was assumed. Similarly, if persons under the age of 50 listed grandchildren it was assumed these grandchildren were minors. Relations with alters who were known or assumed to be minors were coded with an indicator variable.

The descriptors provided by respondents were classified into twenty-five "natural" categories in two broad groups of kin and non-kin: spouse/partner, child,

parent, child-in-law, parent-in-law, sibling, sibling-in-law, landlord, tenant, boss, employee/subordinate, coworker, neighbor, friend, ex-spouse, grandchild, grandparent, other kin, church member, clergy, client, attorney, doctor, other service provider (e.g. banker, barber, mailman, pool man, etc.), and an other and unknown category. There were some cases in which a relationship had been given labels which fell into two different categories. There were slightly fewer than six hundred compound relations in over sixteen thousand listed relations. By far the three most common compound labels were friend and neighbor (n=135), friend and church member (n=149), and friend and coworker (n=67), which combined were well over half of all compound relation cases. After all data cleaning other than reciprocal relationships had been done there were 17,171 relations between 16,575 dyadic pairs of persons: 15,957 dyadic pairs when relations with groups and minors are filtered out.

Reciprocity was assumed for four types of relationships: spouse/partner, sibling, and child-parent relations. In instances were one spouse or sibling completed the survey and listed a spouse or sibling who did not complete the survey, and instances where one of the two completed the survey but did not include the other spouse or sibling in their network, the existence of a reciprocal relationship was assumed. Similarly if a person listed a child who did not list them as a parent or vice versa, a parent relation was assumed to reciprocate a child relation and a child relation to reciprocate a parent relation. Imputation of relations was also made on a case-by-case review of over 16,000 dyads based on certain logical relationships among relation types that could yield an imputation of spouse, sibling, child, or parent. For example, two parents listed by the same person are likely to be spouses (or ex-spouses), two children listed by a pair of parents are probably siblings, the spouse of a parent is either a parent or step-parent, etc. Imputations were only made based directly from reported data in a single iteration of imputation. Second-order imputation of relations based on the initial imputed relations was not done.

These imputation processes added 13,478 relationships: 2911 (21.6%) of these were imputed spouses, 2425 (18.0%) were imputed children, 2744 (20.4%) were imputed parents, and 5345 (39.7%) were imputed siblings. There were 12,847 imputed relations when those involving minors (and rarely groups) were filtered out: 2907 imputed spouses, 2240 imputed children, 2487 imputed parents, and 5163 imputed siblings. In rare instances a relation to a neighbor, friend, ex-spouse, church member, or boss was imputed based on specific notes or information provided on respondents' surveys, but reciprocity was not assumed for relations other than spouse, sibling, and parent-child relations.

After data were cleaned they were analyzed. This began with an attempt to identify groups of persons with highly equivalent network positions, initially using regular equivalence algorithms in UCINET as previously described. As that proved impossible, it was necessary to develop a new algorithm for relation type equivalence, as already described. To enable that, data were at this point transferred to Access databases to make use of SQL queries, the greater memory size available for database operations in Access relative to FoxPro, and Visual Basic programming which allowed the researcher to write programs to calculate relation type equivalence scores for each pair of persons in the network. Lifestyle, demographic, and cluster data were later also imported into SPSS, and in some instances Excel, for statistical analysis.

Figure 3.1 Matrix

```
        1  2  3  4  5  6  7  8  9

1       -  1  1  1  1  0  0  0  0
2       1  -  1  0  0  1  0  0  0
3       1  1  -  1  0  0  1  0  0
4       1  0  1  -  0  0  0  1  0
5       0  0  0  0  -  1  0  1  1
6       0  0  0  0  1  -  1  0  1
7       0  0  0  0  0  1  -  1  1
8       0  0  0  0  1  0  1  -  1
9       0  0  0  0  0  0  0  0  -
```

Figure 3.2 Network Graph (a.k.a. Sociogram)
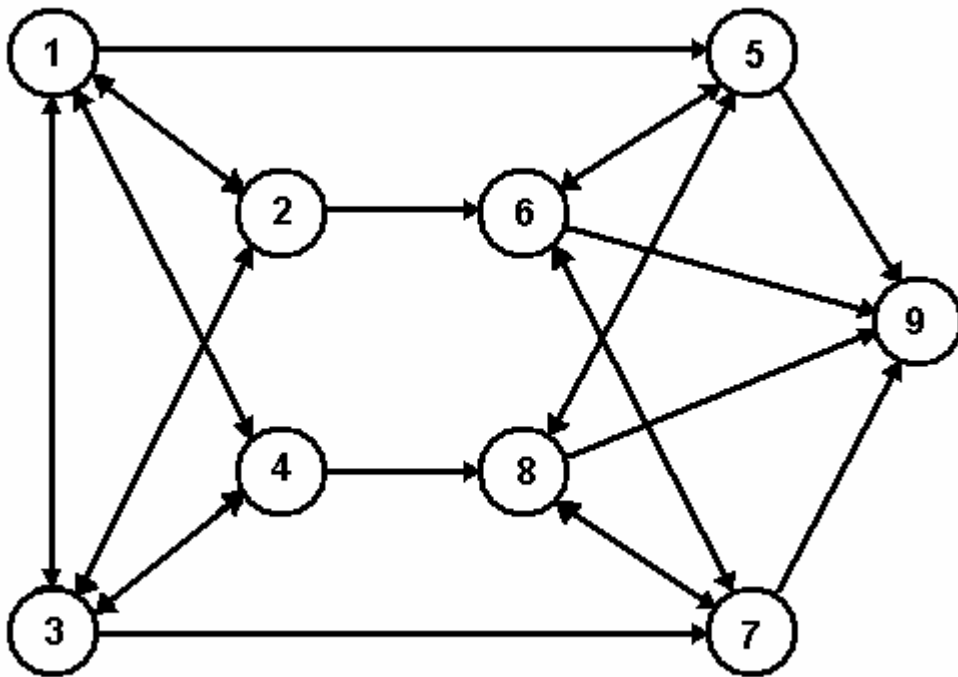
Figure 3.3 Permuted Matrix

	1	3	2	4	6	8	5	7	9
1	-	1	1	1	0	0	1	0	0
3	1	-	1	1	0	0	0	1	0
2	1	1	-	0	1	0	0	0	0
4	1	1	0	-	0	1	0	0	0
6	0	0	0	0	-	0	1	1	1
8	0	0	0	0	0	-	1	1	1
5	0	0	0	0	1	1	-	0	1
7	0	0	0	0	1	1	0	-	1
9	0	0	0	0	0	0	0	0	-

Figure 3.4 Reduced Representation in Blockmodel Matrix

	13	24	68	57	9
13	1	1	0	*	0
24	1	0	*	0	0
68	0	0	0	1	1
57	0	0	1	0	1
9	0	0	0	0	0

Figure 3.5 Illustration of Relation Type Equivalence

| Coworkers | Neighbors | Friends |
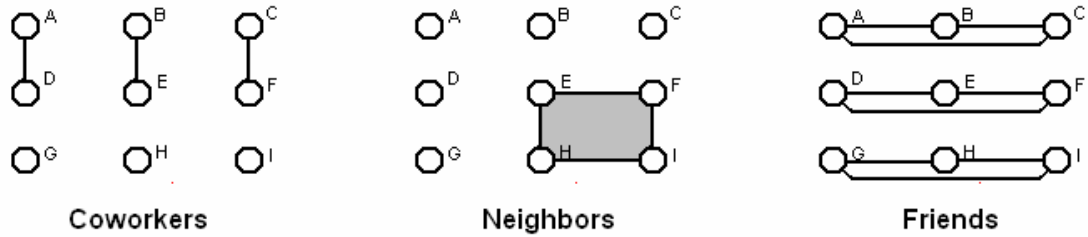
Figure 3.6 Dyadic Equivalence Scores (First Iteration)

	A	B	C	D	E	F	G	H	I
A	1	1	1	1	⅔	⅔	⅔	⅓	⅓
B	1	1	1	1	⅔	⅔	⅔	⅓	⅓
C	1	1	1	1	⅔	⅔	⅔	⅓	⅓
D	1	1	1	1	⅔	⅔	⅔	⅓	⅓
E	⅔	⅔	⅔	⅔	1	1	⅓	⅔	⅔
F	⅔	⅔	⅔	⅔	1	1	⅓	⅔	⅔
G	⅔	⅔	⅔	⅔	⅓	⅓	1	⅔	⅔
H	⅓	⅓	⅓	⅓	⅔	⅔	⅔	1	1
I	⅓	⅓	⅓	⅓	⅔	⅔	⅔	1	1

CHAPTER FOUR

METHOD II: MEASURES & ANALYSES

"Life-styles are thus the systematic products of habitus, which perceived in their mutual relations through the schemes of the habitus, become sign systems that are socially qualified…

"Systematicity… is found in all the properties – and property – with which individuals and groups surround themselves, houses, furniture, paintings, books, cars, spirits, cigarettes, perfume, clothes, and in the practices in which they manifest their distinction, sports, games, entertainments, only because it is in the synthetic unity of the habitus, the unifying, generative principle of all practices"

- Pierre Bourdieu, 1984, p.172-173

The explanadum of this research, lifestyle similarity, was operationalized in two different ways. The first was as a direct dyadic measure dissimilarity score of the life behaviors reported by each dyad of survey respondents. As there is not any one self-evident or natural way to measure lifestyle similarity, such measures are necessarily somewhat arbitrary constructs. A guiding principle was that each dimension of lifestyle behavior (e.g. occupational, household, financial, religious, political, leisure, etc) should get approximately equal consideration or weighting in the dissimilarity measurement. The second was by creating a typology of lifestyle clusters within which each person could be classified. The latter approach conceptually links dyadic analysis with analysis of lifestyle clusters.

Lifestyle Indices

The process of defining lifestyle clusters began with the construction of index measures of lifestyle dissimilarity for each dyad (N= 730,236[i] valid dyads d_{ij}, $i \neq j$) in weekday timing, weekend timing, occupational, household, financial, health-related, religious, political, and leisure (e.g. athletic, leisure, sports viewing, fan identification, pets) activities, ingestibles (e.g. tobacco, drink, etc), clothing and clothing sources, furnishings and furniture sources, travel, and frequenting of local restaurants, public space, use of media, and 12 fields of cultural genres. Most of these index dissimilarity scores were calculated either from binary variables (1=Indicated, 0=Not Indicated) of whether the respondent listed particular responses in on open-ended questions, or from categorical questions on the frequency of activity (usually 1=Daily or Regularly, .5=Occasionally, 0=Not Indicated; or 1=3x Daily, Daily, or Regularly, 0=Not Indicated). For most types of behavior, similarity indices for each type of behavior were calculated for each dyad as the sum of differences across relevant variables, indicating the score as a proportion of all the variables in the calculation, where 0 indicates perfect similarity on each variable and 1 indicates a situation in which every activity was done regularly by one or the other of the pair but not indicated by the other member of the dyad.

Time variables were an exception.[ii] The cyclicity of clock times was linearized. Each time measure was converted to radians (i.e. divided by 12 and multiplied by π), then the sine and cosine functions were taken and a Euclidean distance calculated for each dyad, which is schematically the chord distance between different times on a unit circle 24-hour clock face. Distances greater than one were reduced to one. This resulted in a

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[i] There were lifestyle data for n=1209 cases: (n-1) n/2 = 1,460,472/2 = 730,236

[ii] Time variables were included in initial clustering, but the clusters produced were less homogeneous than desired. There was little agreement on timing variables within clusters, and the timing variables accounted for a large portion of the dissimilarity score in most dyads. It appeared that the timing variables might be diluting the clustering. A new set of clusters were produced excluding the timing variables from the analysis. These were a clear improvement over the clusters that included timing variables.

score of .00000 if the timing of the event was the same, .26105 for an hour difference, .51763 for two hours, .76536 for three hours, and 1.0000 for four or more hours difference. Persons who did not list a time were scored sine=zero, cosine=zero (i.e. schematically the center of the clock face), resulting in a distance of one relative to the time of any person who did complete the question, and zero from others who did not answer the question. Each subindex for difference in timing, weekdays and weekends, was summed across seven timing variables, i.e. hour of waking, breakfast, going to work, lunch, coming home, dinner, and sleeping, and divided by seven.

An occupational dissimilarity index was created summing across indicator variables for differences in whether the respondent's job involved sales, use of cash register, computer, telephone, reading, supervision of other workers, driving a vehicle, airplane travel, heavy lifting or physical labor, getting dirty, work with industrial machinery, assembly of products, work with animals, outdoor work, and working in solitude, and dividing by the maximum possible value. An index for differences in household activities (e.g. chores) was summed across sweeping, laundry, ironing, making beds, doing dishes, picking up, cleaning tub, heating food, cooking, baking, preserving, taking out trash, mowing lawn, gardening, having floral arrangements in home, having dinner guest, having overnight guests, writing letters, spending time with kids, transporting other persons, relaxing, napping, and wearing bedclothes thru the day, divided by the maximum possible value. An index of differences in financial activities was summed across paying bills in cash, writing checks, using a credit card, use of ATMs, purchases over $500, putting money into savings, putting money into IRA or similar retirement account, buying bonds, buying or selling stocks or other securities, reading or listening to business news, clipping coupons, and playing lottery games, divided by the maximum possible value. An index of health-related behaviors included taking medicines, taking vitamins, checking blood pressure, dieting, reading or listening

to health news, massage, and aromatherapy, the sum of which was likewise divided by the maximum possible value.

A subindex of differences in religious behavior included saying grace at meals, observing a Sabbath, listening to religious music, praying, tithing, reading holy book or religious texts, religious fasting, religious fellowship, and preaching. A subindex of denominational dissimilarity scored differences in whether respondents typically attended religious services, whether they had a religious identification (e.g. attended a particular church, or indicated having a religious creed or philosophy) and categorization of their religious identity coded into non-exclusive indicator variables for Christian, non-Christian, Catholic, Protestant, "born again", Baptist, Episcopalian, Jehovah's Witness, Latter Day Saints or Mormon, Lutheran, Methodist, Pentecostal, Presbyterian, Wesleyan, Nazarene, Mennonite, and Assembly of God.

A subindex of differences in political behavior included voting in Presidential elections, voting in local elections, discussing politics with others, reading, watching or listening to political news, watching or listening to political talk shows, attending local government meetings, writing letters to editor, contacting a member of Congress, donating to a candidate, working on political campaigns, engaging in political protests, and displaying the US flag at home. A subindex of party affiliation scored differences in whether respondents indicated a political identification (e.g. party affiliation, political position or ideology) and categorization of their political identity into non-exclusive indicator variables for Republican, Democrat, liberal, moderate, conservative, pro-life, pro-choice, independent, leftist or socialist, and "I vote the candidate".

And index of differences in athletic behavior was summed across aerobics, basketball, bicycling, boating, bowling, camping, canoeing, fishing, fly fishing, golf, hiking, horse riding, hunting, ice skating, racquetball, rollerblading, jogging, sailing, scuba, downhill skiing, cross country skiing, softball, swimming, target shooting, tennis, walking, weight lifting or weight training, and yoga. An index of differences in leisure

activities included antiquing, artistic painting, pottery, other art, astronomy, attending auctions, working on autos, bird watching, board games, card games, car shows, chess, coin collecting, stamp collecting, other collecting, computer games, cooking as a leisure activity, crafts, dance, dining out, electronics, hobby farming, gambling, garage sales, gardens, genealogy, going to horse races, horse shows, home improvement, houseplants, use of internet, investing, making jewelry, knitting, model railroad, other models or miniatures, motorcycling, playing a musical instrument, singing, other music, pets, photography, piloting airplanes, quilting, flying radio-controlled model aircraft, historical reenacting, real estate management, tinkering and appliance repair, roleplaying, sewing, shopping as a leisure activity, shortwave radio, attending sports events, acting, travel, woodworking, writing fiction, and writing poetry. A subindex of differences in sports viewing scored the specific sports respondents listed as having frequently attended or watched on TV categorized into non-exclusive indicator variables for: any sport, local high school sports, sport involving their children or grandchildren, horse races, tennis, professional wrestling, football, baseball, softball, basketball, auto racing (e.g. NASCAR), soccer, golf, ice skating, hockey, boxing, and rodeo. A subindex of fan identification scored differences in specific teams of which respondents said they were fans categorized into non-exclusive indicator variables for: two Major League Baseball "home" teams, Atlanta Braves, three NFL Football "home" teams, Miami Dolphins, Dallas Cowboys, San Francisco 49ers, Green Bay Packers, Denver Broncos, a NHL Hockey "home" team, NBA Basketball "home" team, Chicago Bulls, NASCAR drivers Jeff Gordon, Dale Earnhardt, Dale Jarrett, and Rusty Wallace, two regional college "home" teams, and Tyboro High School teams. An index for pet ownership scored differences in the types of pets respondents owned categorized into non-exclusive indicator variables for any dog, a sporting breed, Labrador Retriever, Cocker Spaniel, Golden Retriever, any hound, Beagle, Dachshund, any terrier, Schnauzer, any working breed, any herding breed, Collie, German Shepherd, any toy breed, Pekinese, Chihuahua,

any cat, any rabbit, any rodent (e.g. Hamster, Gerbil, Mice, etc), horse or pony, any bird, any parrot type bird (e.g. Parrot, Parakeet, Cockatiel, Budgie, etc), any fish, and goldfish.

A subindex of ingestibles scored use of coffee, tea, cigarettes, pipe tobacco, cigars, chewing tobacco, gum & candy, soda, beer, wine, liquor, mixed drinks, bottled water, tap water, milk, and juice. The last three of these were added categories based on frequently written-in responses to a catch all "other" prompt in the survey. A subindex of brand affiliation scored differences in the brands of cigarettes, beer, and soda respondents tended to use, categorized into non-exclusive indicator variables for: Marlboro, Doral, Newport, Old Gold, Pyramid, any premium brand, any generic brand, and any value brand cigarettes, roll your own, menthols, 100s or 120s, light cigarettes; any light or lite beer, any non-alcoholic beer, Budweiser, Coors, Labatts, Michelob, Miller, Milwaukee's Best, Molson, local beer A; any diet soda, any caffeine-free soda, any store brand, Pepsi, Coke, Dr. Pepper, Sprite, Mt. Dew, 7Up, any cola, any rootbeer, any orange soda, any ginger ale, and any lemon-lime soda.

A subindex of clothing scored responses to open-ended questions about what clothes respondents typically wore at work and around town, categorized into indicator variables for jeans, t-shirt, dress shirt, slacks, skirt or dress, suit, uniform, sneakers, work or dress shoes, and boots at work; along with jeans, t-shirt, sweats, slacks, skirt or dress, suit, sneakers, real shoes, boots for everyday wear. A subindex of clothing sources combined responses to questions about whether respondents acquired clothing from mail order, thrift stores, rummage sales, outlet stores, local clothing stores, mall stores, had tailored clothing, or made their own, with responses to open ended questions about what stores the respondent frequented for clothing and what catalogs the respondent used to shop for clothes, including indicators for Mason, Old Pueblo, Eddie Bauer, Spiegel, Roaman, Talbot's , Orvis, Lerner's, Blair, Cabela's, Chadwick's, Haband, Newport, Land's End, L.L. Bean, J.C. Penny, and Sears catalogs, any local store, five different specific local clothing stores, seven regional clothing stores include national chains, and a

catch all for any stores at the regional mall. A subindex of furniture and furnishings indexed differences in respondents having a bookshelf, file cabinet, formal dining room table, piano, dishwasher, microwave oven, woodstove, hot tub, firearm, answering machine, CB radio or scanner, cell phone, camera, CD player, videocamera, videogames, VCR or DVD player, and personal computer in their home. A subindex of furniture sources indexed responses to questions about whether respondents acquired furniture from mail order catalogs, local furniture stores, department stores, thrift shops, rummage sales, gifts or inheritance, antique shops or estate auctions, had custom made furniture, or made their own, along with responses to an open ended questions asking respondents about specific sources for furniture, categorized into exclusive indicator variables for Sears, J.C. Penny, Walmart, Kmart, Salvation Army Thrift Store, a rent-to-own place, or sixteen different specific local and regional furniture sellers.

A subindex of differences in restaurant patronage was scored across restaurants that respondents frequented. It included categories for any fast food restaurant, itemized categories for every restaurant and drinking establishment in Tyboro other than fast food, and select restaurants in nearby locales, a total of 27 categories. A subindex of use of public space included patronage of banks and financial services, grocery stores, drug stores, convenience marts, department stores, hardware stores, bowling alleys, cinemas, a selection of Tyboro small businesses, post office, library, high school, county office buildings, golf course, nature park, other key local public or quasi-public spaces, and a few neighboring villages. An sub index of use of various media was summed across frequency of listening to radio, reading newspaper, reading magazines, reading books, using the telephone, using the internet, watching television, watching movies or videos, listening to recorded music, listening to live music performances, attending theatre performances, visiting museums, visiting historical sites, and touring vineyards.

A travel index was summed across responses to closed-ended questions about traveled to the two nearest metropolitan areas, state capital, Washington DC, New York

City, Toronto, Carolinas, and Florida, combined with open-ended questions about other travel destinations, categorized into indicator variables for any in-state destination, each of three different adjoining states, the United States divided into 19 categorical regions, and the rest of the globe in 18 categorical regions: Canada, Caribbean, Mexico, Central America, South America, British Isles, Germanic Europe, Western Europe, Southern Europe, Eastern Europe, Nordic nations, Israel or Palestine, other Middle East, Africa, East Asia, South Asia, Australia or New Zealand, and Polynesia or Oceania. It was divided by the maximum possible value to give a score between zero and one.

Twelve different cultural genres subindices were calculated. The radio index scored responses to open-ended questions about the specific radio stations and types of radio program to which the respondent typically listened, categorized into non-exclusive indicator variables for any radio station, twenty-two specific local and regional radio stations, sixteen genres including news, weather, morning program, talk, sports, music, oldies, country, pop rock, classic rock, soft rock, religious, classical music, jazz, and alternative, and four specific programs: Rush Limbaugh, Dr. Laura, Howard Stern, and Prairie Home Companion. The newspaper index included categories for any paper, the local Tyboro paper, a local Pennysaver-type paper, two county papers, one regional paper, two main newspapers of the nearest urban area and one newspapers of another regional urban area, *USA Today*, *New York Times*, and *Wall Street Journal*. The magazine index included 45 different magazines (e.g. *Reader's Digest*, *Life*, *Time*, *Better Homes & Gardens, Consumer Reports, Cosmopolitan, Country Living, Country Woman, Country Music Weekly, Discover, Family Circle, Field & Stream, Golf Digest, Good Housekeeping, Ladies Home Journal, Martha Stewart Living*, AARP's *Modern Maturity, Newsweek, National Geographic, Outdoor Life, People, Popular Mechanics, Popular Science, Prevention, Quick Cooking, Reminisce, Sports Illustrated, TV Guide, Catholic Digest, Money, Soap Opera Digest*) or magazine categories (e.g. any hunting magazines, any sex magazine). The authors index scored differences in listing favored authors, with

indicator variables for 31 different popular authors (e.g. Stephen King, Danielle Steele, Jackie Collins, LaVyrle Spencer, Patricia Cornwell, Sidney Sheldon, Tom Clancy, Nora Roberts, Dean Koontz, John Grisham, Mary Higgins Clark, V.C. Andrews, Lillian Jackson Braun, Sue Grafton, Mauve Binchy, Belva Plain, James Michener, James Patterson, John Steinbeck, Agatha Christie, Jane Austin, Zane Grey, Louis L'Amour, etc.). The book genre index scored responses in partially overlapping categories of non-fiction, biography, history, religion, Bible, classics, war, self-help, fiction, romance, crime, spy, mystery, horror, suspense, fantasy, science fiction, action adventure, historical fiction, and westerns. The music performers index was similarly scored with categories for any music, and 66 specific performers (e.g. Garth Brooks, Alan Jackson, Shania Twain, Reba McEntire, George Strait, George Jones, Elvis, AC/DC, Beach Boys, Backstreet Boys, The Beatles, Aerosmith, Brooks & Dunn, Phil Collins, Eric Clapton, Cher, Charlie Pride, Dixie Chicks, Celine Dion, Neil Diamond, John Denver, The Doors, Eagles, Fleetwood Mac, The Gaithers, Vince Gill, Faith Hill, Hooty & the Blowfish, Whitney Houston, Elton John, Billy Joel, Barry Manilow, Lynyrd Skynyrd, Metallica, Tim McGraw, Ricky Martin, Moody Blues, Anne Murray, Willie Nelson, Rolling Stones, Kenny Rogers, Bob Seger, Carly Simon, Frank Sinatra, Bruce Springsteen, Statler Brothers, James Taylor, Stevie Ray Vaughn, Yanni, Barbara Streisand, Glenn Miller, Nat King Cole, Andrea Bocelli, Pavarotti, Mozart, Beethoven, Bach, etc.). The music genres index had categories for Celtic, orchestral, new age, Dixie, folk, swing, blues, opera, R&B, jazz, musicals and show tunes, easy listening, classical, religious, oldies, metal, classic rock, hard rock, pop and soft rock, big band, alternative, gospel, country, 70s, 60s, 50s, and 40s. The television genres & channels index summed indicators for: any TV, TNN, TLC, PBS, Lifetime, Weather Channel, History Channel, ESPN, Animal Planet, Discovery, A&E, CMT, FOXNEWS, CNN, biography, action, adventure, music, documentaries, educational, family, historic, legal, medical, police, suspense, science fiction, western, outdoors, wildlife, talk shows, mysteries, movies, game shows, drama,

soap operas, comedy, sports generally and 8 specific sports, weather, TV magazines, and news. The television show index summed indicators for 70 different specific shows (e.g. *20/20*, *60 Minutes*, *Dateline*, *Biography*, *America's Most Wanted*, *COPS*, *Antique Roadshow*, *Mystery*, *Ally McBeal*, *Beverly Hills 90210*, *Baywatch*, *Buffy the Vampire Slayer*, *Chicago Hope*, *Cosby Show*, *Dawsons Creek*, *Dharma & Greg*, *Diagnosis Murder*, *Drew Carey*, *Everybody Loves Raymond*, *ER*, *Frasier*, *Friends*, *Golden Girls*, *Home Improvement*, *I Love Lucy*, *Judging Amy*, *King of Queens*, *Law & Order*, *Murder She Wrote*, *Nash Bridges*, *NYPD Blue*, *Once & Again*, *Party of Five*, *Seinfeld*, *The Simpsons*, *Spin City*, any *Star Trek* series, *Touched By An Angel*, *Walker Texas Ranger*, *The Waltons*, *West Wing*, *Will & Grace*, *X-Files*, *Today* Show, *Regis & Kathy Lee*, *Rosie O'Donnell*, *Montel*, *Judge Judy*, *Oprah*, *O'Reilly Factor*, *Larry King Live*, *Days of Our Lives*, *General Hospital*, *Young and the Restless*, *Who Wants to be a Millionaire*, *Price Is Right*, *Jeopardy*, *Wheel of Fortune*, etc). A film genres and favorite movies index summed categories for: any movies, action, adventure, comedy, detective, Disney, documentary, drama, family, history, horror, musicals, mystery, oldies or 'classics', romance, science fiction, suspense, thrillers, true stories, war, westerns, and 36 specific films (e.g. *Sixth Sense*, *Armageddon*, *Bridges of Madison County*, *Sound of Music*, *Casablanca*, *Dances with Wolves*, *The Dirty Dozen*, *Forrest Gump*, *Fried Green Tomatoes*, *Ghost*, *Gone with the Wind*, *Grease*, *Horse Whisperer*, *Mrs. Doubtfire*, *Matrix*, *Patch Adams*, *Pretty Woman*, *Rainman*, *Saving Private Ryan*, *Sleepless in Seattle*, *Schindler's List*, *Silence of the Lambs*, *Titanic*, *Top Gun*, *Witness*, etc) or film series (e.g. *Godfather*, *Indiana Jones*, *Star Trek*, *Star Wars*, *Alien*, *Die Hard*, *Speed*, and *Sister Act*). A favorite actors and actresses index was similarly scored for: any actor or actress, and 58 specific actors or actresses: Adam Sandler, Al Pacino, Anthony Hopkins, Arnold Schwarzenegger, Barbara Streisand, Bette Midler, Brad Pitt, Bruce Willis, Cary Grant, Charles Bronson, Cher, Chevy Chase, Chuck Norris, Clark Gable, Clint Eastwood, Demi Moore, Doris Day, Drew Barrymore, Dustin Hoffman, Eddie Murphy, Gary Cooper,

Geena Davis, Glenn Close, Goldie Hawn, Harrison Ford, Humphrey Bogart, Jack Nicholson, Jean-Claude Van Damme, Jimmy Stewart, Jodi Foster, John Travolta, John Wayne, Julia Roberts, Katherine Hepburn, Kevin Costner, Marlon Brando, Meg Ryan, Mel Gibson, Meryl Streep, Michelle Pfeiffer, Nicholas Cage, Patrick Swayze, Paul Newman, Richard Gere, Robert DeNiro, Robert Redford, Robin Williams, Sally Field, Sandra Bullock, Sean Connery, Steve Martin, Stephen Segal, Susan Sarandon, Tom Cruise, Tom Hanks, Tommy Lee Jones, Whoopi Goldberg, and Will Smith. The art index scored responses regarding genres of art, favorite artists, and favorite specific works of art. It included non-exclusive indicators for any art, impressionism, painting, ocean views, scenery, sculpture, *Mona Lisa* (Da Vinci), *David* (Michelangelo), *La Pieta* (Michelangelo), *The Thinker* (Rodin), *Starry Night* (Van Gogh), *Sunflowers* (Van Gogh), *Waterlilies* (Monet)[iii], old masters, Rembrandt, Renoir, Rubens, Monet, Da Vinci, Michelangelo, M.C. Escher, Rodin, Cezanne, Degas, Van Gogh, Winslow Homer, Andrew Wyeth, Salvador Dali, Picasso, Frederic Remington, Norman Rockwell, Ansel Adams, Anne Geddes, Thomas Kinkade, and a specific local Tyboro artist.

Distributions of Lifestyle Indices

If one thinks of dyads as samples of size two, then it follows from the central limit theorem that the distribution of dyadic dissimilarity or distance scores should more closely approximate a normal curve than the distribution of the scores from which they derive. We should therefore expect many of our indices of dissimilarity to approximate normal distributions, at least roughly. Most of the lifestyle indices in our study that were based on closed-ended survey questions (i.e. home, financial, health, political, and leisure activities, ingestibles, furnishings, restaurants, public space, and use of media) and a few

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[iii] In the instances of Van Gogh's *Sunflowers* or Monet's *Waterlilies*, it is unknown whether respondents referred to the same specific painting(s) in the series.

that used open-ended questions (i.e. clothing, clothing and furniture sources, radio, TV channels) closely approximate normal distributions (not shown). A number of other indices (i.e. work and religious activities, denomination, sports viewing, newspapers, books, movies, actors, and art) have distributions that crudely approximate normal curves but have a highly disproportionate number of dyads with zero scores (not shown). Presumably many of these are instances where each member of the dyad is a respondent who skipped over the relevant section of the survey, e.g. retired and unemployed persons not completing the work activities, etc. Most of the other indices (i.e. political affiliation, fan affiliation, pets, magazines, authors, musical performers, and TV shows) have distributions like that shown in Figure 4.1, which shows dissimilarity with regard to magazines, that appear pushed up against the left-hand axis. Brand affiliation (not shown) has a distribution somewhat between this pattern and that of a normal curve.

[FIGURE 4.1 ABOUT HERE]

There are four lifestyle behavior indices that have exceptional distributions. One is dissimilarity of athletic behaviors, shown in Figure 4.2, which is somewhat like brand affiliation, being between types, but with extreme outliers giving it a long right skew. These outliers are so few in number that they can not even be discerned on the vertical access of Figure 4.2. Presumably these are dyads that include one person who engages in a great many athletic behaviors and one who engages in virtually none and/or dyads with two people each engage in a number of mutually exclusive athletic behaviors.

[FIGURE 4.2 ABOUT HERE]

A second peculiar distribution is that of travel destinations, shown in Figure 4.3. The main part of this distribution is close to normal, a bit truncated against the vertical axis, but with a "lump" of dyads in the very skewed right-tail. This most likely represents dissimilarities between a well-traveled subset of the local population – mainly the "country club travelers" I described in chapter one – and certain other subsets that have done little or no traveling. The final two indices with peculiar distributions are those of

event timing. These have only a little tendency toward bell-shape, and are marked by sharp clumping or spiking on certain dissimilarity values.

[FIGURE 4.3 ABOUT HERE]

Correlations among Lifestyle Indices

There are various objections that might be raised against reporting correlations as measures of association among these dissimilarity indices. Perhaps the biggest issue is that dyadic observations are not independent of one another. The dissimilarity scores for all dyads which include a specific person are likely to be autocorrelated as a result of all being dependent on the survey responses for that one person. A lesser issue is that Pearson correlations imply a linear relationship. If two dissimilarity indices are related curvilinearly, which is plausible, a linear correlation measure will not accurately assess the strength of the relationship. However bivariate plotting of these indices against one another found little evidence of curvilinear patterns. Also the very logic of a lifestyle clustering model challenges the utility of overall correlation measures, since it suggests that what may appear as correlations of behaviors across a population may instead be an artifact of correlation of behaviors within clusters, and that it is only within the contexts of specific clusters that links between behaviors are conceptually meaningful.

These considerations notwithstanding, bivariate Pearson correlations among the dissimilarity indices are reported in Table 4.1, as is customary, precedent to describing how the lifestyle dissimilarity metric was calculated from these indices. With such a large number of dyads, virtually all of these correlations are statistically improbable to be random, i.e. "significant", but only a few are sizable. Those greater than 0.2 are emphasized in bold font.

[TABLE 4.1 ABOUT HERE]

The weekday and weekend timing dissimilarity scores are quite (R = .5940) correlated. There is a moderate correlation between the dissimilarity indices for frequenting of various restaurants and of various public spaces (R = .4185), and also between fan affiliation and sports viewing (R = .4102). There are notable correlations among a handful of pairs of other variables, including clothing with work activities and restaurants with travel destinations.

There is a correlation between athletic and leisure activities (R = .3157), and a number of notable correlations between one or both of these variables and several other variables (e.g. work activities, fan affiliation, frequenting of restaurants, and public space), as might be expected. However, with respect to athletic behaviors particularly, some of this may be an artifact of the distribution of that variable. Figure 4.4 is a plot of dissimilarity of leisure activities against dissimilarity of athletic behaviors.[iv] The outlying, right-hand cluster of dyads exerts a great deal of influence in the estimation of correlation coefficients. In combination with the main body of dyads it can define a strong linear relationship, but in the absence of these outliers there appears to be little linear relationship in the main set of dyads. This possibility exists for all the correlations involving athletic behaviors, and to a lesser degree a few other skewed variables.

[FIGURE 4.4 ABOUT HERE]

[TABLE 4.2 ABOUT HERE]

Pearson correlations among the cultural genre dissimilarity indices are reported in Table 4.2. Correlations greater than 0.2 have been bolded. There is a great correlation between similarities with regard to authors and book genres (R = .7792), and between similarity of actors listed and movie genres (R = .5386). There are correlations between similarity of TV shows and movie genres (R = .3318), actors and TV shows (R = . 2845),

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[iv] The plot shows only an approximately one percent random sample of dyads (n=7099) because the number of cases in the full dyadic data set overwhelmed graphing routines.

actors and art (R = .3044). There are also notable correlations between magazines and book genres (R = .2872), TV shows (R = .2755), and art (R = .2009). Music genres are correlated with book genres (R = .2568), radio stations (R = .2347), and not surprisingly, music performers (R = .2120). There are also many correlations between these four variables and TV shows, movies, actors, and art.

There are only a few correlations that are greater than 0.2 between genre indices and other lifestyle dissimilarity indices (data not shown). Similarity of clothing suppliers correlated with the magazine (R = .2260) and book genres (R = .2009). Music genre correlated with clothing (R = .2009) and with similarity of leisure activities (R = .2136). There were also correlations between actors and brand affiliations (R = .2149), furniture suppliers and movie genres (R = .2120), and leisure activities and art (R = .2089).

Lifestyle Metric

A metric of lifestyle difference was computed from a set of behavior indices, reduced from the ones already described. Originally 15 indices were included, but the timing index was excluded from the ultimate clusters. The two timing subindices were combined in a timing index by averaging, weighted relative to the number of days in the week (i.e. 5 for weekdays, 2 for weekends). The two religion subindices were combined into a single index of religious dissimilarity by averaging, giving each equal weight. The two political subindices were combined into a single index by averaging, giving each subindex equal weight. The athletic behavior, leisure activities, sports viewing, fan identification, and pet ownership indices were combined into an overall activities dissimilarity index by averaging, with leisure activities weighted double each of the others. Ingestibles and brand affiliation were combined into a single consumption index by averaging, giving each subindex equal weight. Clothing, clothing sources, furniture, and furniture sources were combined into a single index of material dissimilarity by

averaging, with each given equal weight. The restaurant, media, and public space indexes were combined into a single index of dissimilarity of local orbit by averaging, each having equal weight. The twelve genre indexes were combined into three by averaging. A literary index combined newspaper, magazines, books, authors, and art indices. An audio index combined radio, music genres, and musicians. A video index combined TV channels, TV shows, movies, and actors. The result was a set of 15 dissimilarity indices where each index represented one of the initially conceived dimensions of lifestyle: timing, work, household, money, health, religion, politics, leisure & athletics, consumables, material, local orbit, travel, literary genres, audio genres, and video genres.

The original metric of lifestyle difference was an Euclidean distance computed directly from these fifteen indices. The clusters produced using this metric were less homogeneous than anticipated. The timing dissimilarity was the single biggest part of the overall dissimilarity scores, yet the clusters were not even highly homogeneous with respect to timing variables. Investigation showed that the mean ratio of timing dissimilarity to the overall Euclidean distance dissimilarity among dyads was .4345 with the ratio being as high as .95 in some dyads! This suggested that timing was perhaps "diluting" the clustering algorithm. Euclidean distances recalculated to exclude the timing index saw a mean reduction of .1246, with a standard deviation of .0906, and a maximum reduction in dissimilarity of .6894 units. The resulting clusters were clearly more homogeneous, so the 14-dimension dissimilarity measure was kept.

The change illustrates the impact that including or excluding particular variables may have on the agglomeration process. It is probable that the index used may contain other variables that similarly "dilute" the clustering results, such that by excluding them from the analysis the resulting clusters might be significantly more homogeneous, and the result a better model of real, lived social differentiation. Unfortunately no convenient way was arrived upon of finding such variables.

The Euclidean metric has an intuitive schematic representation. If one imagines a 14-dimensional 'hyper-cube' with unit length one in each dimension, having one person of the dyad at the origin vertice and the other person a point whose 14 coordinates each represent the dyadic distance of one of the 14 indices, the Euclidean metric represents a 'straight-line' distance between the pair of persons. A score of zero 0 indicates perfect similarity. The highest possible score, the square root of 14 (i.e. ≈ 3.74), occurs if the other person is at the opposite vertice of the hypercube, totally dissimilar (i.e. distance of 1) on each of the 14 dimensions. The highest observed score was 1.8398, with a mean dissimilarity of 0.9385 and standard deviation of 0.1647 units. The mean, standard deviation, and maximum value of each of the 15 indices is shown in Table 4.3.

[TABLE 4.3 ABOUT HERE]

Principles of Cluster Identification

In addition to dyadic scoring of lifestyle dissimilarity, cases were coded into lifestyle clusters using the lifestyle metric. There is not one intuitive or "natural" process for identifying lifestyle clusters from behavioral data. Our theory offers a bit of guidance to suggest some clustering algorithms as conceptually more appropriate than others, but even so there are a variety of choices that can be made in determining how to construct analytic clusters. Ideally these should represent the meaningful real world distinctions in lifestyle which exist within a population. Most clustering algorithms find or impose a cluster structure even in data that shows no marked "natural" clustering. This can make it difficult to know whether a given set of analytic clusters represent meaningful real world lifestyle differences or are a mere artifact of the algorithm.

It is useful at this point to note some of the properties by which clusters may be characterized. By clusters we intuitively mean "continuous regions of space containing a relatively high density of points, separated from other such regions by regions containing

a relatively low density of points" (Everitt, 1980, as cited in Aldenderfer and Blashfield,
1984). This definition suggests two properties as definitional criteria for identifying
clusters: density and separation. Density[v] is the frequency of cases relative to the volume
of lifestyle space. Separation (or boundedness) is the extent to which clusters lie apart
from each, i.e. do not adjoin or overlap. We can think of separation as a relative absence
of density between clusters and boundedness as a marked decline in density at the "edge"
of the cluster. A distribution is clustered to the extent that it has "clumpy" density.

The concept of separation suggests three other properties pertaining to the
clusters: dimension/size, shape, and dispersion. Dimension indicates a distance across a
cluster from the boundary on one side to the boundary on the other. Where clusters are
hyperspherical the dimensions are uniform and may be articulated as a diameter. Shape is
the outline or profile of the arrangement of the cases in a cluster within the lifestyle
space. To assess either shape or size of a cluster it must have boundaries, i.e. be marked
by separation. To the extent the boundaries are ambiguous, i.e. "fuzzy", the shape and
size must also be imprecise. Dispersion is the distribution of the cases around the cluster
centroid, i.e. the relative distances between the cases, how tightly packed cases are within
the cluster, which relates back to the concept of density and the change in density as one
moves out from the center of the cluster (Aldenderfer and Blashfield, 1984).

[FIGURE 4.5 ABOUT HERE]

When the dispersion is tight and the clusters markedly separate, and there are few
noise cases, as illustrated in Figure 4.5, clusters tend to be self-evident. Under these
conditions various clustering algorithms are likely to yield highly similar set of analytic
clusters, assuming the clusters are also of at least roughly similar size, and the clusters are
likely to have socially-recognized existence as real world clusters. Conversely, when

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[v] The density of cases in lifestyle space should not be confused with network density, discussed elsewhere
in this work.

there are only subtle differences in relative density across the lifestyle space, as illustrated in Figure 4.6, different clustering algorithms are likely to yield different cluster results. Thus the extent to which analytic cluster typologies yield robust clusters, independent of particular clustering algorithms, can be one basis for assessing the validity of the cluster typology (Aldenderfer and Blashfield, 1984).

[FIGURE 4.6 ABOUT HERE]

However having algorithms yield differing results does not necessarily indicate the absence of real world clusters. Clustering algorithms are likely to yield differing analytic clusters when clusters are more dispersed and less clearly separated, when clusters are of very different sizes or shapes, or when there are many 'noise' cases scattered among the clusters. Nor can the number of real world clusters, their sizes, and other properties be gauged *a priori*.

Hierarchical Clustering

Consider the illustration in Figure 4.7a. Visually, an observer is likely to discern four to ten clusters from this image. The image was in fact produced from an underlying structure of 8 pre-defined clusters of unequal dispersion and size, along with a number of unclustered random cases. Some of these clusters overlap because of their proximity, making it difficult to distinguish them. Even in the absence of overlap and differences in size and dispersion, the presence of random "noise" cases can make it difficult to define the boundaries of some clusters or determine which cases are in which clusters.

[FIGURE 4.7a ABOUT HERE]

There are myriad approaches that might be used to try to identify clusters. The conceptually simplest of these is hierarchical clustering. There are two main varieties of hierarchical clustering: agglomerative and divisive. Divisive clustering begins with the all cases considered as one cluster, finds an analytic basis for partitioning it into two clusters,

then repeats the process subdividing and re-dividing clusters. Insofar as our conceptual model suggests that macro-clusters are built up from smaller clusters rather than the smaller clusters being subdivisions of the larger groupings, and insofar as our model lacks any conception of planes of cleavage that cut across the entire lifestyle space, divisive hierarchical clustering seems inappropriate.

Agglomerative clustering works in the opposite direction. It combines cases and clusters of cases working up from lowest distance or dissimilarity to greatest distance or dissimilarity, which conceptually fits with our model (Aldenderfer and Blashfield, 1984; Everitt et al, 2001; Wishart, 2006). Various agglomeration rules may be used. The simplest commonly used rule is single-link or "nearest neighbor" linkage, which joins clusters based on the pair of cases between them that has the smallest distance. A single-link cluster solution to the data illustrated in Figure 4.7a is shown in Figure 4.7b. As demonstrated by the two sprawling clusters at the top and lower center of this image, this approach has a tendency to produce lengthy "string" clusters by concatenation or *chaining* (Aldenderfer and Blashfield, 1984; Everitt et al, 2001; Wishart, 2006, p.26-27) The cases added at each step in the agglomeration do not need to be very similar to the core of the cluster, only most similar to the case on the cluster edge closest to them. Conceptually this algorithm makes little sense if the purpose is to identify groups with homogeneous lifestyles. Moreover, the result is a set of analytic clusters that does not well match the intuitive clusters that the observer perceives or the underlying "true" cluster structure of the data.

[FIGURE 4.7b ABOUT HERE]

Two joining rules that make more conceptual sense are complete-link and average-link agglomeration. The complete-link approach joins clusters based on the pair of cases between them that has the greatest distance, i.e. is most dissimilar. In other words they are joined when the distance is reached at which every pair of cases in the cluster is less than or equal to that distance. Thus degree of overall cluster similarity is an

inherent aspect of the clustering criterion. The distance at which a cluster forms may be thought of as the diameter of a hyperspherical cluster (Aldenderfer and Blashfield, 1984; Everitt et al, 2001; Wishart, 2006, p.27). This approach ensures groups that are more homogenous relative to single-link clustering; however it tends to artificially restrict the clusters to being roughly the same size such that it effectively forces larger clusters to be divided into sets of smaller subclusters. A complete-link cluster solution to the example data is shown in Figure 4.3c. The result in this illustration is a much better fit with an intuitive sense of the clusters than the single-link agglomeration solution, and correctly classifies 76% of the cases: 84% of those in real clusters and 50% of random cases[vi]. However, all the clusters may be circumscribed by a circle of a given size, just sufficient size to cover the distance across the widest dimension of any one of these clusters. If one looks particular at the clusters in the center and lower left of the diagram two things should be noted regarding complete-link clustering. One, if the size of the circle was not constrained, all of these cases might be in a single cluster, although at that size the distinctions between other clusters might be lost. Two, some cases appear to be misassigned to neighboring as compared with an intuitive assignment of cases to clusters. This happens because the cluster is, in effect, constrained from including these cases based on the distance from the cases on the opposite edge.

[FIGURES 4.7c AND 4.7d ABOUT HERE]

The average-linkage between clusters agglomeration rule joins clusters based on an average distance between pairs of cases between the clusters, i.e. each pair has one case from each cluster.[vii] It is sometimes also referred to as unweighted pair group

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[vi] Cluster classification was considered accurate for underlying clusters if the case was placed in an analytic cluster that included most of the cases in the same underlying cluster. Cluster classification was considered accurate for random cases if they were placed in a cluster which was not associated with the majority of cases for any of the underlying clusters.

[vii] This is similar to but distinct from an average-linkage within groups rule which joins clusters based on the average distance between all pairs of cases that would be within the resulting cluster, a.k.a. mean

method using arithmetic averages, or by the acronym UPGMA. As with complete-link clustering, degree of overall cluster similarity is an inherent aspect of the clustering criterion, but rather than being constrained by the case at the farthest edge of the cluster, cases are here constrained by the average distance, which allows the cluster to deviate from being hyperspherical: the shape is more hyperellipsoidal. That should reduce the number of cases that appear to be misassigned relative to an intuitive classification (Aldenderfer and Blashfield, 1984; Everitt et al, 2001). A solution using the average linkage between clusters is shown in Figure 4.7d. As with the complete-link cluster solution, it fits well with an intuitive sense of the clusters, but not perfectly. The average-link solution correctly classifies 75% of the cases: 83% of those in real clusters and 50% of random cases[vii]. The two approaches were in agreement on the cluster classification of 84% of the cases in this illustration: 96% of those from underlying clusters and 46% of random cases. When the two approaches were in agreement they were 85% accurate in correctly classifying cases from underlying clusters, though only 31% accurate placing random cases, which they each tended to include in non-random clusters.

Although it may improve the likelihood of matching with intuitive cluster classification, that average-link agglomeration can stretch somewhat from a hypersphere does little to address the fact that when clusters vary in size, larger "natural" clusters will tend to be classified into two or more distinct analytic clusters. When the clusters can be visualized in two or three dimensions, as in the present illustration, it is easy to see which clusters intuitively join together, but where the lifestyle space has too many dimensions to visualize, determining which analytic clusters adjoin each other is not trivial.

[FIGURE 4.7e ABOUT HERE]

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proximity clustering (Wishart, 2006). In the between clusters rule the internal density of each of the clusters being joined does not impact the joining, whereas in the within cluster rule subclusters that were more tightly dispersed would be more likely to be included in a join than an otherwise similar more dispersed cluster, because the short internal distances would reduce the average within cluster distance. There is also centroid clustering, which joins clusters based on the distance between their centroids or geometric means, which has the potential problem of exhibiting "reversals" in the agglomeration (Wishart, 2006).

Figure 4.7e shows the true underlying cluster structure. Neither the sets of clusters obtained analytically nor the clusters an observer is likely to have intuitively perceived in the data match entirely with the underlying cluster structure. In particular, there is disagreement regarding clusters in the lower left and among random cases, represented by a + symbol. One implication of this is that a researcher trying to identify clusters in a real world situation, where any potential underlying structure is unknown, must recognize that clusters that are proximate or substantially overlapping in lifestyle space may not be distinguishable from one another empirically. Distinction depends on perception of some boundary or separation dividing what is otherwise a continuous space. Insofar as real world distinction reflects the lifestyle space groups of individuals in the real world ought to be unlikely to make meaningful distinctions absent such a separation or boundary. However the potential of entirely arbitrary distinctions of the sort suggested in the fable of the Sneetches (Geisel, 1961), which require no such separation or boundary, should not be entirely overlooked.

Because SPSS is not structured to perform hierarchical clustering of dyadic data, lifestyle dissimilarity metrics for each dyad were imported as edgelists into UCINET V (Borgatti, Everitt, and Freeman, 1999) where they were converted to matrix format and stored. UCINET V was used to run hierarchical clustering on each of the lifestyle metric with each both complete-link and average-link agglomeration rules. Partition results from each were saved as a case-by-distance agglomeration matrix, showing which lifestyle cluster each respondent was included in at any of various levels of agglomeration. These were then imported back into SPSS for analysis.

Each of the solutions in Figures 4.7b-d is a snapshot or cross-section taken at a given level of dissimilarity. Agglomeration is a process, and a resulting cluster structure can be taken, in principle, at any level of dissimilarity. As the hierarchical clustering algorithm proceeds from lowest to greatest dissimilarity, in principle it transitions from joining together very similar individuals into subclusters and subclusters into clusters to

ultimately forcing together all clusters. The ideal would be a cross-section of clusters at the point where this transition occurs – the moment at which clusters are identified, before they begin to be forced together into super-clusters – if such a moment exists. In practice this tends to be a complex and ambiguous exercise for a couple reasons.

One, if the clusters are not very discrete and/or if there are numerous "noise" cases, there may not be a recognizable moment, i.e. a breaking-point in the agglomeration process, distinguishing between these phases in the process for any specific case or subcluster. The subclusters could just incrementally agglomerate through the whole process. Assessing the location of such a distinction is predicated on finding a relatively large "jump" in the distance at which successive merges occur, which in turn depends on the cluster actually being relatively discretely bounded. That is, having a marked drop off in density and separated from other clusters.

Two, even when there are relatively distinct clusters, the diameter of each underlying cluster and the separation between clusters need not be the same, as Figure 4.7e illustrated. When there are natural break point dissimilarity levels or "diameters", they may vary across subclusters. The ideal level of dissimilarity for each cluster may differ from that of other clusters, making a snapshot cross-section at any single level of dissimilarity less than ideal.

For these reasons the researcher visually inspected the progression of each agglomeration path as the merge distance increased to assign each case a label that identified its cluster and coded the cluster identification at various levels of dissimilarity. This was done for each agglomeration rule. The labels were 2-4 characters in length, with each letter representing a lower level of dissimilarity, thus greater specificity and similarity. The exact level represented by a given place in the label typically represented a interval of lifestyle dissimilarity of approximately 0.20 units, though the cutoff for any particular cluster was allowed to vary by $\pm$ 0.05, based on visual inspection of the agglomeration intervals of the specific branch. The levels used for the complete-link and

average-link agglomerations differ, but are loosely parallel given the different distribution of cases into clusters in the two processes and the interpretation of the dissimilarity as a diameter in the former instance versus an average distance between points in the latter. The cutoff levels of dissimilarity for the complete-link process are the more pertinent. They were 1.25 for the first character, 1.05 for the second, 0.85 for the third, and 0.65 for the fourth when a fourth character was used. All the cases sharing a cluster label that began with the same letters at a particular level of dissimilarity were part of the same cluster at least by that level of dissimilarity. For example, the clusters HDB and HDD were separate at some level of dissimilarity not greater than 0.85, but both part of cluster HD above 0.85. The same labeling strategy was used for both the complete- and average-link classifications. Because the complete-link classification is constrained to the tightest level of homogeneity, the clusters identified in that model became the primary basis for cluster identification.

Hierarchical Clustering from Binary Variables

A number of clustering strategies were tried for comparative purposes. The original hierarchical clustering involved all 15 lifestyle metrics, but was replaced by hierarchical clustering that excluded the timing index. The researcher also tried hierarchical clustering from binary variables, k-means clustering, and density clustering as alternatives, though these ultimately contributed little to the reported results.

Hierarchical clustering directly from the lifestyle variables is simpler to use than hierarchical clustering from lifestyle metric as it could be done in SPSS without porting data between programs and without computing dyadic scores. It required that all the data be binary, which precluded using the timing variables. This was initially thought to be a disadvantage, but retrospectively was trivial since the timing variables were ultimately dropped from the hierarchical clustering using lifestyle metrics. It also made weighting

the variables to give each lifestyle dimension equal weight prohibitively difficult, so each variable had equal weight, which privileges those dimensions with more variables. On the other hand it facilitated use of agglomeration rules that emphasized positive matches, i.e. activities which two or more persons had both indicated, and disregarding negative matches, i.e. activities where they share non-indication, rather than being based on a simple sum of difference of values.

[TABLE 4.4 ABOUT HERE]

To better understand the advantage of the binary dissimilarity measure, consider Table 4.4,which shows a crosstabulation of responses between any pair of respondents, i and j, across a set of questions. Each behavior is coded as a binary variable. Cell A represents the count of activities that both i and j indicate, cells B and C represent the count of activities that only one or the other does, and cell D represents the count of activities that neither indicate. Each lifestyle index is the ratio of (B+C)/ABCD for a specific subset of behaviors. The lifestyle metric is the square root of the sum of the 14 subset behaviors.

One alternative is a measure of pattern dissimilarity such as BC/ABCD. However this treats affirmative (A) and negative (D) matches as equivalent, i.e. will yield identical scores for a given B and C, regardless of the relative values of A and D. This approach was used for a "quick and dirty" early analysis of just variables based on closed-ended questions intended to get a sense of the clusters that might exist. The results were similar enough to those of the clusters from lifestyle metrics that for each cluster identified in the quick and dirty analysis a corresponding cluster sharing most of the same lifestyle tendencies can be found in the ultimate clusters. As might be expected the clusters identified in this way have better pattern similarity than those computed from the lifestyle metric, however they also tend to be smaller, privilege dimensions with more variables (e.g. travel, recreation, etc) over those with few variables (e.g. health) due to the equal weighting of variables. It also gives affirmative and negative matches equal value.

For purposes of the current study, affirmative matches ought to be more indicative of similarity than negative matches: the former is a definite similarity, while the latter may or may not be relevant. A pair of respondents for whom the counts who are A=10, B=5, C=10, D=25, is a better match conceptually than a pair with counts A=0, B=5, C=10, D=35, though neither the sum of differences measure used in the lifestyle metrics, the pattern dissimilarity measure just described, nor a simple matching measure, such as (A+D)/(A+B+C+D), would reflect this distinction between A and D (Luke, undated). The Jaccard commonality measure, A/(A+B+C), does reflect it, by discounting D, but the Dice similarity measure, 2A/(2A+B+C), or its Lance and Williams dissimilarity "complement", (B+C)/(2A+B+C), might be preferable because they give added weight to affirmative matches (SPSS, 2001; Luke, undated).

Hierarchical clustering of the lifestyle binary variables was done in SPSS using the Dice measure. Since this measure is undefined for dyads with *only* mutually negative responses, twenty-one cases that had no affirmative survey responses on these variables were excluded from the analysis. Two variants were run: complete- and average-link joining. Partitions from each were saved, showing which lifestyle cluster each respondent was in at various levels of agglomeration.

Hierarchical clustering directly from the binary data was also done using Ward's Method in the Clustan program (Wishart, 2006). Based on visual inspection of the agglomeration tree, cluster solutions at the levels of agglomeration that yielded 46 and 59 clusters were deemed best and saved. This decision was based on the frequency of agglomerations prior to that level relative to the frequency after that level. Those levels approximate the most natural breaking point between clusters composed of "naturally" similar cases and those where less similar subclusters have been forced together. As with the SPSS hierarchical clustering directly from data, this procedure was done using unweighted data where each variable had equal impact, which gives extra influence to those aspects of lifestyle that have more variables.

K-Means Clustering

An alternative to hierarchical clustering altogether is iterative or optimization clustering, such as k-means clustering. K-means clustering partitions cases into a preset number of k clusters, beginning with an initial partitioning of cases into clusters by locating k points in the n-dimensional 'space' of data, then iteratively reassigning cases to different clusters as it attempts to minimize or maximize a clustering criteria, e.g. sum of squared distances, until it converges on a solution. K-means clustering tends to produce hyperspherical clusters that have smaller diameter relative to hierarchical clusters. Cases in k-means clusters tend to be similar on a large portion of the variables, producing more highly homogeneous groups, but less flexible in allowing groupings based on differing sets of lifestyle variables. This is generally preferable insofar as it operationalizes the idea of lifestyle clusters as having high homogeneity on a broad variety of variables, but could be overly restrictive if only a small portion of the variables are truly meaningful for lifestyle clusters. It may also artificially divide larger "natural" clusters into smaller subclusters without necessarily illustrating how they are linked together. Moreover, the results of iterative clustering algorithms are reported to be quite sensitive to the number of clusters into which the data are to be partitioned and the initial assignment of cluster means so it is desirable to run many k-means analyses and identifying the most recurrent configurations (Everitt et al, 2001; Wishart, 2006).

K-means clustering was run on the binary lifestyle variables using Clustan software (Wishart, 2006). Clustan was chosen because it has "exact test" case assignment that ensures model convergence and a procedure, FocalPoint, for running large numbers of k-means analyses, statistically managing the sensitivity of k-means clustering to initial partition, and weighting variables (Wishart, 2006). 100 random-start k-means run were done on the data using each of three configurations: running means with unweighted variables, means calculated at the end of each iteration with unweighted variables, and

means calculated at end of each iteration with weighted variables.[viii] K was preset to 40 clusters, an arbitrary choice based on rounding the number of clusters produced in the hierarchical clustering. There is no theoretic basis for choosing a particular k value. Initial placements were supposedly randomized, but in each variant all 100 of the runs produced exactly the same cluster solution, although the solutions were somewhat different in each of the three variations. The two unweighted runs were each run a second time, i.e. 100 more random-starts, to double-check that they produced the identical solutions, which they did. The results appear to be perfectly insensitive to the supposed random initial cluster centers, a highly suspect result which may suggest a flaw in the algorithm's randomization!

Density Clustering

Both complete-link and average link agglomeration rules are somewhat sensitive to the particular distribution of cases and neither requires a dense core or kernel. All the cases in a given cluster could be distributed just inside the edge of the hypersphere or ellipsoid, without any cases near the center. If our concept of clusters hinges intuitively on density, then density clustering, a less commonly used agglomeration rule based directly on the density principle, is an alternative to consider. Density clustering "attempts to identify a number of **natural** clusters" (Wishart, 2006, p. 31, emphasis in original) from a matrix of dissimilarities. Cases are joined in clusters at a distance d* if both cases are "dense" at that distance and d* ≥ the distance between the two cases, where a case is considered "dense" if a hyper-sphere of radius d* centered on that case

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[viii] The weighting scheme used for the weighted k-means clustering used slightly different categorization of dimensions than were used in creating the lifestyle metrics. The health and financial activities were combined with ordinary household activities in a single dimension and art genres and a few other cultural genres questions that did not fit neatly into the literary vs. visual vs. audio categorization were broken out of the literary category in which they had been included. The variables in each dimension were weighted in inverse proportion to the number of variables in the dimension.

encompasses at least *k* other cases, and *k* is a preset parameter (Wishart, 2006, p. 30). The *k* parameter is somewhat arbitrary, but if we presume that there should be a core of 4 or more similar cases at the heart of any cluster, then setting k=3 makes some sense. In practice, the initial seeding of the agglomeration process on dense kernels is the strength of this approach. A weakness is a tendency toward "chaining" as the distance is increased, similar to that of single-link agglomeration.

The matrix of dyadic dissimilarities was ported into Clustan (Wishart, 2006) and that program was used to do density clustering. As with the complete-link and average-link clustering, results were saved in a way that allowed the research to see the cluster assignment at any level of dissimilarity. The results show a great deal of chaining after determination of initial cores.

Comparison of Clustering Methods

An overview of the methods used is presented in Table 4.5. Lacking a single ideal clustering approach and with little theory even to guide the choice, it was hoped that by finding agreement among the result of multiple approaches the existence of real world clusters would be made clear and the shortcomings of any particular clustering strategy be circumvented. Actual results were mixed in this regard, as described in Chapter Seven. Based on the conceptual simplicity of hierarchical clustering, and its other strengths and weaknesses, including the inherent comparability between complete- and average-link hierarchical clusters, subsequent analysis focused mainly on those subsets of cases that these two agglomeration rules both agreed belonged together. The classifications yielded by the other cluster strategies were not further analyzed.

[TABLE 4.5 ABOUT HERE]

"Visualizing" Clusters

Clusters might also be identified by intuitive visual inspection if differences among the clusters could be represented on just two or three dimensions, similar to the class mapping by Bourdieu (1984, p.128-129), or as a result of multidimensional scaling (MDS), and if they are relatively distinct in those dimensions. MDS clustering was tried using the CLUSTAN program (Wishart, 2006), but attempts to force the dissimilarities into a two dimensional image produced no solutions with less than 0.926 stress. The results varied notably from trial to trial, and slightly over a quarter of attempts failed to converge even with 99 iterations, suggesting that a 2-dimension representation of the data is inappropriate. Attempts to use MDS to scale the dissimilarity data to between three and six dimensions always converged in fewer than a half dozen iterations, yet none had stress less than 0.8325, with the stress levels being lowest at four dimensions.

The inability to visualize the clusters presented something of a problem: how to know when one cluster adjoined another and might better be considered one natural cluster that was too large to fit on a single cluster 'map'. Sharing a root cluster label provided some indication that two clusters were similar, but what of clusters adjoining across the edge of such macro-clusters? In some cases these might be closer together than some that were in the same macro-cluster. And even within a given macrocluster, how did the maps fit together? The fact that the three different clustering strategies yielded somewhat different, overlapping maps of the clusters provided a solution. The complete-link clusters were treated as members in each average-link cluster with which they had members in common. A matrix of complete-link clusters by average-link clusters was produced by computer, in which each cell was the number of persons who had membership in each. This data was ported into UCINET (Borgatti, Everett & Freeman, 1999), and the "Affiliations" procedure used to yield a complete-link by complete-link matrix in which each cell was the sum product of the number of cases each of those clusters had in common in each average link cluster, giving an indication of the extent to

which cases were distributed contiguously across the boundary between the two complete-link clusters.[ix] The results of this process are described in Chapter Seven.

Measure of Relation Type Equivalence

Relational type equivalence measures (see Chapter 3) were computed between each pair of persons using the Access-based algorithm and tables. The algorithm was run twice: once without imputed relations and once with imputed relations. It was calculated for all dyads in the data set (N=63,343,141 half-matrix including diagonals). The without-imputed set took over 72 hours to run 3 iterations on the author's personal computer. The correlation was r = 1.000 between the results of the second and third iterations across all dyads. The with-imputed set took over a week to run about 2.5 iterations. It was determined that the correlation was r =.998 between the results of the second and third iteration for the portion of cases for which the third iteration of this set was complete. A decision was made to use the results of the second iteration rather than spend an additional couple days on completing the third iteration.

The equivalence scores of dyads where each member was a survey respondents were extracted (N=724,206 half-matrix including diagonals) from the overall set of relation type equivalence scores. In this subset the correlation between second and third iteration results for the without-imputed run was r =.990 and r =.996 for the with-imputed run among those cases where the third iteration was complete. The mean third iteration equivalence score was 80.9%, with a standard deviation of 8.79 percentage points and minimum of 44% for the without-imputed run. The mean second iteration equivalence

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[ix] An analogy might be a situation in which there are two series of maps that both cover a certain terrain, but rather than have the maps to compare directly, a person has only an index of which map each landmark is located on in each of the two sets. If the maps overlap landmarks in each instance where they adjoin it is possible to determine which maps in each series must be proximate by cross-indexing (literally) the landmarks, or the matrix-algebraic equivalent of multiplying the co-incidence matrix by its transpose.

score was 78.8%, with a standard deviation of 9.19 percentage points and minimum of 42% for the with-imputed run.

Equivalence Sets

Equivalence scores from each run were imported as half-matrix edgelists into UCINET, then symmetrized to produce the full equivalence matrix for each. These matrices of relation type equivalence similarity scores were then processed using the hierarchical clustering routine in UCINET to identify sets of cases at decreasing levels of equivalence, using the average- and complete-link agglomeration criteria respectively. The case-by-equivalence-level matrix of equivalence set memberships for each of the four runs, i.e. without imputed average-link, without imputed complete-link, with imputed average-link, and with imputed complete-link was exported to SPSS.

As with lifestyle clusters, the researcher visually inspected the progression of each agglomeration path as the equivalence level decreased to assign each case a label that identified its cluster and coded the cluster identification at various levels of equivalence. This was done for each of the four runs. The labels were 3-5 characters in length, with each letter representing a higher level of equivalence. The first letter typically represented approximately 50% equivalence, the second approximately 60%, etc. All the cases sharing a cluster label that began with the same letters at a particular level of equivalence were part of the same cluster at that level of equivalence. A second, numeric label was made to identify sets of cases that were equivalent at 92% or greater, with a decimal to represent equivalence at 96%. This labeling was done on complete-link clusters from both the with-imputed and without-imputed relation runs.

Analyses

The first task of the analyses reported herein was to determine the extent to which the local population was divided into rather distinct lifestyle clusters. That is, whether the lifestyle clusters obtained by hierarchical clustering exhibited meaningful patterns of behavior, particularly (1) whether there was a discernible pattern to the homogeneity within each cluster, and (2) the extent to which behavior differences were markedly distinct. As a precursor to other analyses, a descriptive overview of the relation type equivalence sets was also undertaken. It was anticipated that the population would be more or less divided into discrete network "classes".

The primary analyses reported here are concerned with determining if lifestyle, presumed to be manifest as a lifestyle group to which persons' belong, corresponds with persons' equivalence of position in the network of social relations, and also considering the extent to which this relationship mediates the effect of occupation, education, and wealth on lifestyle. To this end analyses were conducted on the relationship between lifestyle and relation type equivalence at three levels: (1) classification of lifestyle cluster membership by relation type equivalence group at the cluster level, (2) regression of shared lifestyle cluster membership on relation type equivalence scores and other variables at the dyad-in-group level, and (3) regression of lifestyle similarity scores on relation type equivalence scores and other variables at the dyad level.

Figure 4.1 Frequency of Dissimilarity of Magazines
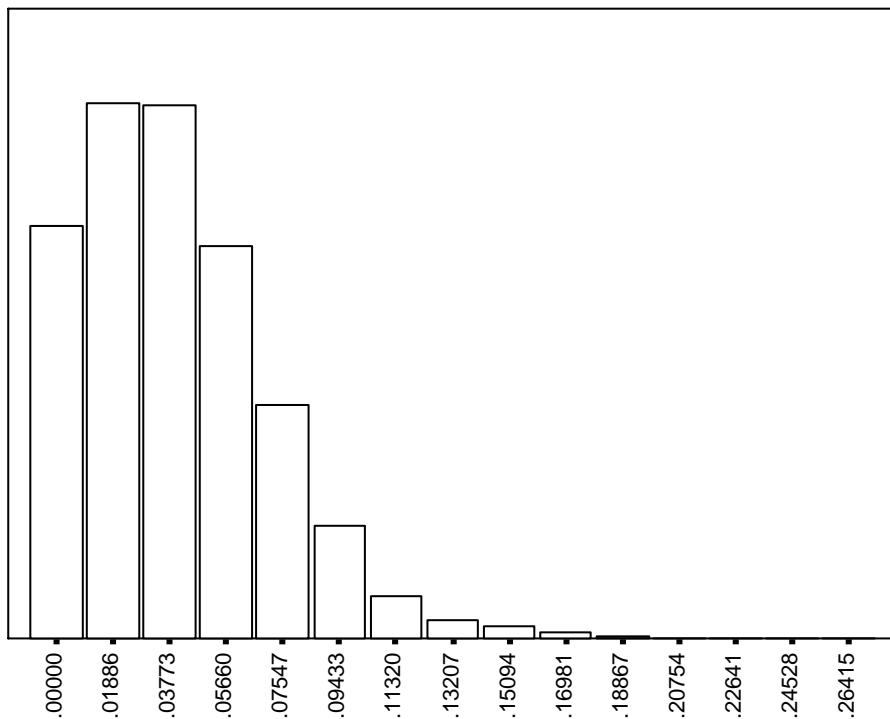
Figure 4.2 Frequency of Dissimilarity of Athletic Behaviors among Dyads
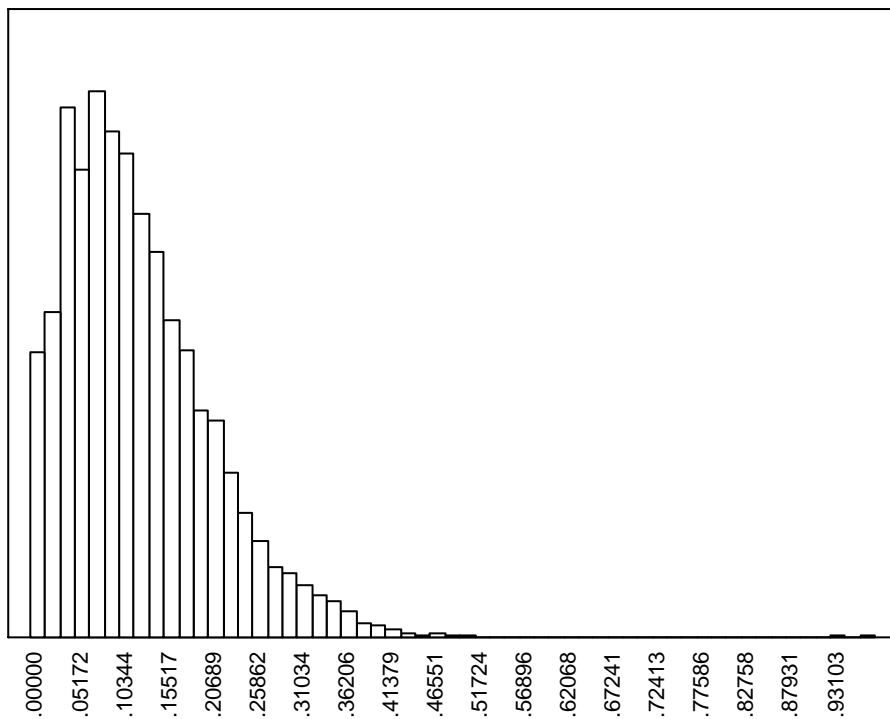
Figure 4.3 Frequency of Dissimilarity of Travel Destinations among Dyads
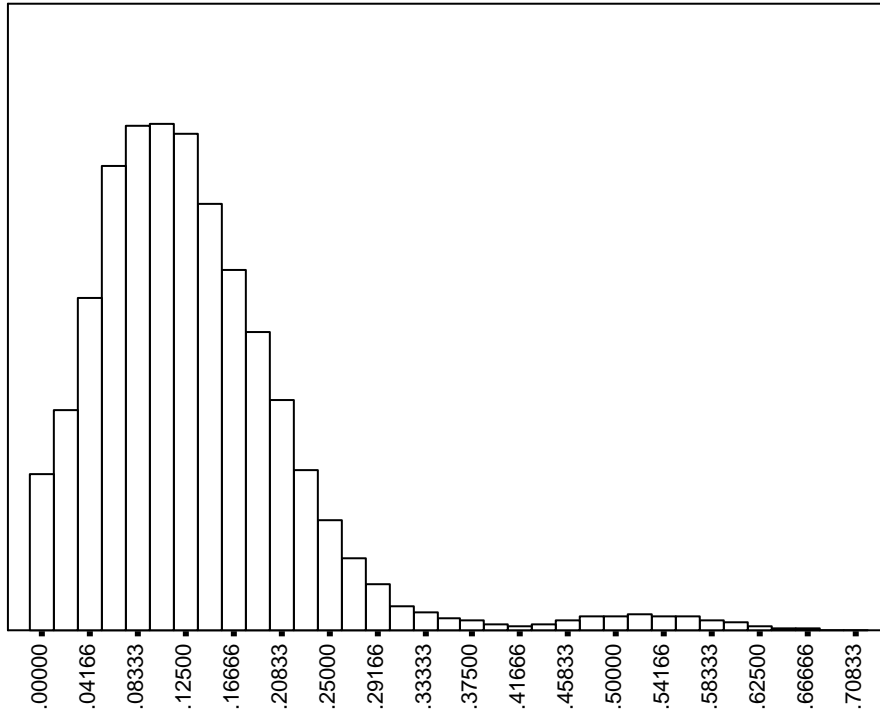
Figure 4.4 Dissimilarities: Athletic Behaviors (X) vs Leisure Activities (Y)
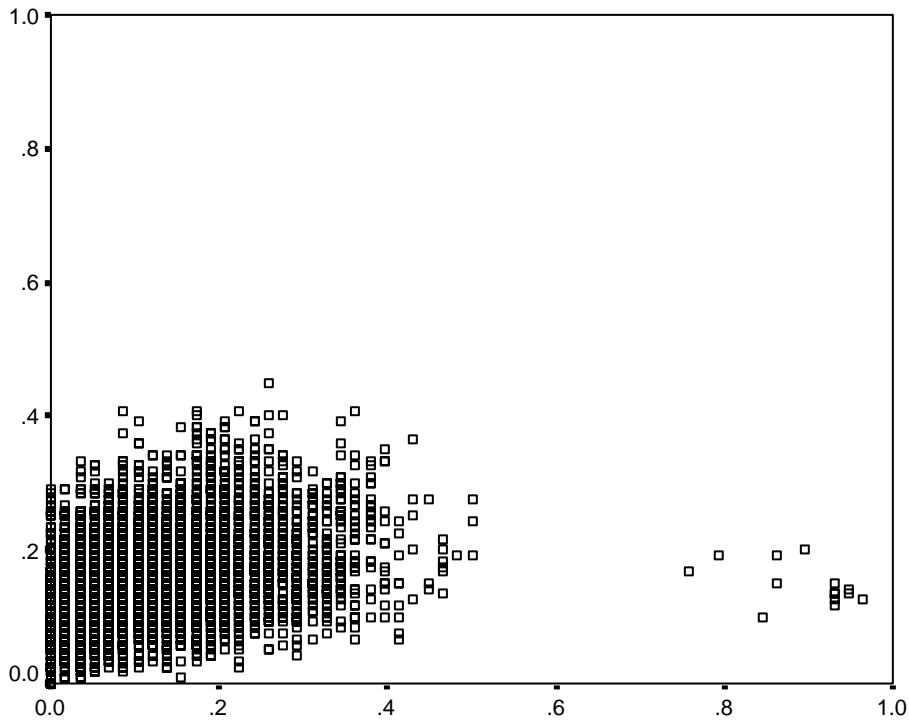
Figure 4.5 Hypothetical Distribution: Dense, Well-Separated Clusters
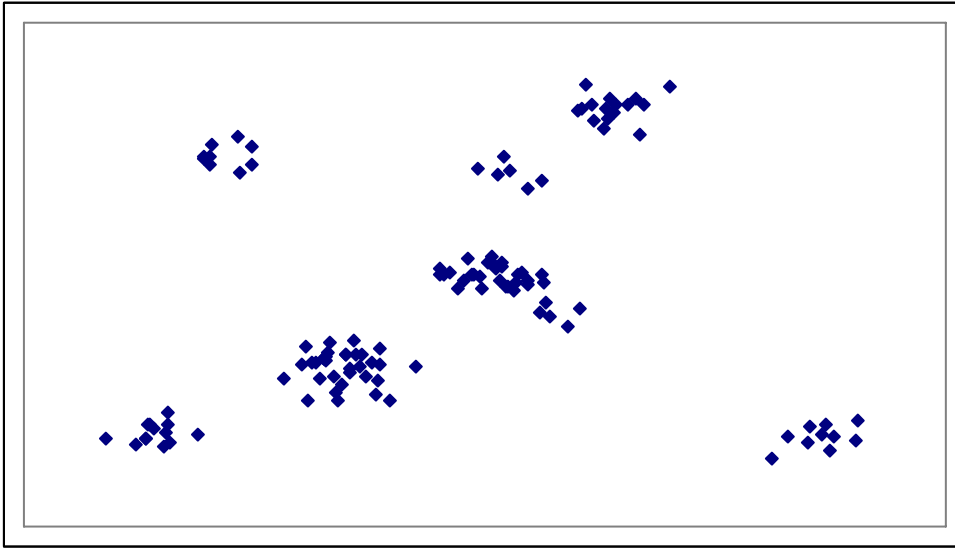
Figure 4.6 Hypothetical Distribution: Sparse, Un-Separated Clusters
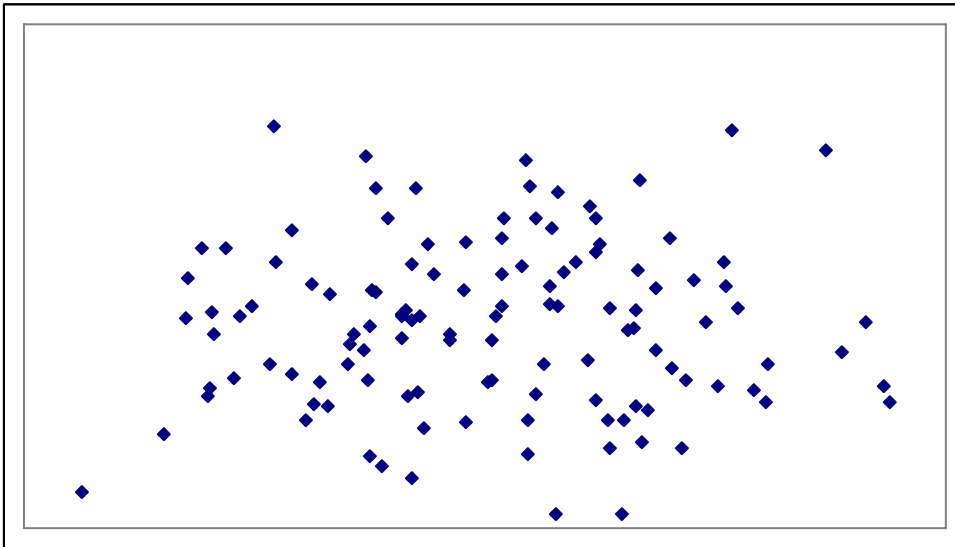
Figure 4.7a Illustration of Cluster-Identification Issues
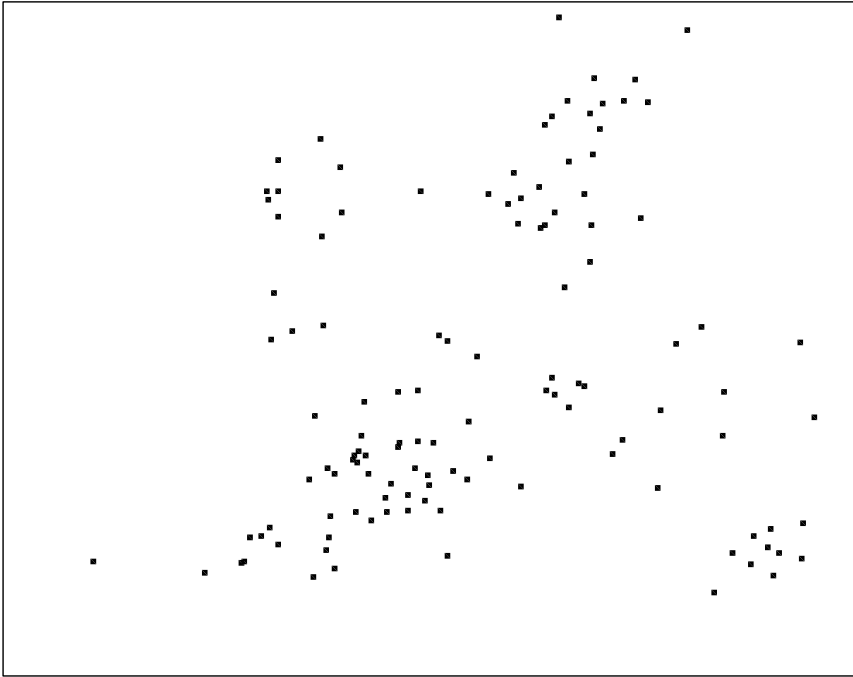
Figure 4.3b Single-Link (aka Nearest Neighbor) Agglomeration Solution
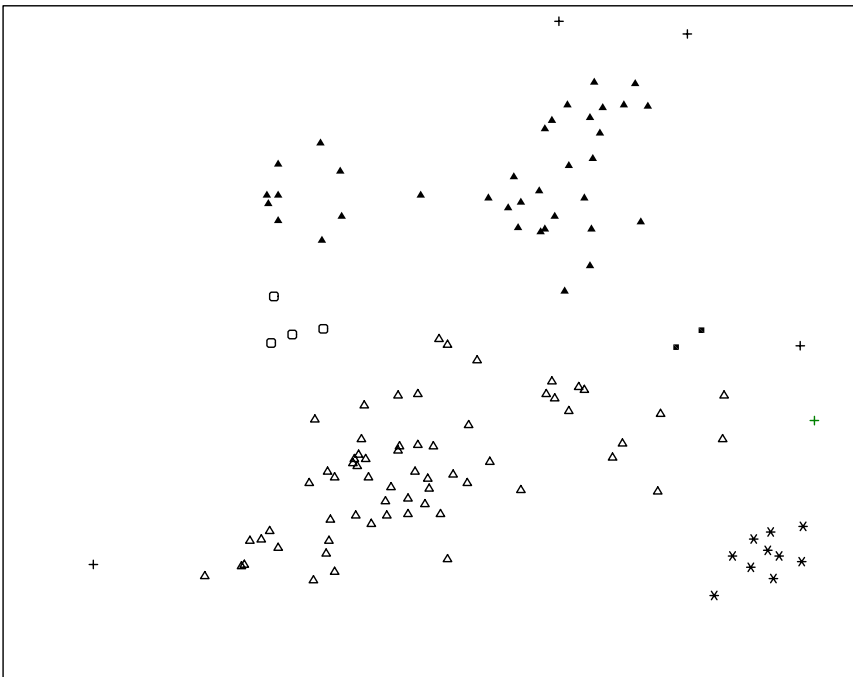
Figure 4.7c Complete-Link (aka Farthest-Link) Agglomeration Solution
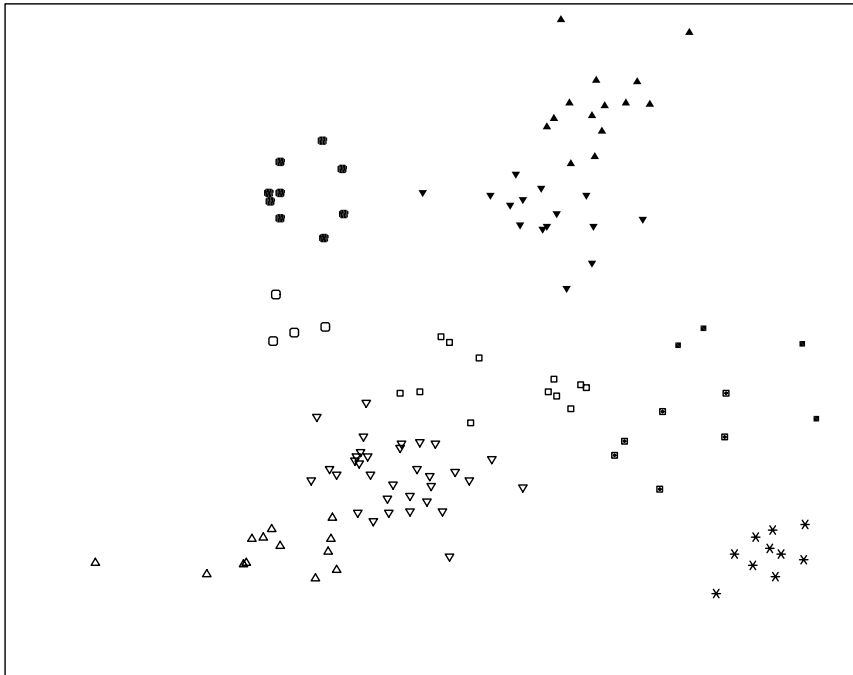
Figure 4.7d Average-Link Between Groups Agglomeration Solution
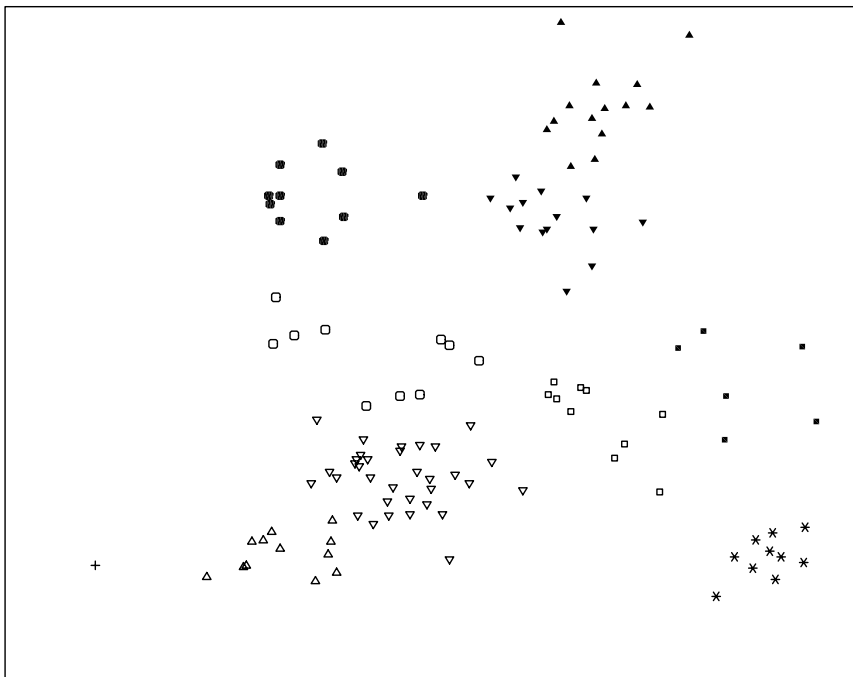
Figure 4.7e Underlying 8-Cluster Structure Plus Random Cases (+)
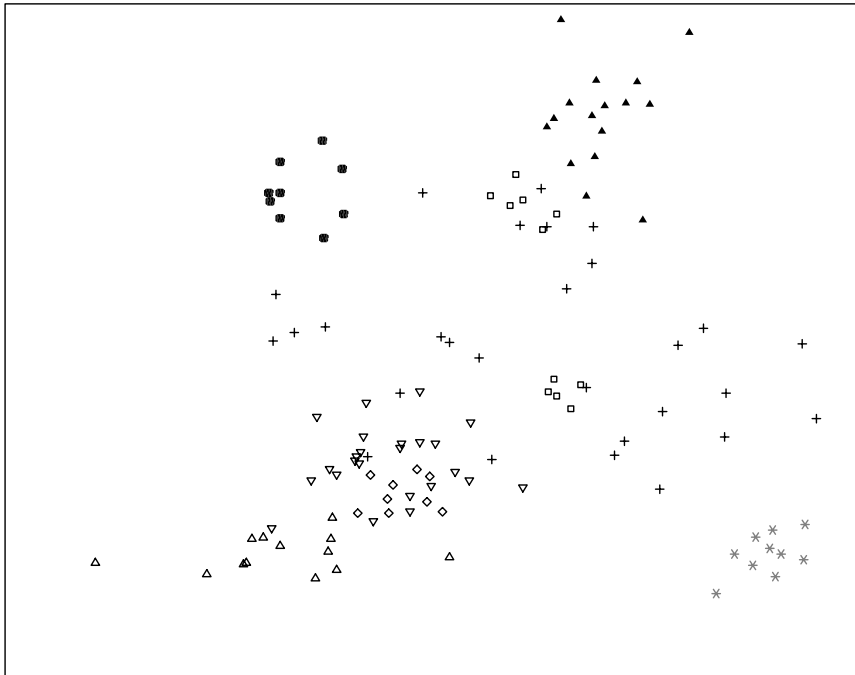
Table 4.1a Bivariate Pearson Correlation of Dissimilarity Indices (N = 730,236 dyads)

	TIMWD	TIMWE	WORK	HOME	MONEY	HLTH	RELIG	DENOM	POLIT	PAFF	ATHL	LEIS
Mean Dissimilarity	**0.5024**	**0.4190**	**0.3030**	**0.3663**	**0.3569**	**0.3527**	**0.3597**	**0.1326**	**0.2577**	**0.1319**	**0.1187**	**0.1561**
Maximum	**1.0000**	**1.0000**	**0.9667**	**0.9348**	**0.8750**	**1.0000**	**1.0000**	**0.2778**	**0.8750**	**0.5455**	**0.9655**	**0.5000**
Standard Deviation	**0.2288**	**0.2291**	**0.1855**	**0.1217**	**0.1244**	**0.1585**	**0.2253**	**0.0712**	**0.1303**	**0.0944**	**0.0894**	**0.0626**
Timing Weekday	1.0000											
Timing Weekend	**0.5940**	1.0000										
Work	0.1599	0.0963	1.0000									
Home	0.1153	0.0934	0.0223	1.0000								
Money	0.0870	0.0242	0.1426	0.1879	1.0000							
Health	0.0507	0.0146	0.0936	0.1140	0.1172	1.0000						
Religious	-0.0507	-0.0371	0.0137	0.0519	0.0175	0.0784	1.0000					
Denomination	-0.0431	-0.0419	0.0199	-0.0279	0.0178	0.0251	0.2641	1.0000				
Political	0.0400	0.0778	0.0587	0.0940	0.1588	0.1222	0.1708	0.0580	1.0000			
Pol. Affiliation	-0.0423	-0.0320	0.0288	-0.0175	0.0392	0.0263	0.1136	0.1213	0.1845	1.0000		
Athletics	0.0235	0.0012	**0.2221**	-0.0300	0.1253	0.0925	0.0546	0.0251	0.0368	0.0411	1.0000	
Leisure	-0.0136	-0.0158	**0.2044**	0.0478	0.1128	0.1195	0.1047	0.0628	0.0924	0.0769	**0.3157**	1.0000
Sports Viewing	-0.0055	-0.0417	0.0734	-0.0088	0.0760	0.0288	0.0060	0.0343	0.0405	0.0416	0.1768	0.0926
Fan Affiliation	0.0084	0.0097	0.0531	-0.0484	0.0723	0.0006	-0.0462	0.0411	0.0295	0.0314	**0.2094**	0.0970
Pets	0.0329	0.0317	0.1867	0.0006	0.0282	0.0429	-0.0306	0.0560	0.0113	0.0340	0.1338	0.1861
Ingestibles	0.0619	0.0682	0.1386	0.0218	0.1048	0.0601	-0.0080	0.0331	0.0561	0.0401	0.1990	0.1552
Brand Affiliation	0.0661	0.0729	0.1857	-0.0552	0.0786	0.0538	-0.0755	0.0492	0.0226	0.0441	**0.2041**	0.1861
Clothing	0.1176	0.0074	**0.2933**	-0.0145	0.1150	0.0866	0.0295	0.0711	0.0113	0.0673	0.1862	0.1589
Cloth. Suppliers	-0.0222	-0.0459	0.0187	-0.0096	0.0714	0.0565	0.0764	0.0809	0.0733	0.0910	0.0286	0.1574
Furnishings	0.1285	0.0584	0.0911	0.1651	0.1659	0.0246	0.0015	-0.0180	0.0773	0.0027	0.0324	0.0057
Furn. Suppliers	0.0145	-0.0079	0.1410	-0.0500	0.0603	0.0773	0.0502	0.0571	0.0629	0.0830	0.1065	**0.2307**
Restaurants	0.0273	-0.0167	0.1797	-0.0359	0.1342	0.0818	0.0459	0.0534	0.1071	0.0509	**0.2511**	**0.2500**
Public Space	0.0680	0.0343	0.1891	0.1198	**0.2025**	0.1107	0.0454	0.0435	0.1592	0.0632	**0.3068**	**0.2912**
Media	0.1325	0.0861	0.0196	**0.2487**	0.1724	0.0750	0.0297	-0.0479	0.1390	-0.0056	0.0428	0.0605
Travel	-0.0359	-0.0537	0.0681	-0.0311	0.0722	0.0175	0.1012	0.0624	0.0793	0.1162	0.1171	0.1706

Table 4.1b Bivariate Pearson Correlation of Dissimilarity Indices (N = 730,236 dyads)

	SVIEW	FAFF	PETS	INGST	BAFF	CLOTH	CSUPP	FURN	FSUPP	REST	SPACE	MEDIA
Mean Dissimilarity	**0.1484**	**0.0544**	**0.0826**	**0.2318**	**0.0830**	**0.2558**	**0.1593**	**0.3781**	**0.1351**	**0.1906**	**0.2819**	**0.3100**
Maximum	**0.8824**	**0.4348**	**0.5385**	**0.8125**	**0.3611**	**0.8421**	**0.4286**	**0.9444**	**0.5313**	**0.6111**	**0.6667**	**0.9643**
Standard Deviation	**0.1042**	**0.0524**	**0.0697**	**0.1036**	**0.055**	**0.1187**	**0.0619**	**0.1434**	**0.0685**	**0.0789**	**0.0673**	**0.1322**
Timing Weekday												
Timing Weekend												
Work												
Home												
Money												
Health												
Religious												
Denomination												
Political												
Pol. Affiliation												
Athletics												
Leisure												
Sports Viewing	1.0000											
Fan Affiliation	**0.4102**	1.0000										
Pets	0.0670	0.0493	1.0000									
Ingestibles	0.0762	0.1204	0.0781	1.0000								
Brand Affiliation	0.1491	**0.2557**	0.1611	**0.2662**	1.0000							
Clothing	0.1204	0.0925	0.1673	0.1316	0.1930	1.0000						
Cloth. Suppliers	0.0459	0.0134	0.0614	0.0756	0.0968	0.1230	1.0000					
Furnishings	0.0082	-0.0196	0.0269	0.0322	-0.0365	0.0122	0.0106	1.0000				
Furn. Suppliers	0.0489	0.0615	0.1226	0.0814	0.1879	0.1828	**0.2253**	-0.0171	1.0000			
Restaurants	0.1529	0.1346	0.0933	**0.2250**	**0.2075**	0.1962	0.1563	0.0512	0.1499	1.0000		
Public Space	0.1645	0.1337	0.1231	0.1791	0.1710	0.1787	0.1669	0.1454	0.1784	**0.4185**	1.0000	
Media	-0.0199	-0.0378	-0.0310	0.0673	-0.0754	-0.0187	0.0293	**0.2340**	-0.0297	0.0528	0.1676	1.0000
Travel	0.1023	0.0751	0.0072	0.0696	0.0620	0.0763	0.1659	-0.0105	0.1380	**0.2154**	0.1814	0.0684

Table 4.2 Bivariate Pearson Correlation of Genre Indices (N = 730,236 dyads)

	NEWS	MAG	AUTH	BOOK	RADIO	PERF	MUSIC	TVC	TVS	MOVIES	ACTOR
Mean Dissimilarity	0.1298	0.0396	0.0420	0.1450	0.0992	0.0248	0.0951	0.0731	0.0369	0.0524	0.0328
Maximum	0.6154	0.2642	0.3125	0.8000	0.4091	0.1642	0.4643	0.3191	0.2466	0.2456	0.2542
Standard Deviation	0.0891	0.0317	0.0384	0.1015	0.0489	0.0209	0.0630	0.0396	0.0283	0.0354	0.0325
Newspapers	1.0000										
Magazines	-0.0102	1.0000									
Authors	-0.0036	0.1725	1.0000								
Book Genres	0.0009	0.2872	0.7792	1.0000							
Radio	0.0554	0.0784	0.0845	0.1413	1.0000						
Performers	0.0360	0.1320	0.1865	0.2292	0.1525	1.0000					
Music Genres	0.0428	0.1924	0.1210	0.2568	0.2347	0.2120	1.0000				
TV Channels	0.0561	0.1307	0.0667	0.1414	0.0825	0.0915	0.1893	1.0000			
TV Shows	0.0055	0.2755	0.1840	0.2619	0.1750	0.2332	0.2640	0.1450	1.0000		
Movies	0.0810	0.1499	0.1397	0.2514	0.2410	0.3029	0.3027	0.1965	0.3318	1.0000	
Actors	0.0737	0.1681	0.1560	0.2262	0.2084	0.3693	0.2794	0.1483	0.2845	0.5386	1.0000
Art	0.1152	0.2009	0.1136	0.2545	0.1096	0.2252	0.2615	0.1554	0.1521	0.2406	0.3044

Table 4.3 Mean and Maximum Dissimilarities on 15 Indices (N = 730,236 dyads)

	Timing	Work	Home	Money	Health	Religion	Politics	Leisure
Mean Dissimilarity	0.4786	0.3030	0.3663	0.3569	0.3527	0.2462	0.1948	0.1194
Maximum	1.0000	0.9667	0.9348	0.8750	1.0000	0.6111	0.6231	0.3701
Standard Deviation	0.2091	0.1855	0.1217	0.1244	0.1585	0.1268	0.0872	0.0437

	Consume	Material	Orbit	Travel	Literature	Audio	Video
Mean Dissimilarity	0.1574	0.2321	0.2608	0.1343	0.0773	0.0730	0.0488
Maximum	0.4965	0.4848	0.6521	0.7083	0.3010	0.2413	0.1860
Standard Deviation	0.0648	0.0560	0.0639	0.0961	0.0374	0.0318	0.0229

Table 4.4 Response Matching Crosstabulation

Respondent I

		1	0	
Respondent J	1	A	B	A+B
	0	C	D	
		A+C		A+B+C+D

Table 4.5 Overview of Clustering Algorithms Used

Variables	Agglomeration	Type	Software
Lifestyle Metric	Hierarchical	Complete Link	Access & Ucinet
		Average Link	
Directly from Binary Variables	Hierarchical	Complete Link	SPSS
		Average Link	
		Ward's Method	Clustan
	k-means	Running Means	Clustan
		Iteration Means	
		Weighted	
	Density		

CHAPTER FIVE

SURVEY RESPONDENTS

Data collection concluded by August 2000. A total of 1209 surveys were returned with at least partial information, of which 893 included social network information. Based on 2000 US Census figures, the adult population of the research area was just over 8500 adults, yielding a response rate of just 14% or, if one considers just those surveys that included network information, a very poor 10.5% response rate. Those networks listed relations with a total of 13,298 individuals of whom 5227 were residents and 5040 were adult residents of Tyboro. That is, just over 59% of the adult population of Tyboro was included in the data in some way.

Missing Data

Missing data are a potentially serious threat to the validity of this research. The concerns are of two types. In traditional inferential, sample-based research survey non-response is potentially problematic insofar as the non-responses may not be random, biasing the sample relative to the population, which may lead to erroneous inferences. Insofar as the Tyboro data is, strictly speaking, population data rather than a random sample and insofar as the objective of the research is merely to provide a single locality test case of the arguments herein, not to produce inferences about how well it may or may not hold up in other populations generally, missing data are not a problem in this way. However, insofar as we make at least implicit generalizations about individuals or sets of individuals, or about Tyboro based on the de facto, self-selected sample constituted of

survey respondents, it is a concern. Comparison of the respondents demographically with external demographic benchmarks of the area can provide a crude basis for gauging how representative the survey respondents of Tyboro generally.

A potentially more serious missing data problem for this Tyboro research is the sensitivity of network measures to missing data. The equivalence scores for each dyad depend on the overall pattern of relations in the network. Omitting any member of the network, or even a single relation that should be in the network, has some potential to dramatically impact the results. Consider the network in Figure 5.1. If node I should be omitted, or if any of the relations involving node I should individually fail to be reported the network would have a very different shape and the analytic scores of various network properties, including equivalence measures, would change for the nodes in the right half of the network, at the very least. Omitting a sizable fraction of relations can drastically change the appearance of the network and bias the equivalence of everyone in the study population.

[FIGURE 5.1 ABOUT HERE]

Data can be omitted due either to non-response, misreporting of network relations, or boundary mis-specification where someone who is integral to the network is defined as being outside the study population. The Tyboro research should be fairly robust to boundary mis-specification issues in that there was no boundary specified for network alters. Any person outside the geographic locale but located between two residents in terms of network space had a good chance to be listed by the two residents if they completed the network generator. But non-response is a huge issue. Depending slightly on the number in the population, nearly 90% of potential respondents did not complete the survey!

This stark reality is mitigated somewhat by a number of factors. One, over 59% of the adult population of Tyboro was included in the data as either a respondent or an alter, so the number of missing nodes is not nearly as bad as the non-response rate, though in

the case of most of these alters the observed data are limited to a very few of their relations, so the percent of missing relations is likely quite high. Two, relations to immediate alters are the most important for computing relationa type equivalence scores and insofar as respondents answered the network question this is the portion of the network that has the least missing data. The missing data are mainly relations of alters' alters, et cetera. Three, relation type equivalence is likely to be less sensitive to missing data than regular equivalence (or role equivalence) would be because it is based on the presence of relation types rather than the actual relations. A missing relation is likely to have little impact on the person's score if the person has other relations of that type in that direction.

Some validation of the results may be found both in the fact that relation type equivalence had predictive ability with regard to lifestyle similarity, and especially in the level of agreement between the without- and with-imputed relation analyses. The with-imputed equivalence scores are based on over 180% the number of relations (28,804 vs.15,957) that the without-imputed equivalence scores are based on, although all of the additional relations are imputed from observed relations. The with- and without-imputed relations equivalence scores are extremely highly statistically correlated (see Table 7.2) and yield similar coefficients (see Tables 7.1, 7.3, and 7.4) in regression equations, suggesting they are relative robust to changes in the network. Despite the mitigating factors and the moderate association between relation type equivalence and lifestyle similarity, which lends some further merit to the equivalence scores, it is quite possible that the equivalence scores used in our analysis may be biased. If so, the true relation might be either stronger or weaker than reported in Chapter 7, and potentially might not really exist at all.

Demographics

1068 respondents indicated a racial or ethnic identity. Of these 1034 (96.9%) identified themselves as White, Caucasian, Anglo, WASP or otherwise indicated they were of Euro-American ancestry, 10 (0.9%) identified as Black or African-American, 10 (0.9%) as Native American or American Indian or being of a specific Native American tribe, 4 (0.4%) as Asian or as a particular Asian nationality, and 2 (0.2%) as Puerto Rican. The percentage White matches well with 2000 Census percent White (over 95%) for almost exactly the same geography, but the percent of Black and Puerto Rican respondents was somewhat lower than the corresponding Census figures: about 2% African-American, less than 1% Asian, and less than 1% Puerto Rican, Mexican, or other Latino (US Census, 2000). Among White respondents, 8.4% listed a specific national ethnicity. The most common was Irish (2.4%), followed by German, English/British, Italian, and Polish. In Census 2000 most of White population of Tyboro claimed one or more of nine European ancestries: English, German, Irish, Italian, Polish, French, Scottish, Scots-Irish, and Dutch (Census, 2000). The ethnicities match at least roughly, though the percentage from the survey is far lower. This may be accounted for by ethnicity being an open-end question on the survey and a tendency for WASPs to not think of themselves as being ethnic. The survey racial and ethnic demographics are also congruent with field observation (see Chapter One).

Gender was determined for 1042 of survey respondents. Of these 61.3% were female and 38.7% were male. Census 2000 population data for the almost exactly identical area was 50.2% female and 49.8% male. This suggests females were much more likely to complete the survey than were males. Gender could not be determined for 167 (13.8%) survey respondents, mainly respondents who did not answer the network questions. Based on their reported media genre preferences, it is likely that more than two-thirds of these undetermined ones were in fact female.

There was also a bias toward older respondents. Age could be determined for 1143 of the respondents. Among these, the median age of survey respondents was 55 years. Tyboro is a bit of a retirement community, but not nearly so much as to align with the age distribution of survey respondents. The median age in the Tyboro 2000 Census is about 40 years old, with just under a quarter of the adult population being age 60 or older (compared to 16% nationally) and about 5% of the adult population being age 80 or older (compared to 3% nationally). Tyboro's population is toward the high end of the typical range for towns in the region, but not atypically either for the region nor for much of the rural northeastern United States in regard to the age distribution (US Census, 2000).

Figure 5.2 shows the percentage of the total population in each age-sex category for the survey respondents and for the 2000 Census. Lighter columns indicate categories that are underrepresented in the survey and darker columns indicate categories that are overrepresented. Females under the age of 30 and males under the age of 40 are underrepresented. Males under the age of 30 are very underrepresented, constituting over 8% of the Census population but less than 2% of the survey respondents. Females age 30 and over are overrepresented, especially females in the 60-79 age range (US Census, 2000)[i].

[FIGURE 5.2 ABOUT HERE]

1150 survey respondents completed most of the demographic information in the survey. Of these respondents 86.7% indicated they were high school graduates and 32.1% indicated they were college graduates, including 1.0% who indicated they were college graduates but not high school graduates. This compares with 80.4% of persons in the Tyboro zip code area who were High School graduates and 24.4% who were college

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[i] Comparison 2000 Census data for total population, racial characteristics, gender and age distribution were based on an population data at the Census block level, so this data is for a geographic area that is nearly identical to the actual research area, except for a small number of blocks at the edges of the Tyboro research area where the boundary fails to coincide with Census block boundaries.

graduates according to the Census (2000).[ii] This suggests a response bias toward better educated persons. Table 5.1 shows education levels by age and sex. There is little difference in percent of high school graduates across age groups except somewhat lower rates among persons age 70 and older, and women respondents were slightly more likely than men to be high school graduates at nearly every age group. There are differences with regard to college education. Women under age 50 were more likely to have a college degree than men of comparable age and much more likely to have a college degree than women age 50 and up. The percentage of college graduates is much lower among the over 70 crowd for both men and women, with men in this age group more likely to have college degrees than women of the same age. The vast majority (87.8%) of individuals who indicated they were college graduates listed their degrees. The highest degree obtained was an Associate degree for 31.5%, Bachelor degree for 35.2%, MBA for 1.9%, M.Div. for fewer than 1%, other Master degree for 24.4%, law degree for 1.9%, medical degree for 1.5%, and Ph.D. for 1.5%. Census sample data suggest that of persons with college degrees the highest degree was an Associate degree for 43.8%, Bachelor degree for 31.2%, Master degree for 17.9%, and Doctoral degree for only 0.5% (US Census, 2000).[iii] Folks 65 or older were less likely to be High School (90.6% vs. 90.5% vs. 78.9%) or college (41.7% vs. 39.7% vs. 16.0%) graduates, than those in the under 40 or 40-65 groups, and mainly retired (0.0% vs. 14.2% vs. 83.6%) rather than employed full-time (65.5% vs. 61.5% vs.4.9%) or part-time (17.5% vs. 12.5% vs. 4.9%).

[TABLE 5.1 ABOUT HERE]

[ii] A substantial portion of these college graduates had Associate's degrees. Fewer than 14% of Tyboro residents have a Bachelor's or higher degree, as compared with 24% of the US population (US Census, 2000). As with many other rural towns, the limited local employment opportunities lead young persons who obtain a college degree to leave town to find employment elsewhere.

[iii] Comparison 2000 Census data for education level, occupational classification, income, and place of employment were each based on Census sample data at the block group level or from Census data on the five-digit Tyboro zip code area. Either geography only roughly approximates the Tyboro research area.

Of the 1122 survey respondents who indicated their marital status, 56.9% were married, 15.1% widowed, 16.4% divorced or separated, and 11.7% single. Table 5.2 shows marital status by age. The percent single declines sharply as age increases. The percent widowed increases steeply in the older age categories. The percent divorced or separated is highest in the middle age categories. Table 5.3 shows family structure by marital status. Over three-quarters of singles did not indicate having any children, and 13% indicated they had only young children. Over 60% of married, divorced and separated persons had adult children. 20% had young kids or teens. Fewer than one in six had no kids. Among widows and widowers nearly four-fifths indicated having adult children, with almost all the others not indicating having any children.

[TABLE 5.2 ABOUT HERE]

[TABLE 5.3 ABOUT HERE]

Of 1042 survey respondents who indicated an income category, 32% indicated an annual personal income less than twelve thousand dollars, 49.3% indicated an income between twelve and thirty-six thousand dollars, 13.1% income between thirty-six and sixty thousand dollars, 4.6% income between sixty and one hundred thousand dollars, and 1.1% with incomes of $100,000 or more. Tyboro is slightly depressed economically. In 2000 median household income in Tyboro was about $33,000 whereas median household income for the US was almost $42,000. Census sample data on household income suggests 22.9% of households earned less than fifteen thousand dollars, 14.8% between fifteen and twenty-five thousand dollars, 15.6% between twenty-five and thirty-five thousand, 19.4% between thirty-five and fifty thousand, 8.3% between fifty and sixty, 12.8% between sixty and one hundred thousand, and 6.2% with household incomes of $100,000 or more, including 0.6% with household income of $200,000 or more (US Census, 2000). It is difficult to compare personal income versus household income, but the central tendency of survey respondents' reported income may be a bit lower than that suggested by the Census sample data. One reason for this might be the survey biases

toward women and older residents. Women (34.8%) were nearly twice as likely as men (18.6%) to have an income of less than $12,000, and less than a third as likely to have incomes in excess of $60,000 (2.5% versus 7.9%). Tyboro had 4% unemployment according to the 2000 Census. About 14% of the population was below the official poverty level.

874 respondents indicated a level of personal assets. Of these 15.3% indicated debts exceeded assets, 82.0% indicated positive net assets less than a half million dollars, and 2.6% indicated assets between half a million dollars and three million dollars. None of the respondents indicated assets in excess of three million dollars. It seems likely that persons in the population with such assets either did not participate in the survey or chose not to answer this particular question. The percentage with negative net assets declined monotonically with age from 28.8% for ages 18-29 (28.8%) to 21.3% for ages 40-49, 11.6% for ages 50-59 to 5.3% for 80 and older.

Of the 1141 respondents who indicated whether or not they owned their home, 71.1% were homeowners, 20.2% renters, and 8.7% had some other arrangement. This compares fairly well with the roughly 65% of households reported as owner-occupied and about 35% rented reported by the US Census (2000) for a comparable geographic area.[iv] The most common other arrangements were living with a relative (e.g. parents, children), living in an institutional setting, or owning a mobile home on a rented trailer park lot. The percentage of homeowners was much lower among persons under the age of 30 (35.9%) than other age categories, with the next lowest being age 30-39 (68.2%), but otherwise showed minor fluctuation from 71.7% to 78.6% across age categories in no particular order. Median value single-family owner-occupied homes in Tyboro was just

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[iv] Comparison 2000 Census data for housing tenure is drawn from population data at the Census block level. This data is for a geographic area that is nearly identical to the actual research area, except for a small number of blocks at the edges of the Tyboro research area where the boundary fails to coincide with Census block boundaries, but uses households as the unit of analysis rather than residents.

over $70,000 while the national median was almost $120,000 (Census, 2000). These

economic indicators varied by age in anticipated ways. Distributions of income for the

under 40 and 40-65 groups were similar, although the 40-65 group had more people in

income ranges above $48,000 (8.8% vs. 16.1%). The 65+ group had far fewer people

with income over $36,000 (20.6% vs. 26.7% vs. 5.7%) and far more with incomes under

$12,000 (25.0% vs. 24.9% vs. 45.6%). Under 40 were most likely to be in debt (24.2%

vs. 15.7% vs. 7.5%), less likely to be homeowners (58.7% vs. 74.3% vs. 74.5%) and

more likely to rent (32.1% vs. 19.6% vs. 14.0%). 40-64 was most likely to report assets

of a half million dollars or more (0.5% vs. 3.8% vs. 2.1%).

Employment status information was provided by 1181 survey respondents. Of

these: 42.5% were employed full time including 0.6% who were also enrolled in college

and 1.3% who were also homemakers; 10.7% employed part time including 0.3% who

were also enrolled in college and 2.2% who were also homemakers; 35.7% were retired

including 4.7% who were homemakers; 3.0% were not employed because of disability

including 0.6% who were homemakers; and 8.1% were not employed for other reasons

including 0.4% who were enrolled in college and 4.6% who were homemakers. In total

1.3% of survey respondents indicated they were college students and 13.3% they were

homemakers. 7.2% of respondents indicated they were self-employed, nearly all full-

time. Table 5.4 shows employment status by age, with about two-thirds of folks under

age 60 employed full-time. All but one of the college students was under the age of 50.

Nearly all of the retirees were over the age of 50, with 92.3% being over the age of 60.

[TABLE 5.4 ABOUT HERE]

239 respondents were employed at just nine of the largest local employers, two of

which were the Tyboro county government and local Tyboro school district. No single

employer employed more than 4.5% of survey respondents. Location of employment was

provided by 630 survey respondents. Of those, 68.9% worked in Tyboro, 7.9% and 7.3%

each at two nearby towns, 12.7% at various other towns in Tyboro County, a total of

96.8% in county. 2.6% worked in places outside the county, typically half an hour to two hours distant by automobile, and 0.6% gave place names that were ambiguous or could not be located by the researcher. This compares with census sample data that 90.1% of employed residents worked in Tyboro County, suggesting that people who worked outside the county are underrepresented in our survey (US Census, 2000).

Occupationally roughly 68% of Tyboro residents in the labor force are privately employed, about 23% have government jobs, and nearly 9% are self-employed. Over 26% of the labor force is employed in the education, health service, and social service industries, over 21% in manufacturing, and over 9% in retail trade, the three most common industrial groups. The largest local manufacturer employs a number of people equal to just over 10% of the civilian labor force, and another manufacturer employs a number equal to about 2% of the Tyboro labor force, but not all those employed by either manufacturer live in Tyboro (US Census, 2000; Historical Society of Tyboro, 1998). 422 respondents estimated the number of persons employed at their place of work, of whom 19.4% worked where 500 or more persons were employed, 23.9% at places with 100 to 499 employees, 16.4% at places with 25 to 99 employees, and 40.3% in places with fewer than 25 employees.

672 respondents provided job or occupational titles. These were classified using two-digit standard occupational classification categories. The distribution of occupations among respondents is as follows, with the percentage suggested by census sample data for the same approximate geography in parentheses: Managers & Executives 3.9% (6.0%), Business & Financial jobs 3.3% (2.8%), Computer & Mathematics jobs 1.2% (1.2%), Engineers & Architects 1.5% (2.1%), Life, Physical & Social Sciences 0.6% (0.8%), Social Services 6.3% (2.4%), Legal 1.9% (0.3%), Education & Library jobs 9.8% (5.6%), Art, Entertainment, Sports & Media 1.9% (0.4%), Healthcare 8.3% (4.6%), Police & Protective Services 1.0% (1.1%), Food Preparation 5.7% (6.4%), Building Maintenance & Grounds 4.6% (2.9%), Personal Care & Service 3.4% (3.7%), Sales 7.3%

(7.5%), Office & Administrative Support 12.4% (16.9%), Farming, Fishing & Forestry 3.0% (2.6%), Construction & Mining 2.4% (4.2%), Installation & Repair 2.8% (5.4%), Production 9.4% (12.5%), Transportation 3.4% (5.4%), and Housewives 6.0% (US Census, 2000). Managers & Executives, Construction, Installation & Repair, Transportation, and Production jobs appear underrepresented among survey respondents, while Social Service, Healthcare, Legal, Education, Arts & Media are overrepresented.

Compared to the proportion of the US population in each category, Tyboro has somewhat fewer administrative support & clerical workers, fewer executives, and fewer sales workers, and slightly higher proportion of service workers, technicians & related support, and machine operators & assemblers. Industry-wise Tyboro has more than its share of agricultural, forestry, and fish workers, as is to be expected in a rural locale, somewhat more health services employees, and notably more people employed in manufacturing durable goods. It has somewhat fewer people employed in manufacturing non-durable goods than the national averages, and a much smaller percentage employed in the financial, insurance & real estate industries (US Census, 2000).

Men (57.3%) were only slightly more likely than women (51.9%) were to be employed, but men (50.9%) more likely than women (37.8%) to be employed full-time and less likely (6.5% vs. 14.1%) to be employed part-time. Men (10.7%) were almost twice as likely as women (5.5%) to be self-employed, and far less likely to identify as homemakers (1.5% vs. 20.6%). Women were often employed as secretaries, teachers, nurses, food service workers, social workers, cosmetologists, and librarians. Few men were employed in any of these jobs except for teacher. Men were often employed as machine operators, in blue collar trades (e.g. electrician), maintenance or custodial jobs, engineering, agriculture, and white collar managerial and professional jobs, or were owner-managers of a small business.

In summary, survey response is clearly and heavily biased toward women and older residents and also likely biased toward more educated residents relative to the local

population. Comparison of survey respondent demographics to US Census demographics for roughly the same geographic area at approximately the same point in time suggests the sample respondents are more or less typical of the population generally in other regards. The biases of gender, age, and education should be taken into consideration in interpreting results and particularly with regard to making implicit inferences or generalizations from survey respondents to the population generally.

Lifestyle Variables

Tables 5.8a thru 5.8h show the frequency of selected lifestyle activity variables for the respondent population. A right-justified base percentage indicates the percents reported for that activity are of a subset of respondents (e.g. percentage of those who smoke) rather than of all respondents. [v] Where appropriate, the frequency levels to which the percentages correspond (i.e.occasionally, regularly, daily) are listed. For selected variables where the percentage varies notably by gender or age, the percentage of female and of male respondents or the percentage of under 40, of 40-64, and of 65 and older respondents are also listed. This data gives a descriptive overview of responses to lifestyle questions on the survey, illustrates trends by age and gender, and provides a baseline against which the profiles of Tyboro's lifestyle clusters may later be compared.

[TABLES 5.5a thru 5.5h ABOUT HERE]

While most of the percentages for all respondents in Tables 5.8a thru 5.8h are unsurprising, a few are. Only 36.7% use an ATM even occasionally, and only 18.3% did so regularly or daily. Just 42.7% had a personal computer, and less than a third (31.4%) had a cell phone (see footnote for Table 5.5f). Fewer listed a CD player, videocamera,

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[v] Except where right-justified, percents are relative to the total number of respondents and should be interpreted accordingly. For example, unemployed and retired persons often skipped the work-related behavior questions, thus the percent *of working persons* engaging in any of these behaviors (not shown) is typically considerably higher than the percent *of all persons* (shown) who report that work behavior.

dishwasher, bookshelves, or filing cabinet than expected based on national trends, while more had a woodstove and firearms than might be expected. Two television shows that were nationally popular at the time of the survey stand out as being rarely listed by Tyboro residents: *Seinfeld* and *West Wing*. The percent who occasionally write their member of Congress seems a bit high.

There is a strong tendency to own vehicles made by US manufacturers than foreign cars, especially among older residents. The likelihood of owning a "foreign" model was about 16% vs. 10% vs. 5% for the three age groups. Oldsmobile was almost exclusive to persons over 40. Buicks and certain other makes were almost exclusive to those of retirement age, while SUVs and minivans were rare in this age group, and even pickup trucks were less common than among younger ages. Chevy Cavalier and Dodge Caravan were popular with those under age 65, and Ford Explorer were particularly popular among those under 40.

Perusing other variables for which percentages are broken out by gender or age category reveals mainly differences that would be expected on a stereotypical basis. Women are more likely to do most household chores. Many athletic and leisure activities are highly gendered. Gender differences in clothing sources reflects local supply, with a greater number of women's clothing stores, but also that shopping for clothing is a leisure activity for many women. Use of electronic media and articipation in most athletic activities and decline with age. The main exceptions are walking for fitness and golf. Older folks had slightly lower rates on a number of household activities, and far less likely to spend time with kids, but were more likely to make beds and to nap. They tend to be more religious, and more likely to read *Reader's Digest*. Interestingly there are age group differences in preferred beer brands. The relative lack of difference in patronizing the downtown diner O/R/D by age appears in contrast with field observation of diner patrons, but the diner R/D numbers by age group are 6.7% vs. 15.8% vs. 19.3%, which fits field observation well.

Movie, music, book, and magazine genre and artist preferences follow gender stereotypes. The list of authors listed exclusively or nearly exclusively by women is long, and includes nearly all the female authors, i.e. few men listed female authors, most notably Danielle Steele. No books were listed exclusively by men. Harder musical artists like Stevie Ray Vaughn, Rolling Stones, Aerosmith, AC/DC, and Lynyrd Skynyrd were listed exclusively by men, while Nat King Cole, Carly Simon, Tim McGraw, Backstreet Boys, and Pavarotti were listed exclusively by women. Celine Dion, Andrea Bocelli, Phil Collins, Dixie Chicks, Vince Gill, Faith Hill, Barry Manilow, and Barbara Streisand, among others, were also listed mainly by women. Soaps, talk shows, and medical dramas were TV genres listed overwhelmingly by women, as were the Lifetime channel, *20/20*, *Dateline*, *7th Heaven*, *Will & Grace*, *Dawsons Creek*, *I Love Lucy*, *Cosby*, *The Waltons*, and *Third Watch*. Westerns, science fiction, and sports as TV genres, and action, science fiction, and war as movie genres were listed mainly by men, while romance was mainly female. *Bridges of Madison County*, *Dirty Dancing*, *Fried Green Tomatoes*, *Ghost*, *Speed* and *Witness* were listed as favorites only by women. *You've Got Mail*, *Sleepless in Seattle*, *Sister Act*, *Rainman*, *Horse Whisperer*, and *Grease*, among others, were all listed mainly by women. *Titanic* leaned heavily female. *Saving Private Ryan* was the only movie listed almost entirely by men, though *Star Wars* leaned that way. Similar patterns obtained with respect to favorite actors and actresses.

The western is a genre of older folks. Pop music is far more popular with younger people. Genre preferences varied somewhat by age, but even where genres were shared across age groups the specific artists and titles that were popular varied with age cohort, as one would expect. This is particularly noticeable with regard to movie titles, TV programs, favorite actors and actresses, and also authors. For the vast majority of authors, the age distribution of readers who listed them is lopsided. Danielle Steele was notable in being one of only a few authors whose readers age distribution did not strongly favor a particular age.

Social Relations

Considering only relations with individuals where both persons were adults, there were 16,538 total reported relations across 15,957 ego-alter pairs: 6270 (37.9%) were kin relations, 1767 (10.7%) were work-related, and 8501 (51.4%) were other or unknown types. Kin relations included 571 spousal relations, 1194 child relations, 398 child-in-law relations, 603 parent relations, 273 parent-in-law relations, 1140 sibling relations, 719 sibling-in-law relations, 305 adult grandchild relations, and 1067 other kin relations. Of work-related relations 294 were boss relations, 110 were employee or subordinate relations, 1232 were coworker relations and 131 were client relations. Among the others, 5832 (35.3% of all relations) were friend relations, 930 more were neighbor relations, 267 were church member relations, 719 were of various other types, and 756 were of unspecified type (see Fischer, 1982 for comparison). Of the 15,957 alters listed[vi], 55.6% were female, 44.3% were male, and for 0.1% the gender could not be imputed based on name or relationships. There was a tendency toward gender homophily: 61.1% of females' alters were female vs. 38.8% male, while 56.3% of males' alters were male vs. 43.6% female.

[FIGURE 5.3 ABOUT HERE]

Figure 5.3 shows the number of persons listed by each respondent in the network portion of the survey, i.e. size of ego networks, with respondents under age 18 removed and relationships with minors or groups filtered out (N=890[vii]). Two outliers with values of 166 and 141 are not shown. Median network size was 17 with a mean of 17.9 alters. This is close to the average network size of 18.5 found in Fischer's (1982, p.38) study.

[vi] 15,957 ego-alter pair listings, being 10,864 persons listed as alters, of a total of 13,298 persons in the data set including respondents who were not listed as alters.

[vii] Three respondents who completed network information are not included in this analysis. Two because they listed no persons, only groups, and one because his only listed relations were with minors.

An artifactual tendency to list thirty persons as a result of there being thirty lines on the network answer form, is indicated by 90 persons listing thirty people, while other values have frequencies less than 40 and values greater than thirty tend to have single digit frequencies. If we use the frequencies of immediately preceding numbers of alters as a guide, the number of persons listing thirty alters should be around 30, suggesting that about 60 people (about 6.7% of all respondents) who listed 30 alters would have listed more persons had there been more lines on the form. This would obviously increase the mean network size, although just how much is unclear. It seems unlikely they would have averaged more than 45 alters each, i.e. half again more than they did list, in which case the mean network size would have been 19.0 persons.

[TABLE 5.6 ABOUT HERE]

Network size varied by age and gender of respondent. As Table 5.6 shows, younger females tended to list more persons than did men of the same age, but this gender gap shrinks with age because typical network size for females declines with increasing age, but that of males does not. More of the outlying largest networks were reported by women. Eleven (2.0%) women listed 50 or more persons, four of whom listed more than 80 persons. Four (1.3%) men listed 50 or more persons and only one listed greater than 80 persons.

[TABLE 5.7 ABOUT HERE]

Table 5.7 shows the number and percent of respondents who included relations of each type in their network, and those numbers broken down by the number of relations of each type that they listed. The most common relationship types were friend (included in 76.6% of networks), spouse (63.9%), sibling (56.9%), child (50.9%), and parent (43.9%). Neighbors, Coworkers, Bosses, and in-laws were also relatively common. Generally those that listed a spouse listed just one. The rare exceptions were persons who listed romantic relationships with two "significant others". Roughly one sixth of divorced or separated persons listed an ex-spouse and in almost every instance they listed just one.

Similarly very few people listed more than two parents or two parents-in-law. Instances where they did were cases where parents had divorced and remarried. Those who listed landlords usually listed either one or two. In instances where there were two they were usually listed as a couple, but in a few instances a landlord and apartment manager were both listed. Few people listed their attorney. Those who did generally listed just one. A fair number of persons listed a member of the clergy. Usually this was a single person, occasionally two for those who made a practice of going to more than one church or where a church was served by more than one clergy person. Exceptions listing more than two clergy were themselves clergy. Relation types that were listed frequently included friends, coworkers, and neighbors.

The frequency of relation types varied with age and gender. Among women, the percent including a spouse or partner runs from 72.9% among 18-29 year olds up to 74.8% for 40-49 year olds, then declines: 60.2% for age 50-59, 55.7% for age 60-69, 34.9% for age 70-79, and 22.9% for those age 80 and over, almost entirely as a result of the increasing percentage of widowed respondents. However, the percentages for male respondents bounce around from 65.1% to 82.6% in no particular age order. The percent listing children as alters rises from 0.0% for both genders of the 18-29 age group[viii] to 10.9% of men and 11.6% of women in the 30-39 age bracket, 51.5% of women but just 21.9% of men in the 40-49 age range, and then 59.1% to 65.4% for the various male groups and 70.4% to 85.2% for the female groups age 50 and up. The percent listing parents declines from 80.% of males and 85.4% of females in the 18-29 age group, to 47.6% of males and 44.9% of females in the 50-59 age range, then to the single digits for 70-79 year olds and 0.0% for those age 80 and over for both genders. 9.7% of women age

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[viii] To be listed as an alter the child should have been an adult. Persons under age 30 are very unlikely to have adult children which explains why none were listed by respondents in this age bracket.

18-49 listed clergy and 17.2% of women age 50 and older did, but only 6.7% of men age 18-49 and 12.8% of men age 50 and older included a member of the clergy.

94.5% of respondents listed one or more family members or kin, 81.5% listed one or more social relations (e.g. neighbor, friend, church member), and 38.9% of respondents listed one or more work-related relations (e.g. boss, coworker, employee, client). Older folks were a bit less likely to list kin. For female age brackets under age 70, the percent ranged from 95.3% to 98.9% but was 93.0% for females age 70-79 and 91.7% for females age 80 or more. For male brackets under age 60 the percent varied from 93.7% to 97.8%, but was 88.5% for males age 60-69, 88.4% for males age 70-79, and 90.9% for males age 80 and up. Women were more likely to list social relations than were men, and younger women most likely of all to list social relations. 93.7% of women age 20-29 and 90.7% of women age 30-39 listed social relations. For older female brackets the percent varied from 80.6% to 88.4%. Among men it varied from 71.4% to 81.8%, with only the 30-39 and 80+ brackets being over 78%. Not surprisingly the percent listing work contacts dropped off with traditional retirement age. In male brackets under the age of 50 between 56.2% and 64.0% of respondents listed work relations. 47.3% of men age 50-59 did, but only 4.7% to 17.0% of men in the brackets age 60 or more. 65.2% of women in the 30-39 age bracket listed work relations, but other under-60 brackets varied from 46.7% to 50.8%, 23.1% of those age 60-69, 9.3% of those age 70-79, and just 4.5% of those age 80 or greater.

Geographically 56.8% of the persons listed resided within the Tyboro research area. Another 24.7% resided in localities within or just over a half hour commute from downtown Tyboro, with 4.4%, 4.3%, and 2.6% respectively in each of the three closest villages and their surrounding rural areas, 3.5% and 3.2% respectively in each of two very small cities about 20 minutes commute away, about 1.6% in a slightly larger city a bit over half an hour away, and 5.1% distributed across the remaining rural areas of Tyboro County plus very small sections of adjoining counties.

The remaining 18.5% resided outside this region. Over 8.1% lived in other regions of the state, including 1.2% and 1.1% in each of two adjoining regions of the state 15-60+ minutes away depending on exact locale, and 1.5% in the region of the nearest urban area, over an hour away. Another 1.7% and 0.5% lived in each of the two nearest states. 7.5% lived in other states, including 1.4% in Florida and 0.9% in the Carolinas. Only 0.3% of persons listed lived outside the United States, most in Europe or Canada. Germany alone accounted for a third of the international alters. The place of residence listed for the other 0.4% of alters was unspecific or ambiguous.

Estimates suggest people typically have a maximum ego network of several hundred to a few thousand alters, depending on how one defines inclusion in the network (de Sola Pool & Kochen, 2006 [1978]; Killworth, et al., 1990; Bernard, et al., 1991; Hill & Dunbar, 2003). An average reported network size of less than 20, along with the distribution of types of relation that survey respondents reported which suggests a higher reporting rate for significant others than for specific others. There seems to be a strong tendency for survey respondents to have focused on persons to whom they have strong emotional attachment, e.g. kin and friends, and not much on less well-known specific others, e.g. coworkers, neighbors, etc. This would seem to be especially true with regard to the impact of various exchange relations (i.e. transactions and business dealings) in which each person is embedded. Very few of these were reported, and yet presumably they are among the relations that should have the most bearing in supplying the material requisites on which most lifestyles are likely to depend. The implications for this research are serious. A major portion of the relations which should underlie lifestyle clusters, according to our theory, may have been omitted from our data. This is discussed more fully in Chapter Nine.

Imputed Relations

If we think of the network as a matrix of possible relations between rows of egos and columns of alters, the matrix may be conceptually partitioned into nine submatrices by dividing both the egos and the alters into three sets: A) resident respondents (N_{rr}=893), B) resident non-respondents (N_{rm}=4334 persons in the survey data, but should be roughly 7600 in the full population), and C) non-residents (N_n=8071 in the survey data, and no good way of estimating what it would be in the network of the full population), as illustrated in Table 5.8. Reported data are available only for submatrices AA, AB, and AC, though it is possible to impute some relationships in the other six subsets. The survey (not population) matrix has 176,943,204 dyadic pairs (13,298 by 13,298 persons)[ix]:

[TABLE 5.8 ABOUT HERE]

The AA submatrix is special in that it is the only one for which we have reported relations from both persons in each dyadic relation. That allows us to estimate the rate of reported reciprocity for various relation types. Where the rate of reported reciprocity for a particular is high for the AA submatrix we may impute reciprocal relations for that relation type throughout the network. Generally, four types of relations were imputed: spouse, sibling, parent, and child. Each of these four types had very high rates of reciprocal reporting among resident respondents. There were 369 reported spousal type relationships of which 364 were reported as 182 reciprocal pairs, with 5 persons failing to list a spouse who listed them, a reciprocity rate of 97.3%. There were 49 reciprocal parent-child relations, 1 child reported who did not reciprocally list the parent, and 2 parents reported that did not reciprocally list the child, yielding 98.0% and 96.1%

[ix] 797,449 (0.45%, 893x893 persons) in the AA submatrix, 3,870,262 (2.19%, 893x4334 persons) each in the AB and BA submatrices, 18,783,556 (10.62%, 4334x4334) in the BB submatrix, 7,207,403 (4.08%, 893x8071) each in the AC and CA submatrices, 34,979,714 (19.78%, 4334x8071) in each of the BC and CB submatrices, and 65,141,041 (36.84%, 8071x8071) in the CC submatrix.

reciprocity rates respectively. There were 25 sibling relations reported, 22 reciprocated and 3 unreciprocated, yielding a rate of 88%. Based on the high reciprocity of these four relation types among resident respondents, relations of these four types were imputed on two distinct bases. First, by assuming symmetry in these four relations types for submatrices BA and BC, and second, by doing a case-by-case review of over 16,000 dyads identified as possible imputations based on certain logical relationships among relation types that could yield an imputation of spouse, sibling, child, or parent (e.g. two children of the same parent are siblings or half-siblings, a spouse is also a parent or step-parent of a child, sibling of a sibling is probably a sibling or half-sibling, a sibling's spouse is the spouse of a sibling, etc.) to determine whether they ought to be imputed. In total there were 16,538 directly reported and 12,847 imputed relations. 12,797 of the imputed relations were for the four imputed types: 2907 imputed spouse relations, 2240 imputed child relations, 2487 imputed parent relations, and 5163 imputed sibling relations. For comparison there were 3508 directly reported relations of these types: 571 spouse relations (569 egos), 1194 child relations (453 egos), 603 parent relations (384 egos), and 1140 sibling relations (506 egos). The other 50 imputed relations were instances in which information reported on a survey indicated a relation existed even though the respondent did not include the relation in the survey name generator. There were 11 such imputed friend relations, 8 imputed neighbor relations, 9 imputed ex-spouse relations, 1 imputed boss relation, and 21 imputed relations of unspecified type.

Just 0.1% of imputed relations were in the AA submatrix, i.e. respondent resident to respondent resident, which accounts for 0.5% of the matrix space, and less than 1.8% of imputed relations were in the AB and AC submatrices, i.e. respondent resident to non-respondents and non-residents, which account for 6.3% of possible relations. This is to be expected since the overwhelming majority of relations in these submatrices should have been directly reported. If we include both directly reported and imputed relations these three submatrices have the highest proportion of relations, with over 3.2% of relations in

AA which is 7.2 times its relative size, 7.4% in AB and 12.3% in AC, each over three times its relative size.

The heaviest proportions of imputed ties were in the BB, BA, CA, and CC submatrices. 23.2% of imputed relations were in the BB submatrix, i.e. resident non-respondent to resident non-respondent, a percentage almost 2.2 times the portion of the overall matrix in that submatrix. 3.7% were in the BA submatrix, non-respondent residents to respondents, about 1.7 times the proportion of the matrix in that submatrix. Over 5.4% were in the CA matrix, i.e. non-residents to respondents, about 1.3 times the expected proportion, and 45.1% were in the CC submatrix, i.e. non-resident to non-resident, about 1.2 times the expected proportion. Conversely, the BC and CB submatrices each had about 10.3% of imputed relations, slightly over half what would be expected based on the relative sizes of the submatrices. Relations that were imputed as reciprocals to direct relations in AB and AC are contained in the BA and CA submatrices. Other imputed relations, including all of those in BB and CC, are based on logical relationships among relation types. That there are disproportionately more imputed relations in BB than CC, and in BA than in CA, is congruent with the greater density of relations within the local context than between local persons and non-residents.

Network Densities

There are a total of 28,804 dyadic pairs that have relationships, of whom 15,957 pairs have reported relationships[x]. The overall network matrix is 13,298 by 13,298 persons. Disregarding diagonal cells that imply self-referencing relations, there are 176,929,906 off-diagonal cells. The overall network density is thus 0.000166 for all

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[x] 581 of these dyadic pairs have two relation types, which is why the number of pairs with relations in each category is 581 fewer than the number of relations.

relations. The sparseness of this network is in large part due to the small portion of it that is constituted by respondents.

Focusing solely on those dyadic pairs that could have had a directly reported relation, i.e. submatrices AA, AB, and AC, the matrix is 893 by 13,298 persons. Disregarding 893 diagonal cells, there are 16,538 reported relations across 1,874,221 off-diagonal cells, yielding a density of 0.00139 reported relations. If we look at the network of relations just among the 893 respondents, i.e. submatrix AA, there are 796,556 off-diagonal cells, of which 1757 have a reported relation and 1774 have either a reported or imputed relation. This yields a density of 0.00221 for reported relations or 0.00223 when imputed relations are included. Just under half (49.7%) of these dyads are friend (n=625) or neighbor (n=144) or are compound relations (n=113), nearly all of which include either "friend" or "neighbor" as one of the two relations. Another 388 (21.9%) are spouse relations. The next most common are child (n=54), parent (n=58), sibling (n=38) and sibling-in-law (n=37), other kin (n=45), coworker (n=43), clergy (n=21), and church members (n=22).

Figure 5.1 Illustration of Potential Impact of Missing Network Data
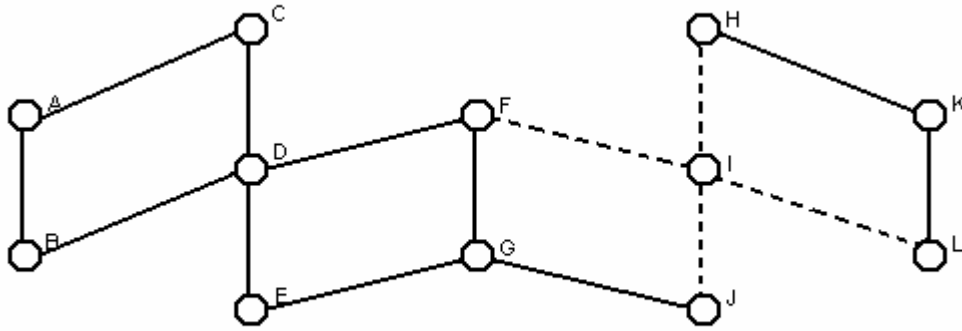
Figure 5.2 Age-Sex Distribution: Survey Respondents vs. Census
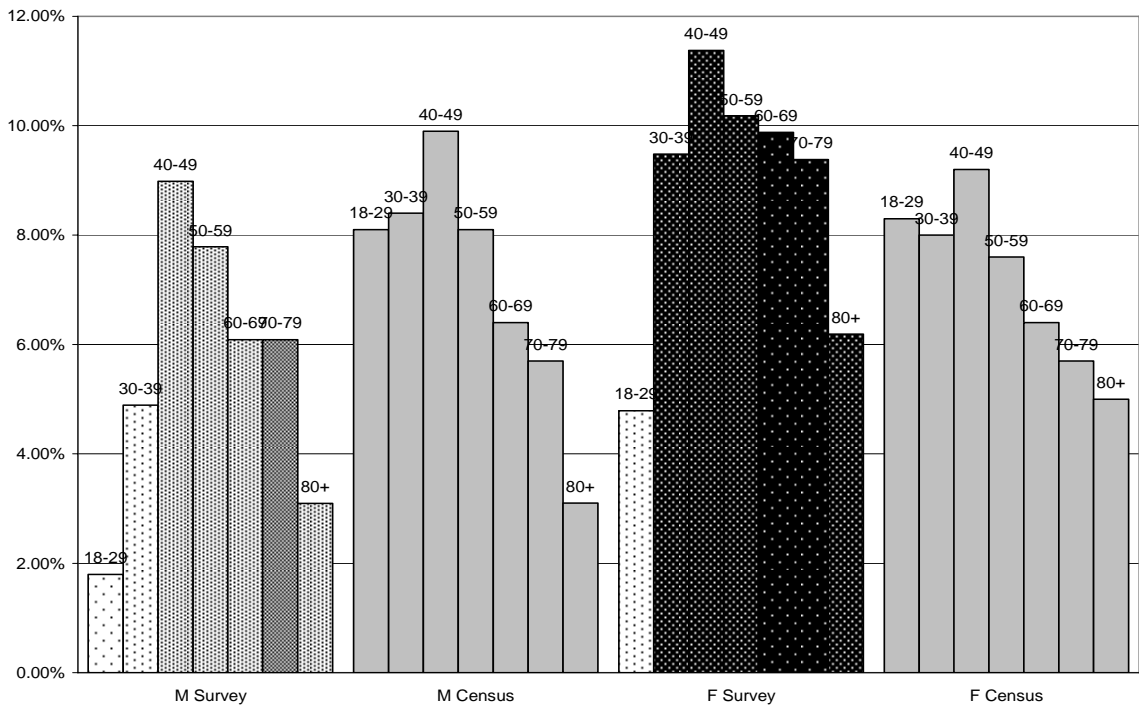
Figure 5.3   Network Size (Outliers > 100 Removed)
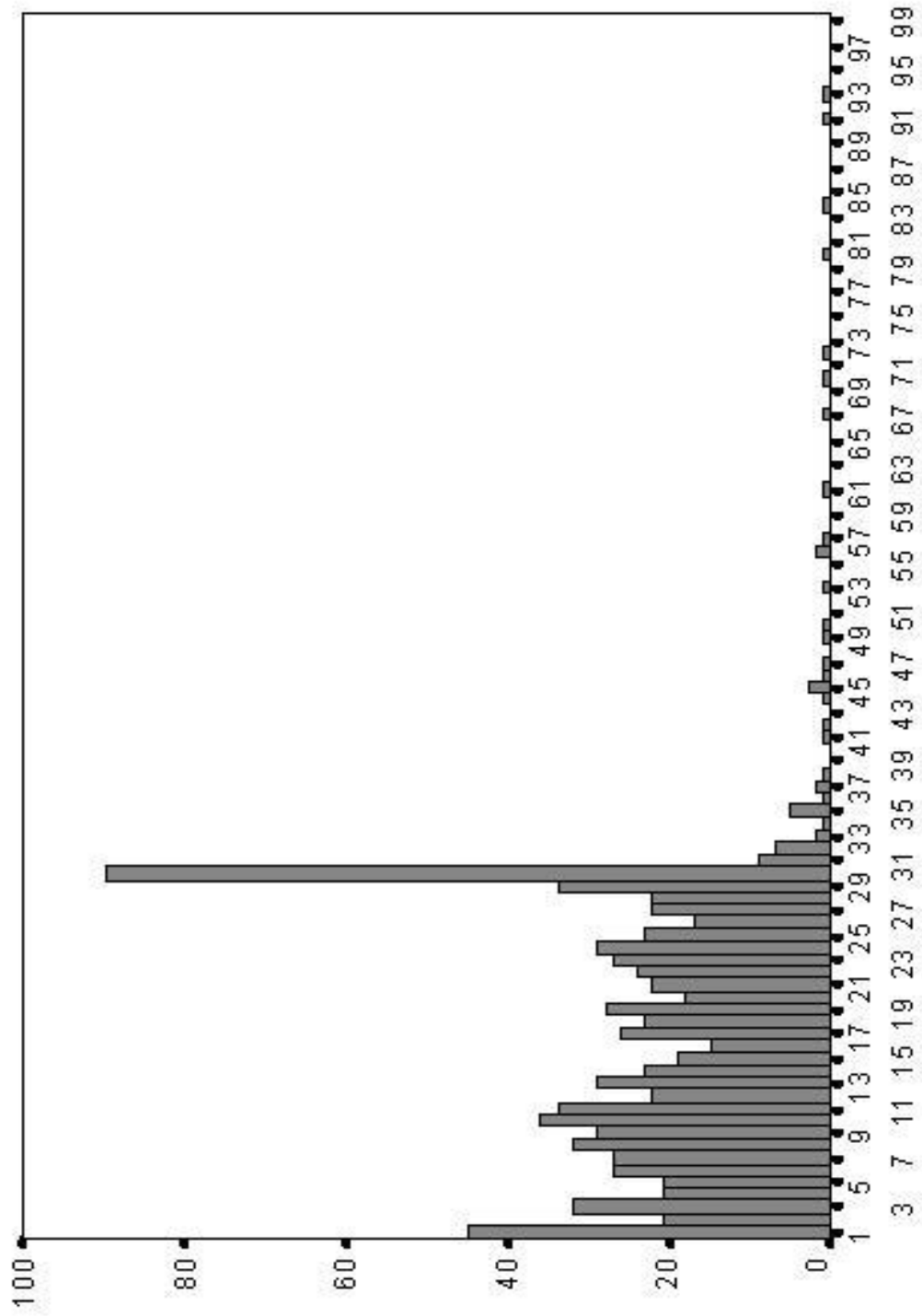
Table 5.1 Percent Graduated from High School and College by Age by Gender

Age	MALE		FEMALE	
	HS	College	HS	College
18-29	83.3%	27.8%	91.7%	39.6%
30-39	83.7%	36.7%	94.7%	50.5%
40-49	88.9%	37.8%	92.1%	43.9%
50-59	92.3%	48.7%	92.2%	37.3%
60-69	83.6%	34.4%	90.9%	30.3%
70-79	80.3%	19.7%	76.6%	12.8%
80-89	71.0%	19.4%	72.6%	11.3%

Table 5.2 Marital Status by Age

Age	Marital Status				
	Married	Widowed	Div./Sep.	Single	
18-29	41.5%	0.0%	7.7%	50.8%	100.0%
30-39	68.8%	0.0%	11.0%	20.1%	100.0%
40-49	55.7%	0.9%	27.6%	15.8%	100.0%
50-59	64.8%	7.7%	21.9%	5.6%	100.0%
60-69	63.5%	11.2%	21.4%	3.9%	100.0%
70-79	51.1%	36.4%	7.6%	4.9%	100.0%
80-89	37.4%	57.0%	2.8%	2.8%	100.0%

Table 5.3 Family Structure by Marital Status

	Single	Married	Div./Sep.	Widowed
No Kids	77.1%	12.2%	13.6%	18.3%
Young Kids (<13) Only	13.0%	15.2%	10.3%	0.0%
Teens (13-17) Only	3.1%	2.5%	7.1%	1.2%
Young Kids & Teens	2.3%	5.5%	4.9%	0.0%
Adult Children & Young Kids, Teens or All Three	0.8%	8.8%	13.0%	1.2%
Adult Children Only	3.8%	55.8%	51.1%	79.3%
TOTAL	100.0%	100.0%	100.0%	100.0%

Table 5.4 Employment Status by Age

	18-39	40-59	60-69	70+
Employed Full-Time	65.5%	67.6%	24.3%	3.0%
Employed Part-Time	17.5%	12.4%	10.3%	3.9%
Retired	0.0%	7.3%	58.9%	86.2%
TOTAL	100.0%	100.0%	100.0%	100.0%

Table 5.5a Selected Work, Household, Financial, and Health Activities

	Percent		% by Gender		% by Age		
	%		F	M	<40	40-64	65+
Work Activities:							
use telephone	39.7%	R/D					
sell	14.4%	R/D					
handle cash	16.6%	R/D	20.9%	10.9%			
use computer	30.5%	R/D					
drive	28.7%	R/D	24.8%	35.5%			
supervise other employees	18.7%	R/D					
do dirty work	20.5%	R/D	16.7%	28.3%			
operate machinery	14.4%	R/D	3.1%	18.9%			
lift heavy objects	27.0%	R/D	24.1%	35.5%			
Household Activities:							
pick up around home	77.1%	R/D	91.3%	58.1%	86.5%	80.2%	71.1%
make beds	49.9%	R/D	62.0%	29.0%	35.0%	47.9%	64.2%
do dishes	75.3%	R/D	90.0%	52.4%			
laundry	72.7%	R/D	92.2%	43.9%	82.5%	73.4%	69.8%
take out trash	69.0%	R/D					
vacuum / sweep	62.7%	R/D	80.0%	36.0%	75.3%	64.3%	57.6%
spend time with kids	31.8%	R/D			64.6%	38.0%	8.4%
relax	62.9%	R/D			70.0%	68.6%	54.6%
nap	15.4%	R/D			9.9%	12.7%	22.6%
clean tub	54.1%	R/D	69.1%	30.8%			
mow the lawn	38.6%	R/D	26.3%	56.6%			
cook meals	56.5%	R/D	72.2%	32.0%			
bake	19.7%	R/D	30.6%	4.2%			
pickle or preserve foods	23.7%	O/R/D	28.6%	14.9%			
garden	24.8%	R/D					
have dinner guests	63.4%	O/R/D					
have overnight guests	54.5%	O/R/D					
write letters	61.6%	O/R/D	74.8%	42.2%			
Financial Activities:							
pay bills with check	71.5%	R/D	78.4%	59.1%	64.6%	74.1%	77.2%
purchases greater than	48.7%	R/D					
listen to business news	42.2%	R/D			35.9%	44.3%	45.2%
put money in savings	37.9%	R/D			39.9%	46.0%	28.4%
put money in 401k / IRA	34.3%	R/D			32.3%	35.6%	3.3%
shop with coupons	26.9%	R/D	34.8%	14.6%			
pay bills with cash	17.4%	R/D			26.0%	17.9%	11.9%
use credit card	30.3%	R/D					
use an ATM	36.7%	O/R/D			54.7%	43.7%	20.8%
buy / sell stocks	16.8%	O/R/D					
play lottery	13.5%	O/R/D					
Health Activities:							
take medicine	61.6%	R/D			33.6%	59.3%	82.2%
take vitamins	52.7%	R/D			35.9%	52.3%	66.2%
diet	35.1%	O/R/D					
diet	18.0%	R/D	22.7%	11.9%	20.6%	20.3%	13.5%
get blood pressure	27.6%	R/D			11.2%	25.3%	41.9%
use aromatherapy	11.4%	R/D	15.5%	7.4%	17.5%	16.3	2.3%

Table 5.5b Selected Religious & Political Activities

	Percent		% by Gender		% by Age		
	%		F	M	<40	40-64	65+
Religious Activities:							
observe sabbath	34.7%	R	39.2%	28.3%	23.3%	31.6%	47.5%
pray	45.1%	R/D	55.0%	30.8%	38.1%	40.7%	57.4%
say grace at meals	20.6%	R/D			19.3%	16.0%	28.2%
listen to religious music	16.6%	R/D			14.3%	13.1%	23.1%
religious fasting	5.5%	R/D			2.2%	4.2%	9.6%
read holy text	19.1%	R/D	23.4%	12.4%	17.9%	15.6%	25.6%
tithe	51.5%	O/R					
tithe	37.3%	R	42.0%	29.8%	27.4%	31.7%	51.8%
attend religious services	50.2%	O/R			48.8%	48.9%	65.8%
attend religious services	25.5%	R	55.9%	42.2%			
identify with a religion /	69.8%				64.4%	74.6%	86.9%
Christian	97.2%						
Catholic	25.5%						
Protestant	67.2%						
Methodist[ii]	24.3%						
Baptist	12.2%						
Presbyterian	10.6%						
Episcopalian	8.1%						
Political Activities:							
vote in Presidential elections	62.3%	R			50.7%	64.1%	71.6%
vote in local elections	56.9%	R			39.5%	58.0%	69.3%
display US flag	29.5%	R/D					
follow political news	28.2%	R/D					
follow political talk shows	13.1%	R/D					
discuss politics with others	14.5%	R/D	12.0%	20.1%			
write to congressperson	19.8%	O/R			11.7%	22.6%	22.3%
attend borough meetings	15.7%	O/R					
write letter to editor	9.2%	O/R					
give money to campaign	9.3%	O/R					
participate in campaign	5.1%	O/R					
political protest	1.3%	O/R					
identify with a political party[iii]	68.4%				49.8%	70.9%	77.5%
Republican	61.2%						
Conservative	13.5%						
Democrat	23.0%						
Liberal	4.0%						
Independent	3.7%						

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[i] After Episcopalians, the next most represented church among survey respondents was an Assembly of God church with about 1.7 % of survey respondents. There are also a few Latter Day Saints, Mennonites, Jehovah's Witnesses, Lutherans, Wesleyans, Agnostics, Jews, Buddhists, Sikhs, and Wiccans.

[ii] About half the Methodists attend services at the main Tyboro Methodist church with the other half from a handful of small Methodist churches in outlying hamlets or neighboring localities.

[iii] Political identifications are not mutually exclusive. Over three quarters of those who identified as conservative were members of the Republican Party, a handful were members of the Democrat Party, and just two were members of a formal Conservative Party. About half those who identified as Liberal were Democrats, and a few were Republicans. However, none of those who described themselves as Independent indicated membership in any political party.

Table 5.5c Selected Athletic & Leisure Activities

	Percent		% by Gender		% by Age		
	%		F	M	<40	40-64	65+
Athletic Activities:							
walk for fitness	55.3%	O/R	61.1%	48.1%	58.7%	61.4%	48.7%
bicycle	26.3%	O/R			50.7%	29.3%	10.2%
camp	24.9%	O/R			49.3%	27.8%	9.9%
swim	21.4%	O/R			38.6%	25.5%	7.9%
fish	19.7%	O/R	11.9%	34.0%	29.1%	24.9%	8.6%
hike	19.0%	O/R			30.9%	21.9%	9.9%
bowl	18.0%	O/R			39.5%	20.5%	3.3%
golf	15.4%	O/R	8.8%	24.6%	4.5%	9.7%	6.3%
hunt	14.7%	O/R	4.5%	31.5%	20.6%	18.3%	8.1%
boat	13.9%	O/R			5.4%	5.1%	1.0%
do aerobics	12.7%	O/R	18.0%	5.2%	26.9%	12.9%	5.3%
target shoot	9.4%	O/R	2.8%	20.3%	14.8%	11.8%	4.1%
softball / baseball	8.8%	O/R	5.9%	14.4%	25.6%	8.7%	0.3%
weights	8.6%	O/R			19.7%	11.2%	1.5%
basketball	7.7%	O/R	4.4%	14.7%	18.8%	8.7%	0.3%
jog	7.4%	O/R			18.8%	8.6%	0.3%
Leisure Activities:							
dine out	70.6%	O/R					
shop (leisure)	61.3%	O/R	72.3%	47.1%			
cook (leisure)	48.9%	O/R	61.3%	31.3%	58.7%	53.6%	40.1%
attend garage sales	43.6%	O/R	50.3%	36.2%			
garden	40.3%	O/R			35.8%	47.5%	37.3%
travel	39.8%	O/R					
spend time with pets	39.8%	O/R			50.2%	47.2%	27.4%
pet dogs	34.5%				43.9%	44.1%	18.5%
pet cats	29.2%				33.2%	37.1%	19.0%
pet fish	8.2%				17.9%	10.3%	0.8%
pet birds	5.5%		7.3%	4.0%	9.0%	6.3%	3.0%
play cards	39.2%	O/R			57.9%	41.1%	29.2%
home improvement	39.2%	O/R	34.4%	48.4%	44.4%	51.7%	22.8%
tend houseplants	36.6%	O/R	48.8%	18.9%			
crafts	32.3%	O/R	48.0%	8.9%			
attend sports events	31.7%	O/R					
computer games	27.5%	O/R			51.1%	31.5%	8.9%
browse internet	27.4%	O/R			43.0%	36.1%	8.6%
play board games	26.1%	O/R	31.4%	20.6%	48.4%	27.0%	14.4%
attend auctions	21.6%	O/R					
sew	21.3%	O/R	33.8%	3.2%			
photography	20.2%	O/R					
bird watch	19.5%	O/R			2.2%	8.2%	12.2%
dance	19.3%	O/R			24.6%	24.0%	11.7%
antiques	18.9%	O/R					
knit / crochet	18.2%	O/R	29.8%	0.5%	10.7%	19.0%	23.6%
gamble	14.6%	O/R					
act / theatre	13.7%	O/R					
woodwork	13.6%	O/R	4.7%	28.5%			
work on automobiles	12.9%	O/R	2.2%	30.3%	17.9%	15.9%	6.1%
invest	12.7%	O/R	9.2%	19.6%	8.1%	16.5%	11.2%
attend car shows	12.7%	O/R	7.7%	22.1%			
motorcycles	4.8%	O/R	3.3%	8.7%	10.3%	4.9%	2.1%

Table 5.5d Selected Consumption Activities

	Percent		% by Gender		% by Age		
	%		F	M	<40	40-64	65+
Fan Sports Identity:							
fan of any sports			59.2%	75.9%			
watch football	35.6%		29.1%	49.1%	50.7%	40.1%	24.9%
NFL A	21.9%		18.8%	28.5%			
baseball[iv]	23.9%				26.0%	26.6%	21.8%
MLB A	12.5%						
NASCAR auto racing	12.5%				17.5%	15.6%	6.9%
basketball	12.3%				17.9%	14.8%	6.6%
soccer	11.8%				18.4%	12.7%	7.4%
golf	4.9%		3.1%	7.2%	0.4%	4.9%	8.1%
Tobacco & Candy:							
smoke cigarettes	22.1%	R/D			28.7%	27.9%	11.7%
Marlboro	25.0%				51.6%	21.1%	4.3%
Doral	16.5%						
Old Gold	8.6%				10.9%	9.5%	2.2%
Newports	4.5%				6.3%	4.8%	0.0%
Pyramids	3.7%				0.0%	3.4%	8.7%
generic	10.7%						
cheapest available	8.1%				4.7%	8.2%	10.9%
lights / ultralights	19.1%		24.4%	11.3%			
smoke cigars	0.9%	R/D	0.0%	2.5%			
smoke pipe	0.9%	R/D	0.2%	2.5%			
use of chewing tobacco	1.8%	R/D	0.5%	4.0%			
gum or candy	53.5%	R/D			71.7%	58.2%	41.9%
Beverages:							
coffee	72.4%	R/D			55.2%	76.0%	82.0%
tea	34.9%	R/D			26.5%	33.5%	42.9%
bottled water regularly	29.2%	R/D			54.3%	30.6%	15.0%
soda / pop	29.4%	D					
soda / pop	56.6%	R/D			79.8%	64.3%	38.1%
Pepsi brands	62.9%				57.9%	61.5%	38.7%
Coke brands	33.4%						
Mt. Dew	9.5%				19.7%	5.9%	2.0%
diet varieties	28.9%		33.3%	22.1%			
drink beer	22.5%	R/D	15.0%	36.7%	34.5%	27.8%	10.7%
Coors	20.3%		30.2%	20.3%			
Budweiser	16.2%						
Michelob	14.4%		34.4%	14.9%	27.3%	10.3%	7.1%
Miller	12.2%		14.6%	10.8%	1.3%	10.3%	14.3%
Milwaukee's Best	11.4%		7.3%	15.5%	5.2%	13.7%	14.3%
Labatts	9.6%		5.2%	14.2%	14.3%	6.8%	0.0%
regional brand B	8.5%		3.1%	10.1%	2.6%	7.5%	7.1%
light / lite beer	46.5%		69.8%	33.1%			
wine	18.6%	R/D					
mixed drinks	11.5%	R/D					
liquor	4.9%	R/D			8.5%	4.2%	3.6%

[iv] Senior Citizens are also twice as likely to be fans of the Atlanta Braves 4.3% vs. 1.8% for others.

Table 5.5e Selected Clothing & Furniture Sources

	Percent		% by Gender		% by Age		
	%		F	M	<40	40-64	65+
Clothing sources:							
local stores[v]	66.4%						
nearby towns or mall	71.6%				84.8%	74.0%	61.9%
Kmart	65.8%						
clothing chain in Tyboro 1	9.8%		17.0%	0.0%			
clothing chain in Tyboro 2	11.7%		16.6%	4.5%	17.0%	10.6%	5.3%
Walmart	30.5%				39.5%	23.0%	12.9%
national chain dept. store	16.5%						
J.C. Penny	18.3%						
Sears	16.9%						
regional clothing chain 1	6.1%		8.8%	2.5%			
regional clothing chain 2	10.8%		12.7%	6.0%			
factory outlets	26.5%				36.3%	30.4%	17.8%
thrift stores	29.7%		35.3%	25.1%	37.7%	32.5%	24.6%
rummage sales	22.3%		29.7%	13.6%	32.7%	23.6%	16.0%
makes own clothing	5.4%		9.1%	0.5%			
mail order catalogs	42.2%		48.1%	35.5%	35.4%	44.3%	46.7%
J.C. Penny	30.5%		14.8%	9.4%			
Blair	20.3%		10.3%	5.0%	2.2%	4.6%	18.3%
L.L. Bean	18.9%						
Lands End	12.4%						
Sears	10.8%		3.8%	6.0%			
Haband	8.8%				0.0%	1.0%	9.6%
Chadwicks	8.8%		6.7%	0.0%	5.8%	4.6%	1.3%
Lane Bryant	6.4%		4.7%	0.0%			
Furniture sources:							
furniture stores	69.1%				60.5%	73.2%	72.1%
Tyboro furniture	28.5%				13.0%	30.2%	37.1%
next town furniture store	8.9%						
next town furniture store	7.2%						
department stores	33.1%				39.5%	36.5%	27.4%
Kmart	12.5%				17.5%	12.9%	10.4%
Sears	10.3%				4.9%	12.2%	11.9%
Walmart	7.1%				13.5%	6.8%	4.8%
antique / estate sales	12.5%						
rummage sales	23.5%						
thrift stores	20.1%				29.1%	24.7%	11.2%
mail order catalogs	3.9%						
inheritance / gift	32.3%				57.0%	33.5%	21.1%

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[v] Numerous residents opined to the researcher in personal conversation that Tyboro had a clothing store deficiency, particularly lacking a good men's clothing store, a view that was echoed on the survey by some respondents, either as a local social problem or as a note in the margins of the clothing section.

Table 5.5f Selected Furnishings, Vehicles & Travel Destinations

	Percent		% by Gender		% by Age		
	%		F	M	<40	40-64	65+
Home Furnishings:							
personal computer	42.7%				56.1%	55.9%	19.5%
cell phone[vi]	31.4%				41.3%	36.5%	20.6%
CD player	62.3%				86.5%	72.4%	38.3%
videogames	30.3%				59.6%	37.1%	7.4%
videocamera	23.3%				34.1%	31.0%	9.9%
dishwasher	45.0%				43.5%	51.5%	39.8%
bookshelves	74.1%				73.1%	82.1%	68.3%
filing cabinet	63.2%				66.8%	71.9%	53.6%
woodstoves	15.3%						
firearms	36.6%		28.4%	50.4%	41.3%	43.7%	26.6%
Microwave ovens	89.4%						
VCR or DVD players	79.8%				93.7%	90.7%	61.4%
Vehicles:[vii]							
listed a vehicle	78.9%				83.4%	82.7%	77.7%
listed more than one vehicle	26.7%				30.5%	31.7%	19.0%
Ford e.g. Taurus, F150 or F250 Pickup, Ranger, Explorer, Escort	16.5%+						
Chevrolet e.g. Lumina, Cavalier, Blazer, S10 Pickup, Corsica	15.6%+						
Dodge e.g. Caravan, Spirit, Dakota Pickup, Ram Pickup,	10.4%+						
Olds e.g. Ciera, other Cutlass	9.4%+						
Buick e.g. LeSabre, Century,	8.5%+						
Travel Destinations:							
closed end responses							
nearest urban area	67.8%						
second nearest urban area	42.5%						
Florida	39.0%						
Carolinas	29.2%						
Toronto	19.5%						
New York City	19.0%						
Washington DC	14.3%						
state capital	13.7%						
open end responses							
Any of lower 48 states	39 %						
Neighbor state 1	16.2%						
Neighbor state 2	7.1%						
Canada	12.1%						
Western Europe	6.2%						
North-Central Europe	5.4%						
Caribbean	4.7%						
Mexico	3.4%						

[vi] About a third of all Americans were cell phone subscribers at the time of this survey: 1999-2000. The number has since climbed to well over two-thirds (Bridge Ratings, 2007). Tyboro may lag the nation somewhat, but prevalence of cell phones in Tyboro today would likely be at least twice this number.

[vii] Honda Accord and Civic, Jeep Cherokee, Lincoln Town Car, Mercury Sable, Plymouth Voyager and Acclaim, Pontiac Gran Prix, and Toyota Camry were other models listed by at least 1% of respondents.

Table 5.5g Selected Patronage & Local Orbit Locations

	Percent		% by Gender		% by Age		
	%		F	M	<40	40-64	65+
Eating & Drinking:							
downtown diner	63.6%	O/R/D			53.4%	66.9%	68.5%
any fast food	61.9%	O/R/D			84.8%	66.0%	48.2%
chain steakhouse	51.3%	O/R/D			64.1%	50.8%	47.5%
Soup & sandwich place	47.6%	O/R/D			35.4%	50.2%	53.0%
Chinese restaurant	46.7%	O/R/D			56.1%	53.2%	37.3%
local bakery	40.7%	O/R/D					
rural country inn	36.8%	O/R/D					
family restaurant 1	36.6%	O/R/D					
family restaurant 2	30.0%	O/R/D			21.5%	35.2%	50.3%
chain donut shop	27.1%	O/R/D					
lakeside restaurants	22.6%	O/R/D			20.2%	28.3%	17.0%
nearby town upscale	22.1%	O/R/D			20.2%	29.7%	15.0%
hotel Italian	22.2%	O/R/D			24.7%	28.5%	13.2%
Mexican	21.0%	O/R/D			25.1%	27.9%	11.2%
truckstop	20.8%	O/R/D					
roadside sports bar	19.9%	O/R/D					
downtown sports bar	16.8%	O/R/D					
Money, Groceries &							
grocery chain #1	68.2%	R/D					
Tyboro Bank	41.2%	R/D			29.1%	40.7%	51.3%
drug store chain #3	38.8%	R/D	43.8%	28.5%	28.7%	36.5%	46.4%
grocery chain #2	36.8%	R/D					
discount grocery	31.1%	R/D					
federal credit union #2	20.9%	R/D			32.7%	24.9%	11.4%
drug chain #1	13.4%	R/D					
federal credit union #1	10.7%	R/D			8.5%	14.6%	7.4%
chain bank	9.7%	R/D			5.8%	9.3%	13.5%
county trust	9.5%	R/D					
Other:							
Kmart	91.2%	O/R/D					
Kmart	49.1%	R/D					
Tyboro Post Office	81.9%	O/R/D					
regional mall	70.1%	O/R/D					
county offices	65.4%	O/R/D					
next town chain dept. store	64.1%	O/R/D	71.9%	57.6%			
next town Walmart	63.7%	O/R/D					
downtown Tyboro shops	57.9%	O/R/D					
hardware & plumbing store	60.1%	O/R/D	51.3%	76.4%			
chain hardware store	53.0%	O/R/D	50.3%	61.5%			
hardware & lumber #1	46.4%	O/R/D	40.9%	55.8%			
hardware & lumber #2	27.4%	O/R/D	21.3%	38.7%			
any florist	44.9%	O/R/D	50.9%	37.7%			
any drycleaner	28.2%	O/R/D	32.2%	21.6%			
local nature park	57.2%	O/R/D					
county fair (seasonal)	25.8%	R			82.1%	68.3%	53.6%
Next towns #2 & #4	21.4%	R/D					
golf course	17.4%	O/R/D	14.4%	21.1%			
senior apartments	26.7%	O/R/D			9.9%	22.2%	43.1%
gun & sporting goods store	16.1%	O/R/D	8.1%	28.8%	19.7%	20.2%	9.9%

Table 5.5h Selected Media & Cultural Activities

	Percent		% by Gender		% by Age		
	%		F	M	<40	40-64	65+
TV:							
watched television	85.7%	R/D					
Listed any TV shows /	88.1%						
news	27.7%						
sitcoms	25.7%				39.9%	24.7%	13.2%
televised sports	18.4%		10.3%	32.9%			
movies	12.5%						
game shows	12.3%				4.0%	8.7%	19.0%
ER	11.6%						
drama	10.7%				13.9%	13.9%	2.3%
Jeopardy	9.9%						
Wheel of Fortune	9.2%				0.4%	4.8%	18.0%
Friends	7.2%				17.9%	6.1%	1.0%
mystery (genre)	6.3%				4.0%	4.4%	10.7%
Law & Order	5.8%				4.9%	8.7%	3.3%
Drew Carey	4.2%				8.1%	6.3%	0.0%
Seinfeld	1.7%						
West Wing	0.7%						
Movies:							
watched movies / videos	61.8%	O/R/D			52.0%	27.0%	8.1%
comedy	21.7%						
action	16.1%		12.3%	25.6%	30.0%	21.9%	3.0%
romance	10.6%		17.3%	1.5%	14.8%	12.7%	6.6%
drama	10.3%						
mysteries	6.8%						
westerns	6.3%		4.8%	9.7%	2.2%	6.1 %	9.6%
science fiction	3.6%		1.7%	7.7%	4.5%	5.7%	1.0%
war	1.9%		0.6%	4.2%			
Titanic	2.6%		3.6%	1.7%			
Gone with the Wind	2.4%		3.8%	1.0%	0.0%	2.3%	4.1%
Pretty Woman	2.2%		3.4%	0.7%	4.0%	2.7%	0.8%
Dirty Dancing	1.6%		3.0%	0.0%	4.0%	1.7%	0.0%
Star Wars movies	1.6%		1.1%	2.2%			
Forrest Gump	1.2%		1.9%	0.5%			
Sound of Music	1.2%						
Harrison Ford	5.4%						
Julia Roberts	5.1%		7.3%	2.5%	11.2%	5.3%	1.8%
John Wayne	4.3%		2.7%	7.4%	1.8%	4.0%	6.9%
Clint Eastwood	3.6%		1.8%	7.4%	2.7%	5.3%	2.3%
Tom Hanks	3.5%		5.2%	2.0%			
Robin Williams	3.1%		4.5%	1.7%			
Meg Ryan	2.9%		4.1%	1.2%	5.4%	3.0%	1.5%
Mel Gibson	2.8%				5.8%	3.2%	0.8%
Meryl Streep	2.3%		3.4%	1.2%	0.4%	4.4%	1.0%
Tom Cruise	2.2%		3.3%	0.7%	4.9%	2.7%	0.5%
Bruce Willis	2.1%				4.5%	2.9%	0.3%
Sandra Bullock	1.9%		2.8%	0.5%	4.9%	2.1%	0.0%
Sean Connery	1.7%		2.5%	0.7%	3.1%	2.5%	0.3%
Whoopi Goldberg	1.7%		2.3%	1.5%			

Table 5.5h Selected Media & Cultural Activities (Continued)

	Percent		% by Gender		% by Age		
	%		F	M	<40	40-64	65+
Radio:							
listen to radio	74.0%	R/D			90.1%	82.3%	60.9%
listen to radio	57.3%	D					
Tyboro FM	49.9%						
regional 80s/90s	14.7%		18.0%	10.9%	37.7%	16.2%	1.8%
regional Christian	11.0%						
Tyboro AM	7.7%						
regional country music	4.9%						
regional oldies	4.7%				3.6%	8.9%	0.0%
regional rock	4.4%						
NPR	4.0%						
music	47.2%				52.5%	57.0%	36.3%
country music	12.2%						
oldies music	10.6%				4.9%	19.0%	3.8%
pop-rock music	8.5%				19.7%	10.8%	0.3%
classic rock music	6.4%		3.8%	11.7%	14.3%	8.6%	0.0%
religious music	7.2%						
news	26.0%				15.2%	22.6%	40.6%
Talk radio	5.6%						
sports radio	1.3%						
Music:							
listen to recorded music	77.5%	O/R/D					
listen to recorded music	55.9%	R/D			80.7%	62.2%	39.1%
attend live music	46.9%	O/R/D			57.4%	56.8%	33.5%
country	42.6%						
pop-rock	24.2%				51.6%	29.5%	5.3%
classic rock	24.2%						
classical	15.0%						
gospel	11.3%				4.5%	10.1%	17.5%
jazz	6.8%						
oldies	6.3%						
Shania Twain	5.1%				9.4%	7.4%	0.5%
Garth Brooks	4.0%				8.5%	4.4%	1.5%
Reba McEntire	3.0%				5.4%	3.8%	1.0%
Alan Jackson	2.9%				3.6%	4.2%	1.0%
Vince Gill	2.1%		3.4%	0.5%	0.4%	2.7%	2.3%
Barbara Streisand	1.9%		3.1%	0.5%	0.9%	2.9%	1.5%
George Strait	1.8%						
The Beatles	1.8%				1.3%	3.4%	0.3%
George Jones	1.7%				0.4%	1.9%	2.0%
The Gaithers	1.6%				0.4%	1.0%	3.6%
AC/DC	1.5%				7.2%	0.4%	0.0%
Plays Piano	4.7%		6.1%	2.2%	3.6%	5.1%	4.8%
Plays Organ	2.7%		3.1%	1.5%	0.9%	2.3%	4.3%
Plays Guitar	2.6%		1.1%	5.2%	1.8%	4.0%	1.3%

Table 5.5h Selected Media & Cultural Activities (Continued)

	Percent		% by Gender		% by Age		
	%		F	M	<40	40-64	65+
Periodical Literature:							
read newspapers	74.2%	R/D			63.2%	75.7%	85.6%
county daily paper	71.8%						
Tyboro weekly paper	22.6%		28.6%	17.6%			
urban-regional daily	15.3%						
second nearest urban	7.7%						
USA Today	4.8%		3.3%	6.9%			
read magazines	56.3%	R/D	61.1%	47.6%	53.8%	58.9%	60.4%
Reader's Digest	13.4%				4.9%	12.0%	21.8%
Good Housekeeping	6.7%		10.8%	0.0%	2.7%	6.7%	10.2%
Time	6.7%						
People	5.8%		7.7%	3.2%	7.2%	7.8%	3.3%
Woman's Day	4.9%		8.0%	0.5%	1.8%	5.5%	6.6%
Newsweek	4.7%						
Family Circle	4.5%		8.0%	0.2%	2.7%	4.6%	6.3%
Better Homes & Gardens	3.1%		4.5%	0.5%			
National Geographic	3.1%				0.9%	5.5%	1.8%
Country	3.0%						
McCalls	2.9%		4.8%	0.0%			
Modern Maturity	2.7%				0.0%	2.3%	5.3%
Ladies Home Journal	2.6%		3.9%	0.0%			
Sports Illustrated	1.8%		0.8%	3.2%			
hunting magazines	1.6%		0.2%	4.0%			
Cosmopolitan	1.2%		1.9%	0.5%	4.5%	0.8%	0.0%
Literature:							
read books	73.9%	O/R/D	83.0%	63.0%			
read books	42.0%	R/D	52.8%	26.1%			
mysteries	14.7%		20.0%	8.7%			
novels	12.6%		17.3%	6.5%			
romance	11.6%,		20.2%	0.2%			
biographies	6.6%				2.2%	6.7%	9.6%
science fiction	3.0%				4.5%	4.8%	0.5%
horror	2.8%				9.9%	2.3%	0.0%
Westerns	2.5%		1.4%	4.5%	0.9%	2.1%	4.3%
Danielle Steele	7.4%		12.5%	0.0%			
Stephen King	5.3%				13.5%	5.7%	1.3%
John Grisham	4.9%		6.9%	1.7%	2.7%	7.4%	3.6%
Mary Higgins Clark	3.0%		4.5%	0.5%			
Dean Koontz	2.0%		3.0%	1.0%	4.5%	2.5%	0.0%
Art:							
listed favorite art / artists	25.8%		31.7%	22.1%			
Monet	4.5%		7.0%	1.5%			
Rockwell	2.9%						
Van Gogh	2.6%						
Michelangelo	2.0%						

Table 5.6 Network Size by Age by Gender

Age	Female	Male
18-29	Median 25 Mean 22.2 S.D. 8.78 N=48	Median 11 Mean 13.7 S.D. 19.00 N=15
30-39	Median 20 Mean 21.2 S.D. 12.88 N=86	Median 18.5 Mean 19.8 S.D. 16.04 N=46
40-49	Median 20 Mean 19.1 S.D. 10.46 N=103	Median 13 Mean 14.4 S.D. 9.33 N=73
50-59	Median 20 Mean 22.6 S.D. 18.31 N=93	Median 13 Mean 16.6 S.D. 12.44 N=63
60-69	Median 18 Mean 19.3 S.D. 19.00 N=88	Median 12 Mean 14.2 S.D. 9.54 N=52
70-79	Median 15 Mean 16.8 S.D. 11.12 N=86	Median 15 Mean 16.2 S.D. 15.20 N=43
80-89	Median 10 Mean 13.7 S.D. 10.49 N=48	Median 13 Mean 13.2 S.D. 9.74 N=22

Table 5.7 Frequencies of Number of Relations of Each Relation Type

	Frequency of Counts for Each Relation Type					
	ANY	1	2	3-5	6-10	11-20	21+
Spouse/S.O.	**569 (63.9%)**	567	2				
Ex-Spouse	**23 (2.6%)**	21	1	1			
Child	**453 (50.9%)**	111	151	160	31		
Child-in-Law	**208 (23.4%)**	101	57	48	2		
Parent	**384 (43.1%)**	186	183	15			
Parent-in-Law	**174 (19.6%)**	81	87	6			
Sibling	**506 (56.9%)**	214	133	132	25	2	
Sibling-in-Law	**331 (37.2%)**	152	85	79	14	1	
Grandparent	**53 (6.0%)**	33	15	5			
Grandchild	**109 (12.2%)**	42	21	36	7	3	
Other Kin	**284 (31.9%)**	85	74	80	33	10	2
Landlord	**75 (8.4%)**	61	13	1			
Tenant	**20 (2.2%)**	8	9	3			
Boss	**212 (23.8%)**	142	59	11			
Employee	**38 (4.3%)**	16	3	15	4		
Coworker	**272 (30.6%)**	54	43	102	49	22	2
Client	**16 (1.8%)**	1	4	6	3	1	1*
Service	**122 (13.7%)**	72	24	19	5	1	1**
Doctor	**133 (14.9%)**	93	29	11			
Attorney	**5 (0.6%)**	4	1				
Clergy	**113 (12.7%)**	98	13	1	1		
Churchmembers	**57 (6.4%)**	14	8	17	13	4	1
Neighbor	**312 (35.1%)**	87	92	95	30	7	1
Friend	**682 (76.6%)**	70	58	157	197	157	43
Other/Unknown	**167 (18.8%)**	69	26	30	18	19	5

* Outlying case: Respondent listed 142 alters, including 61 clients and 34 Other/Unknown.
** Outlying case: Respondent listed 166 alters, including 31 service persons, 38 other kin, and 67 friends.

Table 5.8 Conceptual Partition of Network

	Rs	Resident Not Rs	Non-Residents
Respondents	AA	AB	AC
Resident Non-Respondents	BA	BB	BC
Non-Residents	CA	CB	CC

CHAPTER SIX

TYBORO LIFESTYLE CLUSTERS

Is the distribution of lifestyle in Tyboro divided into distinct lifestyle clusters? This may be assessed in a variety of ways including analyzing agglomeration schedules, comparing cluster-coding reliability across algorithms, and descriptive comparison and contrasting of the clusters themselves.

Agglomeration Schedule

To see how the agglomeration schedule can provide insight into the relative distinctiveness of clusters, consider an ideal situation in which every case in each cluster is an exact clone of one another, there are several clusters with perhaps a dozen cases each, and each cluster is equidistant from the other clusters, e.g. each person has dissimilarity 0.0 from everyone in their own clusters and dissimilarity 2.0 from everyone who is not in their cluster. As these cases are merged by a clustering algorithm there will be many merges at a distance of zero, equal to the sum of n-1 across all clusters, then no merges until d=2.0 at which point there would be a number of merges equal to k-1, where k is the number of clusters, as shown in Figure 6.1a.

[FIGURE 6.1a ABOUT HERE]

[FIGURE 6.1b ABOUT HERE]

The "perfect cluster" example is an ideal. The likelihood of all the clusters being equidistant is unrealistic, as is the likelihood that all the cases in each cluster would be exactly identical. If these two constraints are relaxed slightly, the result might look

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something like the distribution in Figure 6.1b. To the extent there is high density at the core of the clusters, i.e. a number of cases very close to one another, the agglomeration schedule should show a heavy distribution of agglomerations at the low dissimilarity levels on the left of the distribution. The more distance between cases, the further this bunching of agglomerations will shift to the right. There must ultimately be some agglomerations of clusters at the right side of the distribution, in proportion to the number of distinct clusters that are ultimately joined at that high level of dissimilarity. In between, if there is great separation between the clusters with few noise cases and if the clusters are approximately similar in size and spacing, there should be a portion of the distribution with few if any agglomerations. If such separation is lacking, relative to the distances between cases within each cluster, and/or to the extent that clusters are nested within larger cluster, the distribution of agglomerations of cases on the left will merge into the distribution of subclusters on the right.

[FIGURE 6.1c ABOUT HERE]

For comparison purposes, Figure 6.1c shows the distribution of agglomerations from a set of dyads with normally-distributed random dissimilarities, having a mean of 1.0796 and standard deviation of 0.1974 matching those for the distribution of lifestyle dissimilarity observed in the Tyboro data. Also for comparison purposes Figure 6.1d shows the distribution of agglomerations when the actual data are reassigned to different, random dyads in the Monte Carlo comparison discussed near the end of this chapter.

[FIGURE 6.1d ABOUT HERE]

[FIGURE 6.1e ABOUT HERE]

Figure 6.1e shows the observed distribution of complete-link agglomeration levels from the Tyboro data.[i] The few agglomerations at low dissimilarity levels represent a few dense kernels of persons with highly similar lifestyles in the data. The central tendency of the observed data is similar to that of the random data and unlike the tightly clustered model. The bulk of agglomerations occur in the proximity of .40 to .80 on our lifestyle metric, far less tight than in our hypothetical model. However, the curve does have a notable leftward shift relative to random data, shown in Table 6.1c, or reassigned data, shown in Table 6.1d. This suggests a moderate tendency toward clumpiness. Some clumpiness is also suggested by the relatively smooth bell shape distribution, quite unlike that of random data. The right tail offers only a small break and little hints of a relative absence of agglomerations, which may suggest either fuzzy separation between clusters and/or sets of subclusters nested within larger clusters.

Visual inspection of the individual branches of the agglomeration tree diagram offers a similar tale. There are few well-separated clusters that persist as such across a broad range of dissimilarity levels, and those that exist tend to be tiny, with fewer than six persons. Incremental accretion of cases onto existing cores, and combinations of two or more small branches into one larger branch at various points in the agglomeration are common. The agglomeration schedule offers little evidence of separation or cluster boundedness, indicating instead that there are a lot of "noise" cases scattered about. It suggests a lifestyle space in which smaller clusters are nested within larger clusters and a degree of overlap exists between many clusters.

Another way of representing the agglomeration schedule is shown in Table 6.1. The number of clusters defined at each level of dissimilarity is shown in the two leftmost

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[i] The average-link agglomeration (not shown) has a similar, slightly more normal shape than the complete link agglomeration and, of course, a different x-axis scale since dissimilarities in that agglomeration are an average among cases rather than a diameter.

columns. The third column shows the cumulative percentage reduction in total number of clusters achieved by that point in the agglomeration. The far right column shows the maximum size of any cluster defined at that level of dissimilarity, and the columns in between show the frequency distribution of cluster sizes at that level of dissimilarity, with row percentages listed below the raw numbers.

The maximum size column shows small increases at each increment up to 0.95 dissimilarity and large increases above that level. At 0.85 and lower dissimilarity levels there are few clusters of size 16 or greater, or even of size 8, and many cases in isolated dyads or triads, or unclustered. At 1.05 and higher dissimilarity levels there are almost no isolated dyads, triads, or individual cases. This suggests that the transition from identifying basic clusters to forcing clusters together occurs mainly between the 0.85 and 1.05 levels of dissimilarity. This range offers many mid-size clusters and few very large clusters, which is near-optimal for analysis. The lower end of this range corresponds approximately with the 3-letter cluster labels, and the upper end approximately with the 2-letter cluster labels The reduction in number of clusters shows that almost 90% of clustering is done prior to the 0.95 level and almost 95% by the 1.05 level.

[TABLE 6.1 ABOUT HERE]

Agreement Among Agglomeration Rules

Another approach to the question of cluster distinctiveness is to compare the cluster assignments made by each agglomeration rule. If the dispersion within clusters is tight and the clusters are markedly separate from one another, i.e. there are "natural" clusters with few "noise" cases, various clustering algorithms should yield results that are very similar with regard to which cases share cluster membership. If cases are distributed quasi-randomly a high degree of agreement in the results should be much less likely.

[TABLE 6.2 ABOUT HERE]

Table 6.2 shows the level of agreement in cluster assignments, as the percentage of cases from a given cluster strategy, typically one of the complete-link approaches, that were classified in the same cluster as the plurality of their co-members by a second clustering strategy. The strategies represented include the 14- and 15-dimension versions of complete- and average-link hierarchical clusters, hierarchical clusters based directly on binary data (46 clusters), running- and iterative-means unweighted k-means clusters, and density clusters, all described in Chapter Four. Variables, metrics, weightings, and cases vary across strategies. The 14-dimension version excludes the timing variables that are included in the 15-dimension version. Both use metrics that give equal weights to each dimension. The hierarchical clusters direct from data, k-means, and density clusters use only binary variables, similar to the 14-dimension hierarchical clustering, but the ones reported here give each variable equal weight rather than each dimension. The direct from data hierarchical clusters use a slightly smaller subset of cases as a result of the dissimilarity measure being undefined for a few cases. In most of these comparisons the crosschecking strategy had fewer, larger clusters than the focal strategy. The exceptions are the k-means strategies, both of which had 40 clusters, and the 15-dimension hierarchical clustering having slightly more clusters than the 14-dimension clustering.

The level of agreement among clustering strategies was lower than anticipated. The prevalence of cases that shifted groups depending on the clustering algorithm offers no suggestion of areas of clear separation between lifestyle groups. There were small kernels of cases which most of the algorithms agreed belonged together. Unfortunately few of these kernels were larger than 6 cases. Most were triads or quartets. Fortunately these could often be aggregated at a higher level of dissimilarity into clusters that were big enough for some meaningful analysis of homogeneity and variation.

It was necessary to pick one or more of the clustering approaches to form a basis on which to proceed. Hierarchical clustering from lifestyle metrics was chosen because: (1) there was no clearly superior alternative, (2) it is conceptual simplicity and was the

default approach from the outset, (3) it weighted dimensions equally, and (4) the

comparability between complete- and average-link clusters facilitated aggregation of

these kernels of highly similar persons into larger clusters for analysis. This decision was

made with some hesitancy on the part of the researcher because hierarchical clustering

directly from data using a pattern dissimilarity measure, used in the "quick and dirty"

early exploration of clusters in the data, seemed to produce somewhat more distinct and

behaviorally homogeneous clusters. Those two qualities might potentially make it a better

cluster model, though it did not include all variables. On the negative side that

exploration privileged lifestyle dimensions with more variables over those with fewer

variables, as a result of weighting variables equally, and gives affirmative and negative

matches equally weight which ought to be conceptually less desirable. That approach

also tends to produce smaller clusters, which would likely reduce the number of clusters

of sufficient size to analyze, ceteris paribus.

Looking specifically at the cross-classification of cases between the complete-link

and average-link cluster assignments illustrates the extent of agreement between the

methods and provides a basis for identifying aggregate clusters. There are too many

three- and four-letter cluster assignments to provide a simple overview of the extent of

overlap between the classifications made by the two agglomeration rules. However some

sense of it can be conveyed using the two-letter cluster labels. Table 6.3, divided into

parts a and b, is a crosstabulation indicating the root cluster to which cases were assigned

with the average link rule assignment on the horizontal axis and the complete link rule

assignment on the vertical axis. Cells with just one case have been eliminated, i.e. treated

as empty, on the presumption that they are likely to be noise cases. The order of rows and

columns has been permuted to emphasize cluster overlap and the blocks of empty cells.

[TABLES 7.3a and 7.3b ABOUT HERE]

Keeping in mind that complete link clusters are constrained to a higher degree of

internal homogeneity and hyperspherical shape, that average link clusters have some

flexibility to stretch and cut across, or even subsume, multiple complete link clusters, and that clusters may adjoin one another in as many as 14-dimensions, Table 6.3 suggests moderate cluster fidelity. There are points of concentration in the lifestyle distribution but the groups are less clearly bounded than anticipated. If well-separated real clusters exist we would expect the cases of any complete-link cluster to tend to be found in just one average-link cluster, two if the complete-link cluster happened span the boundary of adjoining average-link clusters, or rarely three if it was on an intersection, which would be unlikely. Conversely an average-link cluster might be expected to contain cases from several complete-link clusters. By contrast, if they were distributed without clustering cases in any given complete-link cluster might be distributed more or less evenly across several average-link clusters. In the analysis of "affiliation" between two-letter complete-link and average-link clusters, there are some complete-link clusters for which that is true, but 24% of the complete-link clusters are each contained in just one average-link cluster, and another 36% span just two average-link clusters. Where they span more than two average-link clusters the overlap is usually just a few cases, with the bulk of cases still located in just one or two average-link clusters. In similar analysis of the overlap between the most precise, i.e. 3- and sometimes 4-letter labels, subclusters (not shown) yields similar results: 20% of complete-link clusters are contained in just one average-link cluster, with another 36% spanning just two.

These different ways of looking at the issue of clustering all suggest the real world existence of cores of persons with at least moderately similar lifestyles but show very little indication of clear separation, i.e. boundedness, between them. It might be more appropriate to think of the lifestyle distribution as a "clumpy" field of stars rather than being separated into distinct galaxies or clusters. It is tempting to speculate that the lack of boundedness might result from the crude analytic approach, but all that can be said presently is that no support was found for the boundedness element of the theory.

Cluster Identification

In Table 6.3, a few average link root clusters, e.g. BA, BB, BJ, ED, EE, etc., contain all or part of several complete link clusters. Such overlaps provided a basis for assessing the adjacency of complete-link clusters in multidimensional lifestyle space, which are a useful key in identifying clusters that stretch across multiple complete link clusters. A rectangular matrix, M_{CA}, was produced as computer output, similar to Table 6.3 but using the precise 3- or 4-letter subclusters, with the cells indicating the number of cases of each complete link cluster that were members of each average link cluster. This was ported into UCINET V (Borgatti, Everett & Freeman, 1999) were procedure "affiliations" was run on it, matrix multiplying M_{CA} by its transpose M^T_{CA} to yield a complete-link by complete-link matrix (MM^T_{CA}) in which each cell was the sum product of the number of cases each of those clusters had in common across each average link cluster. All complete link clusters that are part of an average link cluster must be contiguous in the multidimensional lifestyle space. Where there are only two complete link clusters in an average link cluster they must be adjacent. Where there are more than two, they may be directly adjacent, or they may be contiguous through one or more of the other complete link clusters in that same average link cluster. Likewise, average link clusters that share a complete link cluster must be proximate to one another.

Although the MM^T_{CA} matrix was relatively sparse, with few non-zero cells, a number of low value cells caused most of the clusters to be connected into a single component. Component analysis using UCINET V (Borgatti, Everett & Freeman, 1999) revealed eight components: six of one cluster each, one with two, and one giant component that included complete-link 185 clusters! However, this super-component consisted of several clumps held together by connections where just a few cases from each of two complete-link clusters shared membership in the same average-link cluster. A series of screenings were done to filter out these cells: first at values less than four, i.e.

excluding co-membership of just 1 person by 1, 2, or 3 persons; then less than six, e.g. excluding 2 by 2, 4 by 1, etc.; and less than eight, which required the co-membership to be 3 by 3 persons, 2 by 4 person, 1 by 8 persons, or greater to be included in the analysis. Component analysis of the screening using a threshold of 8 or greater yielded 108 components, 80 of which consisted of a single cluster each, and no component larger than 15 clusters.

Each person in the dataset was assigned a tentative master cluster identification label according to whichever of these components, nested across screening levels, their complete link cluster belonged. These master cluster labels were then compared with the joint distribution of 2-letter complete link and average link clusters, which was used to merge together clusters that had substantial overlaps at this coarser level, i.e. those whose subclusters were contained in the same root clusters. This yielded a set of 51 master cluster, as shown in Table 6.4, of which 29 had 8 or more persons, in thirteen groups, of which ten had 8 or more persons and included 88 in groups B, C, and F that were not in any specific cluster. There were 165 persons that were not part of any cluster or group. There were likely subdivisions in Clusters B1 and E5 based on the overlap pattern among clustering rules using the 3- and 4-letter labels, but in neither case could substantial differences be found in the profiles of lifestyle behaviors between the subdivisions.

[TABLE 6.4 ABOUT HERE]

Table 6.5 shows the distribution of these clusters across the joint distribution of 2-letter average-link (rows) and complete-link (columns) clusters. Rows and columns in which no cases were assigned to master clusters have been excluded. The subdivision of clusters B1 and E5 are distinctions made among 3-letter clusters, i.e. within rather than between the cells of this table, and thus are largely obscured.

[TABLE 6.5 ABOUT HERE]

Tyboro's Main Lifestyle Clusters

Tables 6.6a thru 6.6z provide an overview of the lifestyle tendencies of all the main clusters. The reported variables are an abridgement selected to illustrate contrasts between clusters, pattern similiarities between clusters and also between certain activities, and focus on more popular activities.

[TABLES 6.6a thru 6.6z ABOUT HERE]

B1 is among the lowest income and least educated clusters, with a high proportion in debt, and few homeowners. It is mainly retirees and unemployed, and includes a number of persons who have a disability. They tend not to engage in civic activities.

B2 is a mostly female cluster of senior citizens, many of whom are widows. It is also among the lowest income clusters. Their main athletic activity is walking for fitness.

B4 is a large cluster where respondents tended to report very few activities. Why does this group have such low rates in so many activities? Part of the answer is that respondents who skipped substantial numbers of survey questions tended to be included in this cluster, further decreasing the percentages for various variables in this cluster, but the existence of some variables with rates of 64% and 71% shows that most respondents answered at least some questions.

B8 is another mostly female cluster, bifurcated into age groups 34-49 and 71-91. Their profile gives the impression of being private and quiet, with low participation rates in social activies. They have low rates of having house guests, listening to radio, talking on the phone, shopping regularly at Kmart, and patronizing the most popular bank, grocery, and drug stores.

B9 is also mostly female, with a plurality employed in clerical jobs, a couple nurses, and about a third retired. They have the lowest prevalence of coffee drinking, and among the highest rates of shopping at Kmart and Walmart and similar stores. They tend to listen to radio stations that are popular with only a few clusters.

B11 is also mostly female, well-educated, and mostly employed in information occupations: teachers, professors, secretaries, psychologist, and computer specialist.

B13 is mainly college-educated homeowners with full-time information jobs: teachers, librarian, computer consultant, etc. Nearly all drink Pepsi. None drink Coke. Playing golf is popular.

B15 is nearly all female, over half of whom are widows. Most are retired, and all are over age 40. They are among clusters with the lowest income and a high percentage have net debt. They are religious, and tend not to engage in political activities other than voting. Two-thirds walk for fitness. They tend to watch game shows on TV.

B16 is a large cluster of mostly senior citizens. They have typical participation rates in many activities other than athletics. They also watch game shows.

B17 is mostly male. The majority are retired. Their activities are stereotypically older male. About half have pickup trucks. Their favorite actors are tough guys: Chuck Norris, Clint Eastwood, John Wayne, etc.

B18 is mostly female. Half are retired. Those that are employed tend to have jobs in health care, community service, education, and clerical work. Walking for fitness is very popular in this cluster.

B23 is mostly male and mostly retired, with no full-time workers. The lifestyle is similar to clusters in the H group, and has a female parallel in cluster H1. They are religious, politically active, and Republican. About a third identify as conservative.

The C group of clusters consists mainly of full-time skilled blue collar workers in several small clusters, of which C1 is the only one large enough to analyze on its own. C1 has multiple electricians, a general contractor, heavy equipment operator, welder, and a part-time food service worker. Their activities are stereotypically blue collar male: working on cars, having a dog, owning a gun, being a fan of the NFL and other sports.

D1 is well-educated, with teachers, a counselor, attorney, manager, accountant, land agent, and technicians. They are all Protestant and religious. They are the cluster most likely to tune in regional Christian radio.

The E group clusters are mostly male and mostly married, with few over age 69. Most are homeowners and employed full-time. They are men's men. E clusters have low rates of doing household chores and traditionally female leisure activities, high rates of drinking beer, driving a pickup truck or SUV, and being a NASCAR fan. They like action movies, tough guy actors, and sports TV. They seldom read books. Except for E4 they tend to have low religiosity.

E3 includes small business owners, bankers, managers, federal inspector, pharmacist, with a few real estate, auto, and other salesmen. A few drive a school bus part-time as a second job.

E4 is a professional cluster: administrators and managers, bankers, lawyers, accountant, investment counselor, teacher, and customer service representative. They are Republicans, with about a third identifying as conservative, tend to drink wine, play golf, and are far more likely than most residents to downhill ski (42% vs. 4%, not shown).

E5 includes machinists, farmers, contractors, laborers, a forester, land surveyor, truck driver, warehouse and factory workers, and blue-collar technicians. They tend to enjoy rustic outdoor activities: hunt, fish, flyfish (not shown), camp, target shoot, etc. E5 is the only cluster in which a substantial number use chewing tobacco. Musically, they favor Shania Twain, Lynyrd Skynyrd, CCR, and ZZ Top (not all shown).

E6 are contractors, a landscaper, farmer, building & maintenance workers, sales & service employees and managers, a correction officer, plant foreman, and owners of two small retail businesses. Like E5 they enjoy rustic outdoor activities. The activities they engage in tend to be manly and handy. Musically they favor classic rock.

E8 also do rustic outdoor activities. They all drink coffee, but tend not to drink soda. Unlike other E clusters, they do not regularly drink beer or mixed drinks.

F group has many younger adults, a high number of singles, and many renters. Income tops out under $36,000. Except for F5, F clusters are mainly female, and service work is the norm. Pop radio is popular. Romance is the favorite book & movie genre, *Pretty Woman* a favorite movie, and Julia Roberts a favorite actress.

F4 is nearly all female, and pink collar: cashiers, sales persons, waitresses, bartenders, a nursing assistant, childcare provider, domestic house cleaner, secretary, insurance agent, and factory worker. Rates of domestic chores, smoking, and shopping clothing stores are high. Romance is the most popular genre, *Pretty Woman* a favorite film, as are *Titanic* and *Speed*, and Julia Roberts and Sandra Bullock popular actresses.

Gender-balanced F5 includes deli and seafood counter clerks, waitress/cook, bartender, customer service representative, and factory worker, but also farmers, truck driver, laborer, maintenance workers, and carpenter. Stephen King is a popular author.

The H group, along with B23, is the core of the religious right. They have high numbers on virtually all religious activities and are very likely to vote. They are overwhelmingly Republican and mainly Protestant.

H1 is mostly retired women. A large minority identify as homemakers, and probably a majority actually are. Despite the fact that no one in the cluster is formally employed, they were likely to report several work activities. They have high participation on all religious activities and most political activities, and are nearly all Republican. Many listen to Christian radio. They don't smoke and mostly avoid alcohol, but are likely to drink tea. The cluster in some ways is a female mirror of cluster B23.

H3 is mostly females who identify as homemakers, though some also are employed. Despite low rates of employment, they were likely to report several work activities. The cluster has high numbers on all religious activities, are virtually all Republican, with about a third identifying as Conservative. They tend to drink tea, and wine rather than beer.

The I group is mainly female, and nearly all employed, typically in healthcare, office and administrative support, education, community and social service jobs, sales, personal care, and managerial jobs. The rate of identifying as homemakers in these cluster is quite low compared to other female clusters, comparable instead to male-dominant clusters.

I1 is half of the I group. It includes secretaries, nurses, computer consultants, office managers, information clerks, bookkeepers, health care technicians, social service administrators, cosmetologists, and others. I1 has lower participation in religious and political activities than do other I clusters.

I2 are mostly health care therapists, educators, and administrators. They do not say grace or read the Bible regularly, but tend to have high rates on other religious activities. They are likely to shop for clothing at the mall and outlet stores. Relative to I3, I2 favors golf and bowling and mor social leisure activities.

I3 similarly include nurses, teachers, health-care or social service administrators, college admissions counselors, a bank clerk, budget analyst, and cosmetics salesperson. The cluster has high rates on all religious activities. Relative to I2, I3 favors hiking, camping and individual leisure activities.

IX includes financial experts, store managers, a small business owner, social workers, and a secretary. They are doers, with high rates in many activities, and likely to have various material possessions. *Drew Carey* and *ER* are popular TV shows.

The two small J clusters are combined into one group for this profile. They include independent craftspeople, small business owners, an accountant, camp director, postal clerk, and a local politician. The J group has high rates on religious and political activities. Most listen to Christian radio. They all take vitamin supplements.

Despite diverse occupations, cluster M has high proportions on every job activity except working alone. They all take vitamins and use aromatherapy. Most drink bottled

water regularly. They are typical TV watchers and have high rates on all other cultural media. None read *Reader's Digest*.

The Q cluster are travelers, none of whom visit New York City, but otherwise having high rates on most travel destinations, and particularly likely to list numerous states on the open-ended travel question. They tend to visit museums and historic sites, but are less likely than most to listen to radio or recorded music, or even to watch TV or use the phone regularly. They are roughly twice as likely as any other cluster to read *Reader's Digest*.

Marker Variables

Some lifestyle behaviors, e.g. shopping at grocery chain #1, frequenting the post office, and watching TV, were common across most clusters. Other lifestyle behaviors stand out as marker variables, characteristic of a few clusters. For example, aromatherapy was heavily concentrated in the F and I groups and M cluster. Hunting was concentrated in the E group and C1. Clusters tended to be either high or low on playing golf. Playing basketball was concentrated somewhat in B13, E5, E6, F4, and D1. Aerobics was popular in B9, B13, B18, H3, F group, I group, and M, but not in other clusters. Tennis was popular only in B11, D1, and IX. Fly fishing popular almost entirely in E5, E6, and E8. Downhill skiing was concentrated in E4 and to some extent also D1, I2, and M. C1, E4, I3, and IX were almost the only clusters in which rollerbladers could be found. B11, I3, IX, and J were the primary clusters for cross-country skiing. Canoeing and Ice skating were each concentrated in different handfuls of clusters, yet both including C1, I3, IX, and M. Hockey fans were drawn primarily from the E and F groups, and B13. Interest in NASCAR drivers Dale Earnhardt and Mark Martin was concentrated somewhat in E5 and E6. Basketball and soccer as fan sports were most popular in the I group and M

cluster, with some support each in a few other clusters. Users of chewing tobacco were heavily concentrated in cluster E5, the outdoorsmen.

B8 was the only cluster with many people frequenting County Trust. The two credit unions tended to have some patrons in many clusters, but each was highly popular with just a handful of clusters. Q cluster was far more likely to eat at the B&B restaurant than any other cluster. Frequenting the rustic bar was almost exclusive to E and F group clusters, and these two groups also dominated attendance at the downtown tavern, but much less exclusively. No cluster had many people frequenting the rent-to-own place, but doing so was almost exclusive to B clusters, and somewhat concentrated in B1, B4, and B9. Visiting the golf course was mainly found in I group, E group, Q, B13, and B18, while frequenting the ice rink was common mainly in IX, M, C1, F group (other than F4), I3, D1 and B11. Frequenting and shopping in nearby towns combined to form a set of marker variables with many clusters not tending to go to any (e.g. B1, B2, B4), some going to all three (e.g. I3, IX, M), others primarily to just one or two of the towns (e.g. E4, I1, I2), and in a few peculiar cases indicating they shopped in a town without indicating they frequented it (e.g. B15, and to a lesser extent I2 and J).

Interest in radio morning shows was identified mainly with I3. There was a level of interest in listening to radio news across most clusters but with the possible exception of J, there were no clusters where that interest was anywhere as widespread as in B15. Interest in classic rock radio was focused in B9, C1, E4, E5, E6, and I2. Except for C1 which listed a wide variety of radio stations, listenership in each regional, i.e. outside Tyboro, radio stations was typically focused in a handful or fewer clusters. The two exceptions were regional Christian radio which was listened to mostly by highly religious clusters and very little by those in other clusters, and regional 80s/90s station #1 whose listeners were mainly from the F and I groups of clusters and B11, but with one or two each in a number of other clusters.

Readership of the Tyboro weekly paper is notably stronger in H and I clusters, J, and B15 than in other clusters. H3 and I2 are about the only clusters that read the nearby town daily. Just a handful of clusters including M and E4 read the big city paper. Readership of the regional daily paper is strongest in F4, M, Q, B13, and to a lesser extent a few other clusters. *Reader's Digest* has a following in many clusters but is particularly strong in Q, and also B16, B18, J, and I2.

F clusters all have high rates of listing romance as a literary genre, a trait that only B15 and I2 share with them. Religious and Bible as genres are found mainly in the H clusters, D1, and J. Heavy interest in biography characterizes B18, H1, I2, I3 and M. Mysteries are concentrated B11, F5, I2, and M. Even preference for novels is focused in B18, E4, H3, I3 and J clusters. Heavy prevalence for any literary genres is limited to about a dozen clusters.

Overview

The cluster profiles in Tables 6.6a-z provide evidence of heterogeneity across clusters, not only with regard to specific variables, but also of sets of variables. Domestic chores, religious, and political activities, and also athletic activities, travel, home furnishings, and other sets of variables tend to co-vary. The profiles also provide evidence of homogeneity within clusters: a number of instances of clusters with very high or very low proportions on particular variables. Moreover the pattern of covariance across variables within any cluster often makes logical sense, providing a degree of face validity. However, the profiles do not provide a ready overview of the extent to which clusters exhibit homogeneity.

Table 6.7 presents the ratio of the mean square dissimilarity of dyads between clusters to the mean square dissimilarity of dyads within the same cluster for each cluster, on each of the fourteen lifestyle indices. The sum of squared dissimilarities in any given

lifestyle is taken across all dyads that belong to different clusters and also, separately for each cluster, across all dyads that belong to the same cluster. The numbers in Table 6.7 are the ratio of the former to each of the latter. Each value indicates the multiple by which variability in that index for that cluster is less than the variability in that index for the population of respondents. Higher values indicate greater homogeneity. A score of one indicates a cluster at the same variability as the population. Values less than one indicate greater heterogeneity than in the population generally.

[TABLE 6.7 ABOUT HERE]

It must be kept in mind that it is inherent in the nature of clustering processes that the homogeneity within the analytic clusters they yield will typically be greater, across all index variables, than the homogeneity between clusters. Contrasting the numbers in Table 6.7 against a field of unit values would provide a false basis for gauging whether we have real clustering rather than simply an artifact of the clustering process. Table 6.7 should be contrasted instead against a benchmark of values from a clustering of randomized data with the same distribution as the observed values.

[TABLE 6.8 ABOUT HERE]

Table 6.8 shows a set of benchmark ratios produced by scrambling the distances between dyads in a Monte Carlo technique. The lifestyle subindex dissimilarities and total dissimilarity of each dyad were assigned to a different, random dyad, to eliminate any non-random clustering among the data. These reassigned values were then clustered to produce a set of analytic clusters roughly comparable in number and size to those produced with the original data, though the Monte Carlo clusters were far more evenly distributed as a result of the randomization, for which ratios of mean square dissimilarity were computed. Table 6.8 shows the mean and standard deviation of each subindex ratio across the set of Monte Carlo clusters.

Ratios in Table 6.7 that were two or more standard deviations greater than the benchmark have been bolded. The prevalence and magnitude of those numbers indicate

considerable real clustering in the Tyboro lifestyle data. That is, homogeneity within and heterogeneity between cluster cores, i.e. the existence of lifestyle "poles". However it does not speak to the issue of boundedness between those cores, which we already know is relatively lacking.

In addition to comparison against Monte Carlo benchmarks and the face validity of descriptive profiles, other validating evidence is the relative homogeneity within clusters and heterogeneity between clusters of variables that were not included in the clustering process: occupation, demographic variables, and automobile ownership. The tendencies observed in many clusters regarding the make and age of vehicles, which was not in any way a basis for identifying those clusters, would be highly unlikely if there were not truly a life style or habitus operating in real life which the clustering algorithm at least crudely captures. Likewise various demographic variables such as age, income, gender, marital status, and education. Though they have no direct impact in the clustering algorithm the clusters nevertheless show some marked demographic trends, suggesting these variables likely impact participation in a number of the lifestyle activities that are a direct element of the clustering. Some of this impact (e.g. age and athletics) may be due to constraining physical aspects, some due directly to money perhaps, but also implies (e.g. marital status, education) demographic impact on social relations more generally.

The occupational perhaps deserves special attention. The degree of occupational homogeneity in the Tyboro clusters is dramatic. Particularly so since occupation played no direct part in identifying the clusters. However occupations inherently tend to differ in the work activities they entail. That alone may explain the level of occupational homogeneity, which would not be inconsistent with the argument that the sheer scope of occupation as a context in which we spend so much of our lives, daily and across the lifespan, make occupation a primary driver of class differentiation that would continue to exist even if relations of production understood narrowly as ownership of the means of production were meaningless. Additionally the tendency might reflect the other half of

our argument: that occupation is a major identity in our social relations generally and it is our social relations overall which create class position. This might be conceptualized either as productive relations being an extensive type of social relation or, perhaps more usefully, conceiving of production as an aspect which characterizes, to a greater or lesser degree, all social relations. The correspondence between occupation and cluster may also be indirectly strengthened by the mutual impact of age and gender on occupation and various lifestyle behaviors. Given these considerations the observed occupational patterns may seem far less dramatic, but in contrast to the possibility of having analytic clusters with less clear occupational it remains at least somewhat validating.

It is very unlikely that the analytic clusters offered here are the strongest possible set of such clusters that might be produced in terms of representing the degree of real world clustering in Tyboro. A different dissimilarity metric, such as a pattern dissimilarity measure in lieu of a simple difference measure, or changing the weights of the variables, might yield sharper clustering, as hinted at by a preliminary "quick and dirty" analysis. Excluding some of our variables that may not have been salient in any clusters, or including omitted variables that were, might improve the clusters. Using different clustering strategies yields different outcomes, of those tried there is some reason but no solid basis for believing the current approach is one of the best, and there are a number of unexplored possibilities. Lacking clear theoretical bases to guide such methodological choices leaves such evaluation mainly to trial and error and the combinations of design choices are virtually infinite.

It is not difficult to imagine that an approach exists that would yield a superior result, showing greater homogeneity and perhaps even evidence of cluster boundedness which could not be found in this analysis. Fortunately, it is not incumbent upon our research to provide the best possible cluster model, though if time and other circumstances permitted that would be desirable, or even to gauge the goodness-of-fit of our model. With regard to presenting a model of clustered lifestyle, what is incumbent

upon this research is only to demonstrate that at least one local population, Tyboro, is divided into lifestyle clusters. The existing analysis shows sufficient between-cluster heterogeneity and within-cluster homogeneity to illustrate that, albeit without evidence of the boundedness which we anticipated, and to validate that the phenomenon is not a mere analytic artifact of the clustering process, but has a real world existence, based in everyday behavior differences.

Figure 6.1a Distribution of Agglomeration Levels for Perfect Clusters (Hypothetical)
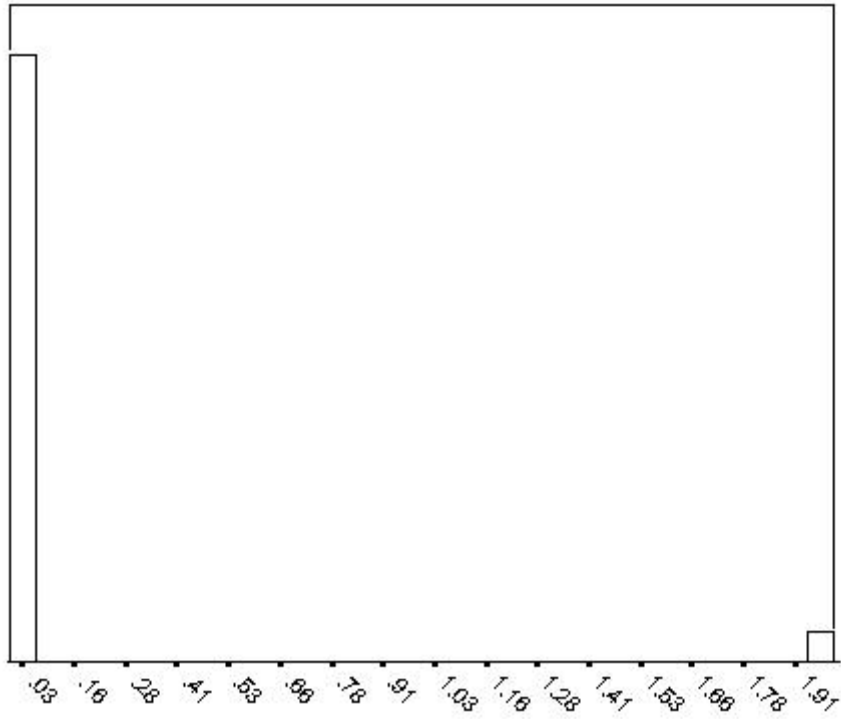
Figure 6.1b Distribution of Agglomeration Levels for Tight Clusters (Hypothetical)

215
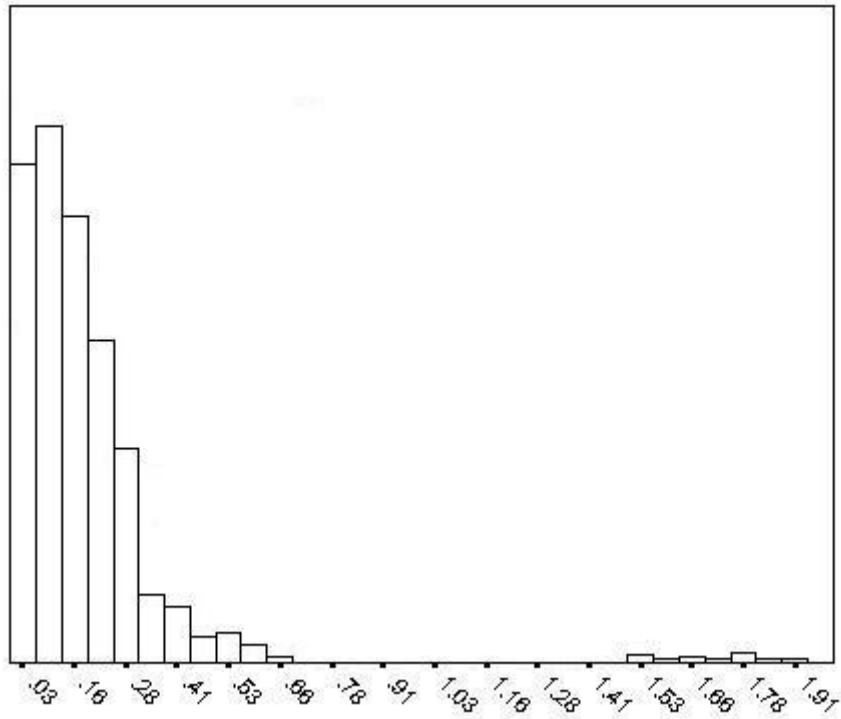
Figure 6.1c Distribution of Agglomeration Levels for Random Dyads (Complete Link)
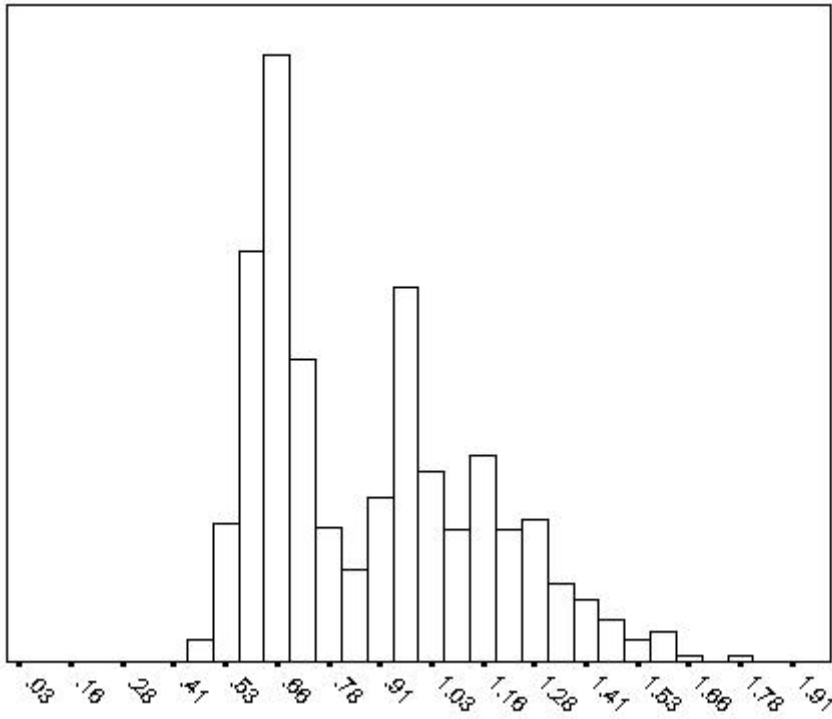
Figure 6.1d Distribution of Agglomeration Levels Monte Carlo Dyads (Complete Link)
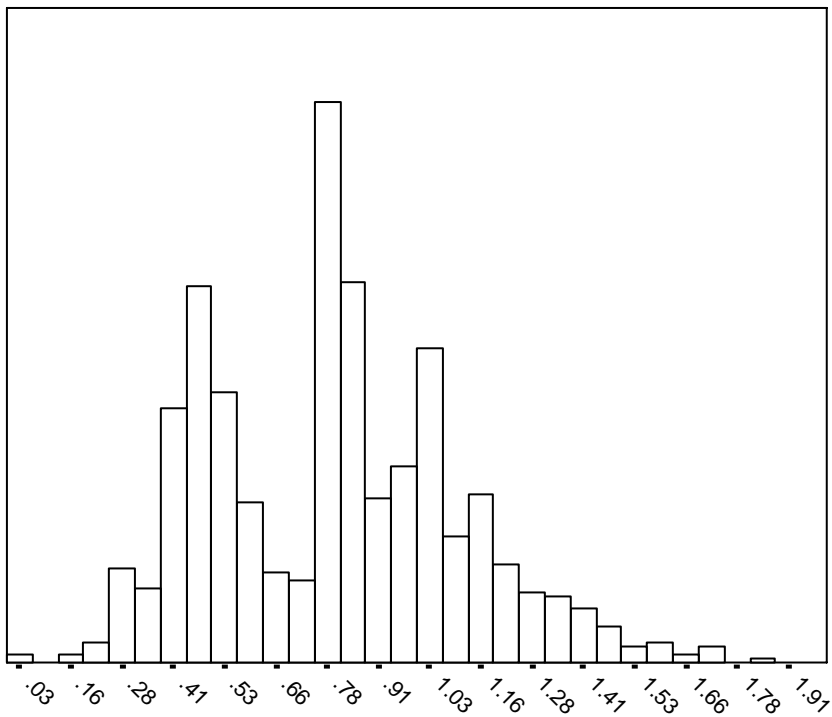
Figure 6.1e Distribution of Agglomeration Levels for Tyboro Data (Complete Link)
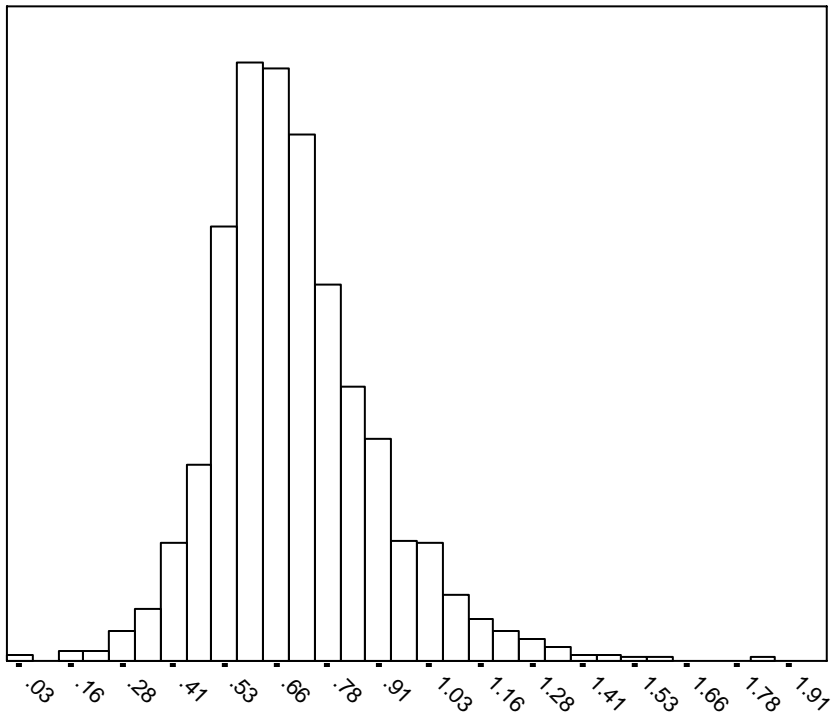
Table 6.1 Frequency of Lifestyle Cluster N at Various Dissimilarity Levels (Complete-Link)

	N of Clusters	Cum. % Reduction	1	2-3	4-7	8-15	16-31	32-63	64+	Max Size
0.55	957	20.80%	793 82.90%	150 15.70%	12 1.30%	1 0.10%	1 0.10%	0 0.00%	0 0.00%	27
0.65	667	44.80%	364 54.60%	259 38.80%	37 5.50%	5 0.70%	1 0.10%	1 0.10%	0 0.00%	36
0.75	400	66.90%	84 21.00%	220 55.00%	78 19.50%	13 3.30%	4 1.00%	1 0.30%	0 0.00%	40
0.85	240	80.10%	21 8.80%	83 34.60%	105 43.80%	23 9.60%	5 2.10%	3 1.30%	0 0.00%	40
0.95	123	89.80%	4 3.30%	18 14.60%	38 30.90%	43 35.00%	15 12.20%	5 4.10%	0 0.00%	47
1.05	68	94.40%	1 1.50%	5 7.40%	11 16.20%	23 33.80%	21 30.90%	4 5.90%	3 4.40%	98
1.15	36	97.00%	0 0.00%	3 8.30%	1 2.80%	8 22.20%	11 30.60%	8 22.20%	5 13.90%	148
1.25	18	98.50%	0 0.00%	0 0.00%	0 0.00%	4 22.20%	2 11.10%	4 22.20%	8 44.40%	261

Table 6.2 Agreement Among Cluster Strategies

Focal Cluster Strategy	Crosschecking Strategy	% with plurality
Complete-Link Clusters (15D)	Average-Link Clusters (15D)	61.0%
Complete-Link Clusters (15D)	Hierarchical Clusters Direct from Data	40.4%
Complete-Link Clusters (15D)	K-Means Clusters, Running Means	46.0%
Complete-Link Clusters (15D)	K-Means Clusters, Iterative Means	45.5%
K-Means Clusters, Running Means	K-Means Clusters, Iterative Means	52.3%
Complete-Link Clusters (15D)	Density Clusters	63.4%
Complete-Link Clusters (14D)	Complete-Link Clusters (15D)	37.9%
Complete-Link Clusters (15D)	Complete-Link Clusters (14D)	43.1%
Complete-Link Clusters (14D)	Average-Link Clusters (14D)	55.3%

Note: Different strategies entail different metrics and weightings, may identify clusters based on reduced sets of lifestyle variables and/or reduced numbers of cases, as described in the text.

Table 6.3a Complete Link (rows) by Average Link (columns) 2-Letter Clusters, Part I

	G	QA	Q*	AC	AB	AA	BS	BR	BA	BB	BC	BD	BE	BH	BF	BI	BN	BG	BJ	BK	BM	BL	BO	BQ	BP	B*	EA	EC	EB	ED	EE	EF	EG	E*
IA			3																															
IB		5	2																															
HC		4																			13													
HB																					16		2	3										
HA																					23					2								
HD									24											4	43	6				2								
HE									2												10		3											
HF																									16									
HG				3	2																													
BC																			11															
BB						7			6										7	4														
BA									9								6		5															
BD									2	9																								
AI											2																							
AC										2	9		2													2								
AG								2	33	4	4							3																
AE									37	6																								
AA						5			6	4															8									
AB									3	73															2									
AF									25																									
AD									11																									
AH																											4							
CA	3																														9			
CB																															19			
CC							2			2																					6			
CD										2																	6				5		3	
CE										2																	2					2		
CF										2																					3	2		
CG										7		2				2																2		
CH																															9			
CI																																		
DC																																		2
DD												2		3																				
DE													3																					
DA																											3							
DF										16									2				2				7							2
DH																													2	2				2
DG													3															7						
JG																																		
JF																																		
JA									3																									
JC									6																									
JB									5				6																					
JD													4															2						
JE											2				4																			
KA																										3								
KB													2																				3	
KC																																	5	
KD											2																							
KE																																		
OE											3	4																						
OD											7	2	2	2																				
OF									2				3	4						5	2													
OG																				5						2								
OH																				9														
OB																				6														
OC																				8														
RA																				4														
RB																				4	2	2												
RC																																		
PA											3																							
PB																																		
PC																						4		2										
NA																					2													
NC																				2														
NB															2					2														
ND																																		
NE																																		
NF																																		
LA																																		
LB																																		
L*																																		
EA																																		
EB																																		
MD																																		
MF																																		
ME																																		
MA																																		
MB																																		
FA																																		
FB																																		
FC																																		
FD																																		
GA																																		
GB																																		
QA																																		
QB																																		

Table 6.3b Complete Link (rows) by Average Link (columns) 2-Letter Clusters, Part II

	FA	FB	FC	F*	CA	CB	CC	DA	DB	DC	IG	IA	IC	IB	ID	IE	IF	HA	HB	JA	JB	K	L	N	O	P	M	M*	R
IA																													
IB																													
HC																													
HB																													
HA																													
HD																													
HE																													
HF																													
HG																													
BC																													
BB																													
BA																													
BD	4																												
AI			3																										
AC																													
AG																													
AE																													
AA																													
AB																													
AF																													
AD																													
AH																													
CA		2			3																								
CB																													
CC																													
CD																													
CE																													
CF		2																											
CG	5																												
CH							2																						
CI	2																												
DC							5																						
DD					2																								
DE					2																								
DA						3																							
DF																													
DH																													
DG														2															
JG													4																
JF								3				3																	
JA								9																					
JC								3																					
JB	3																												
JD																													
JE																													
KA																													
KB																													
KC			3															3											
KD									2											3									
KE																					4								
OE																													
OD																													
OF						4																							
OG																													
OH									2				2																
OB																													
OC													3																
RA													8																
RB													8																
RC							3																						
PA	7														3														
PB																	4												
PC						2							7	5	2														
NA											2	10	2																
NC	2						2								2								4						
NB						2												4									2		
ND																		8											
NE															4			4											
NF													3	2				2		2									
LA																		2	4										
LB														2	3														
L*																								2					
EA																	3	6					2						
EB																		2		4									
MD		6	3																										
MF	3														3														
ME				2																					2				
MA																								2	2				
MB																											3		
FA																										2			
FB															4	7													
FC								2		2			2	5															
FD																												2	
GA								3																			4		
GB																													2
QA								3																					
QB						4																							

Table 6.4 Cluster Identifications

	Frequency		Percent
AX	5		0.4%
B1a		**26**	2.1%
B1b	**88**	**56**	4.6%
B1*		6	0.5%
B2		**33**	2.7%
B4		**148**	12.2%
B8		**15**	1.2%
B9		**13**	1.1%
B10		4	0.3%
B11		**18**	1.5%
B12		7	0.6%
B13		**10**	0.8%
B14	**664**	4	0.3%
B15		**9**	0.7%
B16		**115**	9.5%
B17		**18**	1.5%
B18		**48**	4.0%
B19		4	0.3%
B20		4	0.3%
B21		6	0.5%
B22		6	0.5%
B23		**30**	2.5%
B*		84	6.9%
C1		**8**	0.7%
C2		4	0.3%
C3	**23**	4	0.3%
C4		4	0.3%
C*		3	0.2%
D1	17		1.4%
E3		**22**	1.8%
E4		**12**	1.0%
E5a		**9**	0.7%
E5b	**113**	**46** / **24**	2.0%
E5*		13	1.1%
E6		**15**	1.2%
E7		7	0.6%
E8		**11**	0.9%
F1		4	0.3%
F2		7	0.6%
F4	**42**	**13**	1.1%
F5		**17**	1.4%
F*		1	0.1%
H1		**9**	0.7%
H2	**37**	4	0.3%
H3		**18**	1.5%
H4		6	0.5%
I1		**50**	4.1%
I2		**12**	1.0%
I3	**100**	**21**	1.7%
I5		4	0.3%
I6		4	0.3%
IX		**9**	0.7%
J1	**11**	4	0.3%
J2		7	0.6%
K	4		0.3%
M	**9**		0.7%
O	5		0.4%
Q	**14**		1.2%
**	165		13.6%
Total	**1209**		**100.0%**

Table 6.5a Cluster ID Mapped on Average- by Complete-Link Clusters, Part I

	IA	IB	HC	HB	HA	HD	HE	HF	HG	BC	BB	BA	BD	AI	AC	AG	AE	AA	AB	AF	AD	AH	CA	CB	CC	CD	CE	CF	CG	CH	CI
QA		Q	Q																												
Q*	Q	Q																													
AC									AX																						
AB									AX																						
AA											B1							B1													
BR				**											B*																
BA							B2	B*		B1	B2	B*			B1	B1	B1	B*													
BB													B4		B*	B4	B4	B*	B4	B4	B4		B*	B*	B*	B*	B*	B4			
BC														B9	B9	B10	B*				B*									B*	
BD																															
BE															B*	B*					B*									B*	
BH						B*									B*																
BF																															
BI																														B*	
BN												B22				B*															
BG				B*						B17	B17					B*								B*							
BJ	B16	B16	B16	B16	B16					B*	B15	B15				B*															
BK					B16	B16					B*																				
BM		B21																													
BL		B21	B21																												
BO						B*	B*																								
BQ					B23	B23			B23						B23	B23					B23										
EA													**									E3			E3	E3					
EC																															
EB																															
ED																			**				E5	E5b	E5	E5		E5b			
EE																									E6	E6	E6	E6			
EF																					**				E8	E6					
EG																													E6		
FA													F1																F2		F2
FB													F*										F5				F5				
FC													**																		
CA																							**								
CB																															
CC																														C1	
DA																															
DB																															
IG																															
IA																															
IC																															
IB																															
ID																															
IF																															
HA									**																						
HB																															
JA																															**
JB																															
K																															
O																															
M																															

Table 6.5b Cluster ID Mapped on Average- by Complete-Link Clusters, Part II

	DC	DD	DE	DA	DF	DH	DG	JG	JF	JA	JC	JB	JD	JE	KB	KC	KD	KE	OE	OD	OF	OG	OH	OA	OB	OC	RA	RB
QA																												
Q*																												
AC																												
AB																												
AA																												
BR																												
BA																				B*								
BB						B4				B8	B8	B8		B8														
BC		B9				B*								B11		**			B11	B11								
BD																			B11	B11								
BE							**					B13	B13		**						B*	B12						
BH		B*																			B*	B12						
BF														B14														
BI			**																									
BN									B*	B*																		
BG						B*								B*														
BJ											B*					**			B18	B18	B18	B18	B18	B18	B18		B18	B18
BK						B*															B18						B18	B18
BM																												B*
BL																												
BO																												
BQ						B*																						
EA				E3	E3																							
EC							E4					**																
EB						E4	E4																					
ED			E5			E5	E5																					
EE																												
EF	E7	E7		E7											E8	E8												
EG	E7	E7																										
FA											F4																	
FB																F5												
FC																												
CA		C4	C4																									
CB				C*																	C3							
CC	C1			C1																								
DA								D1		D1	D1												**					
DB										D1	D1						**											
IG																												
IA								**															I3			I3	I3	I3
IC							I6																					
IB			**				IX								**				**									
ID																												
IF																												
HA											**				H2	H2										**		
HB																												
JA										**						J2												
JB																	J2											
K															**													
O																												
M																												

Table 6.5c Cluster ID Mapped on Average- by Complete-Link Clusters, Part III

	PA	PB	PC	NA	NC	NB	ND	NE	NF	LA	LB	EA	EB	MD	MC	MF	ME	MA	MB	FB	FC	GA	QB
QA																							
Q*																							
AC																							
AB																							
AA																							
BR																							
BA																							
BB	**																						
BC																							**
BD																							
BE			**					**															
BH						**																	
BF																							
BI							**																
BN																							
BG																							
BJ							**																
BK			B20		B19	B19																	
BM				**								**											
BL																							
BO			**																				
BQ																							
EA																							
EC																							
EB																							
ED																							
EE																							
EF						**																	
EG																							
FA	F4				**										F4								
FB														F5	F5								
FC														F5									
CA																							
CB			**		**																		C2
CC																							
DA																							
DB					**																		
IG				IX							IX												
IA				I2																	I1	**	
IC	I1	I1		I2																	I1		
IB		I1							I1		IX					**				I1	I1		
ID		I1			I1			I1	I1											I1	I1		
IF		I5																					
HA						H3	H3	H3	H3	H4		H1	H1										
HB										H4													
JA									**				J1										
JB																							
K					K																		
O															O		O	O					**
M						M													M		**	M	

Table 6.6a Major Clusters by Selected Demographic Variables

	N	Age			SEX			Marital Status				kids	adult kids	H.S. %	Coll. %
		Min	Med	Max	%F	%M	%U	%M	%W	D/S	%S				
AX	5	53	61	67	80	20		80			20		80	100	20
B1	6	35	50.5	72	67	17	17	50	17	33		33	50	83	17
B1a	26	22	49	73	65	27	8	18		50	32	12	50	77	12
B1b	56	22	67	89	57	20	23	42	24	20	14	2	66	64	7
B2	33	65	77	87	70	15	15	32	52	16			82	67	6
B4	148	21	65	95	39	40	21	51	13	17	19	14	50	57	11
B8	15	34	47	91	60	13	27	54	46			53	33	67	27
B9	13	23	42	77	69	15	15	23	23	31	23	46	54	100	38
B10	4	45	62.5	78	50	25	25	50		25	25	25	75	50	
B11	18	25	44.5	60	72	22	6	89		6	6	44	33	94	67
B12	7	42	53	67	100			71	14	14		14	57	100	57
B13	10	27	35.5	49	50	40	10	70			30	60	20	90	80
B14	4	35	40.5	47	25	50	25	75	25			50		100	100
B15	9	40	75	90	89		11	11	56	22	11	11	78	78	11
B16	115	46	74	92	73	10	17	50	39	7	3	2	82	85	17
B17	18	37	60.5	85	11	72	17	60	7	20	13	17	89	89	22
B18	48	33	63	91	73	13	15	65	22	9	4	17	79	88	33
B19	4	47	58	80	100			75	25				75	100	50
B20	4	49	58.5	66	100			50		50			75	100	50
B21	6	40	46.5	72	17	83		17		50	33	17	33	100	17
B22	6	51	74.5	93	50	17	33		40	40	20		50	67	17
B23	30	52	74	88	27	67	7	72	21	3	3	3	83	77	30
B*	84	26	57	92	43	43	14	51	21	15	13	24	67	77	24
C1	8	31	36.5	48	13	88		100				88	13	88	50
C2	4	44	44	48	75	25				67	33	50	50	75	
C3	4	63	64.5	79	50	50		75	25				100	100	75
C4	4	30	46.5	56	25	50	25	25		50	25	25	50	100	
D1	17	23	39	79	59	35	6	76	6	12	6	65	29	100	71
E3	22	42	60	81		81	19	84	5	5		14	81	77	32
E4	12	29	39	55	42	42	17	92	8			8	42	100	92
E5a	9	25	38.5	50		100		78		11	11	33	33	100	22
E5b	24	20	40	65	4	83	13	67		21	13	58	21	88	8
E5*	13	40	57	72		92	8	92			8	31	62	77	23
E6	15	28	40	57	7	80	13	50		21	29	47	27	80	20
E7	7	41	52	59	14	71	14	86		14		43	57	100	43
E8	11	44	68	81	9	55	36	91		9		9	82	100	9
F1	4	22	28.5	39	100			50		25	25	75	25	100	25
F2	7	20	28.5	38	86		14	17		17	67	57		71	14
F4	13	27	38	52	85		15	38		31	31	77	38	100	8
F5	17	21	41	54	44	56		31		31	31	47	38	76	12
H1	9	66	71	85	89	11		67	33			11	89	100	22
H2	4	48	66	67	50	25	25	50	25	25		25	50	100	50
H3	18	29	59	79	83	6	11	83	11	6		39	61	100	33
H4	6	34	53	65		33	67	100				17	50	83	50
I1	50	22	45	64	78	6	16	60	4	23	13	50	52	98	42
I2	12	37	50.5	64	75	17	8	67		25	8	58	50	92	58
I3	21	34	46	73	86	14		60	10	20	10	52	57	95	90
I5	4	21	24.5	47	50	25	25	75			25	25		100	75
I6	4	42	46	53	75		25	25		75		25	50	100	75
IX	9	28	43	49	67	22	11	100				89	56	78	67
J1	4	61	66.5	71	50	50		75			25		75	75	75
J2	7	32	50	66	43	57		50		17	33	29	14	71	43
K	4	43	51.5	58	50	50		50	25		25		75	100	75
M	9	34	45	61	78	22		56		44		33	67	100	67
O	5	34	36	49	40	60		75		25		80		60	20
Q	14	26	68	83	36	50	14	71	21	7		7	79	86	43

Table 6.6b Major Clusters by Home Tenure and Economic Variables

	N	HO	Rent	Other	$0K	$12K	$24K	$36K	$48K	$60K	$100K	<$0	<$.5M	>$.5M
		Home Tenure						Income					Assets	
AX	5	80	20		50	25	25					100		
B1	6	50	33	17	50	25	25						40	60
B1a	26	17	71	13	78	17	4						31	69
B1b	56	39	46	15	88	10	2						41	59
B2	33	61	23	16	54	42	4						6	94
B4	148	54	33	13	59	26	12	2			1	26	69	4
B8	15	86	14		50	29	14	7					40	60
B9	13	77	15	8	15	38	31	8	8				50	50
B10	4	75	25		50		50					100		
B11	18	78	17	6	12	12	35	12	24	6		13	87	
B12	7	100			29	29	14	14	14				83	17
B13	10	90	10			25	38	25	13			38	63	
B14	4	100			25			25		50			100	
B15	9	44	22	33	78	22						40	60	
B16	115	74	11	15	36	43	18		1	1	1	1	99	
B17	18	61	33	6	41	24	24	6		6		20	80	
B18	48	84	9	7	26	42	11	11	5	5		9	89	3
B19	4	75		25	25	25	50						100	
B20	4		33	67	67		33						100	
B21	6	67	33		33	67						40	60	
B22	6	33	50	17	67	33						25	75	
B23	30	83	10	7	28	16	44			12		10	90	
B*	84	70	22	9	35	35	19	8		3		19	80	2
C1	8	88	13			14	14	43	29			14	86	
C2	4	33	67				67	33					100	
C3	4	100				25	50	25					100	
C4	4	50	50			25	25			50		25	75	
D1	17	65	35		13	27	7	20	20	7	7	9	91	
E3	22	95			5	20	30	10	20	10		6	72	17
E4	12	100			13	13	25	25			25		71	29
E5a	9	100				33	44	22					100	
E5b	24	83	17		9	39	39	9		4		17	83	
E5*	13	100			23	23	31	23				8	92	
E6	15	79	14	7	7	29	21	21	14	7		25	67	8
E7	7	86	14			29	29	29		14		29	71	
E8	11	91	9		27	36	9	9	9		9	13	75	13
F1	4		100		50	50						25	75	
F2	7	33	50	17	17	50	33					17	83	
F4	13	50	42	8	18	64	18					67	33	
F5	17	31	56	6	50	25	19					36	57	
H1	9	100			50	13	25	13					100	
H2	4	100			33	33	33						100	
H3	18	89	6	6	53	27	20					8	92	
H4	6	100						33	33	33			67	33
I1	50	76	12	12	15	42	23	6	10	4		5	93	2
I2	12	75	8	17		17	17	25	25	17		17	83	
I3	21	95		5	5	19	24	19	24	5	5	5	95	
I5	4	75		25	100								100	
I6	4	75		25				50	50				100	
IX	9	100				11	33	11		22	22		100	
J1	4	100			25		50	25					100	
J2	7	83		17		67	33						100	
K	4	75		25		25	50			25			100	
M	9	67	33		13		75	13				25	75	
O	5	20	80		20	40	40						100	
Q	14	85	8	8	8	15	46	8	23				100	

Table 6.6c Major Clusters by Selected Occupational Variables

	N	Work Category					S.E.	Hmkr	Occupational Category					
		%FT	%PT	%Dis	%Ret	%UnE	%	%	11	13	15	21	23	25
AX	5	60			20	20		20						33
B1	6	17	17	17	17	33		33						33
B1a	26	8	8	19	35	31		23		17				17
B1b	56	15	4	9	57	15	4	18				6		
B2	33		3	3	88	6		15						
B4	148	18	14	5	50	14	4	7	2			2		
B8	15	33	7		33	27	7	13				29		29
B9	13	69			31					11	11			11
B10	4	50			50									
B11	18	71	24			6		12	6		6	6		50
B12	7	17	33		33	17		14						50
B13	10	90	10				10			11	11			44
B14	4	75	25					25						75
B15	9			33	56	11		22						
B16	115	4	5	3	80	9	1	22						15
B17	18	22	11		67			6						17
B18	48	25	15		52	8	6	25				22		15
B19	4	75			25							50		25
B20	4	25	25		50			50				50		
B21	6	17		33	50			17						
B22	6	17			67	17		33						
B23	30		7	7	83	3		10						
B*	84	33	10	6	45	7	2	13	6		3	6	11	6
C1	8	88	13				13	13						
C2	4	100												
C3	4				100									
C4	4	100					25		25					
D1	17	65			12	24	18	24	14	7		7	7	29
E3	22	65	25		10		40		11					
E4	12	92	8				8	8	17	33			17	8
E5a	9	100					22							
E5b	24	92	4		4		13							4
E5*	13	92			8		23							
E6	15	87	13				47		13					
E7	7	86			14									
E8	11	27	27		45			9						
F1	4	25	50			25								
F2	7	43	57											
F4	13	85	8			8	15	15						
F5	17	56	31			13	6	13						
H1	9				78	22		44						
H2	4	25	25		50			75						
H3	18	11	22		28	39		72	8	8		8		
H4	6	83			17		17		20					
I1	50	82	16			2	14	6	4	4	3	13	3	6
I2	12	92			8				9	18			9	18
I3	21	75	25				10	5		5		16		37
I5	4	100												
I6	4	100											25	25
IX	9	89	11				22	11		33		11		
J1	4	100					75		50					
J2	7	86			14		57		14			14		
K	4	100												25
M	9	78	11		11		11	33						
O	5	60	40					20						
Q	14	29			57	14		14			25		25	25

Table 6.6c Major Clusters by Selected Occupational Variables (Cont'd)

	N	Occupational Category
		27	29	33	35	37	39	41	43	45	47	49	51	53
AX	5		33											
B1	6				33									
B1a	26								17				33	
B1b	56				19	6	6		19		6		13	
B2	33				33									
B4	148	4	4		9	9	16	7	7	4		7	11	9
B8	15						14							
B9	13		22						44					
B10	4												100	
B11	18		6						19					
B12	7								25		25			
B13	10							11					11	
B14	4													
B15	9													
B16	115	5			10				10	5				5
B17	18		17			33			17		17			
B18	48		26		5	5	10		15					
B19	4								25					
B20	4								50					
B21	6										100			
B22	6								100					
B23	30			25				50						
B*	84	3	11	3	3	11	3	6	9			3	9	6
C1	8				13						50		25	13
C2	4												100	
C3	4													
C4	4												50	25
D1	17												7	
E3	22	6	6					44	17					17
E4	12								25					
E5a	9								11		11	11	56	11
E5b	24				4	4				17		22	22	22
E5*	13					17			8	17	17	8	17	8
E6	15		7	7		13		20		7	13	13	7	
E7	7			20		20				20			40	
E8	11		17		17							33	17	
F1	4				50			50						
F2	7				50			33	17					
F4	13				25	8	8	25	8				17	
F5	17				25	13		6	6	19	6		6	13
H1	9													
H2	4					67								
H3	18		17			8			17					
H4	6							40	20					
I1	50	3	19		4		6	8	29					
I2	12		27						18					
I3	21		16	5			5	5	11					
I5	4							25	75					
I6	4								25					
IX	9		22					11	11			11		
J1	4								50					
J2	7	14						14	29				14	
K	4		25						50					
M	9		13				25	13	13				25	
O	5				40			20					40	
Q	14													25

Table 6.6d Major Clusters by Selected Work Activities

	N	sells % R	phone % R	outdoor % R	cash % R	compute % R	lifting % R	animals % R	supervise % R	drives % R	reads % R	dirty % R	industrial equip. % R	assembly % R
AX	5		80	40			20	20		60	100	20		
B1	6		17			17	17			17	33	33		
B1a	26		8				4					4		
B1b	56	5	20	5	11	5	11	2		18	20	7	4	4
B2	33	3	6			3		3	3	6	12			
B4	148	2	14	3	6	3	13	3	4	5	7	9	2	3
B8	15		33	7	13	20		7	7	13	20	7		
B9	13		54		8	62	23		23	8	15	8		
B10	4						25				25			50
B11	18		33			72	6		11		50			
B12	7		14	14		14	14			14	14	14		
B13	10	30	70	20	30	100	20		30	10	20			
B14	4		50			75	25		25		50			
B15	9						11				11			
B16	115		16	4	3	3	2	1		10	17	3		
B17	18		11	17		17	22				11	6	6	
B18	48		25	2	2	15	10		8	10	10	4		
B19	4		100		50	100			25	25	25			
B20	4		25			50								
B21	6			17		17	17					17	17	
B22	6		50	33		17		17	33	17	50	17		
B23	30		7	3	13				3	3	17			
B*	84	6	24	12	4	26	14	2	13	18	17	12	2	1
C1	8	13	25	63	13	13	100		63	50	63	88	50	50
C2	4	25	25			100	25		50			25	75	100
C3	4													
C4	4		50			75	75		50	25	50	75	75	50
D1	17	12	47	6	12	65	6		24	24	29			
E3	22	76	90	38	48	38	33	10	33	81	62	14		
E4	12	67	92	17	67	83	17	8	67	92	67			
E5a	9	11	11	33	11	11	100		11	11	11	78	78	44
E5b	24	4	21	58	4		88	8	17	63	25	75	50	33
E5*	13		31	62		8	92	31	31	85	38	92	38	38
E6	15	67	87	73	60	47	87	13	60	93	73	93	53	20
E7	7		43	29		29	100		29	43	71	57	43	
E8	11		55	55		27	73		9	82	91	73		9
F1	4	75	75		100	25	75			25	75	50		
F2	7	71	86	14	100	86	86		86	71	57	29		14
F4	13	54	77	23	54	69	77		38	15	31	38	8	8
F5	17	50	56	44	38	25	94	13	13	63	44	56	50	31
H1	9		100	78	33		44	44		89	100	44		
H2	4		25	75		50	75		25	100	100	50	25	
H3	18	6	83	61	50	44	61	50	11	94	94	56		
H4	6	50	83	50	50	100	17	33	67	83	100	33	17	
I1	50	40	94	12	52	82	50	8	60	40	52	32	2	2
I2	12		83	17		100			58	42	67			
I3	21	24	71		10	76	10	5	19	29	33	5		
I5	4	75	100	50	50	75	25			50	100			
I6	4	25	75			100			75		75			
IX	9	44	100	33	56	89	22	11	78	78	78	44	11	11
J1	4	100	100		75	75	50			25	25	75	50	
J2	7	86	86	14	71	57	29			14	57	71	14	29
K	4	25	75	50		100	75		100	75	50			
M	9	44	89	56	44	89	89	56	44	89	100	67	33	33
O	5		20		20		100	20	40	20	60	100	60	40
Q	14		21			14			14			7	7	7

Table 6.6e Major Clusters by Selected Household Activities

	N	pick up	dishes	laundry	iron	clean tub /shower	mow lawn	garden	cook food	bake	preserve /pickle	nap	time with kids	floral display
		%R	%R	%R	%R	%R	%R	%R	%R	%R	%O/R	%R	%R	%R
AX	5	100	100	80	60	100		40	100	40			40	40
B1	6	83	83	83		50	17	17	33	17	17	50	33	17
B1a	26	85	81	96	19	65	12	15	73	23	23	19	23	27
B1b	56	86	98	91	18	73	9	5	66	13	9	16	16	
B2	33	100	94	97	24	85	27	15	70	18	18	6	9	9
B4	148	34	41	39	3	25	28	9	15	4	3	16	12	2
B8	15	80	80	100	20	40	20	13	60	7		7	47	
B9	13	85	69	92	15	46	15		85	8		15	54	8
B10	4	75	100	100	50		75	100	100	25	100	50	25	
B11	18	100	89	89	56	56	39	28	67	28	11		44	6
B12	7	100	100	100	29	100	71	71	100	43	57		14	29
B13	10	100	100	90	50	70	70	30	70	20	10		60	
B14	4	100	50	25		25	75	25	25	25			100	
B15	9	100	100	100	11	89	56	33	89	44	22	33	44	33
B16	115	92	95	93	36	76	23	21	80	28	37	21	10	28
B17	18	78	72	50	11	44	44	11	50	22	11	22	11	11
B18	48	100	96	94	52	81	48	44	85	50	50	19	38	35
B19	4	100	100	100	25	50	50	25	75	25	25			
B20	4	100	100	100	75	100	100	100	100	25	25		25	
B21	6	100	100	100	17	50	67	33	67	17	33	50	33	33
B22	6	100	100	100	17	100		33	50	17	17	50		33
B23	30	27	30	13	3	7	20	23	13	3	13	27	7	13
B*	84	76	79	73	21	50	44	24	45	12	14	18	29	11
C1	8	63	38	25	13	13	63	13	38		25	13	75	
C2	4	100	100	100		100	25		50		25		25	
C3	4	75	75	100	75	75	50	25	75	25	25	25	50	
C4	4	100	75	100		50	50	25	75		25	25	25	
D1	17	88	71	53	24	47	35	12	59	12	12	18	76	18
E3	22	33	24	33			57	24	14			5	19	
E4	12	67	67	50		42	50	33	33	8	17		8	33
E5a	9	33	56	22		22	78	33	56	22	22	22	11	
E5b	24	33	21	21		13	46	17	25		8	17	42	
E5*	13	38	15	15		23	92	38	8			8	31	8
E6	15	47	27	27		20	47		27	7	13	7	73	13
E7	7	71	57	43		29	86	43	57		29	43	43	43
E8	11	73	45	36		45	82	45	27	9	55		9	
F1	4	100	75	100	50	75	25	25	100	75	25		75	25
F2	7	100	86	100	43	71	43	14	43	14			71	
F4	13	100	92	100	8	92	23		85	15	8	8	62	8
F5	17	100	94	94	25	75	56	31	81	6	50	6	50	25
H1	9	89	89	89	44	78	44	44	89	67	67	44	33	67
H2	4	100	100	100	75	75	75	75	75	25	75			50
H3	18	94	100	94	61	83	39	56	89	39	78	17	50	22
H4	6	83	67	33	33	33	33	50	67		50	17	33	17
I1	50	100	96	98	46	74	42	36	80	46	36	8	66	20
I2	12	100	92	92	33	75	50	25	75	25	42		75	17
I3	21	90	95	95	57	71	52	52	76	24	43	14	71	19
I5	4	100	100	100	100	25	50		50	50	25		25	25
I6	4	100	100	100	100	75	75	75	100		25		50	25
IX	9	89	89	89	33	67	56	22	67	67	22		100	11
J1	4	100	50	50		25	50					25		
J2	7	57	43	43	29	14	43	14	29				29	29
K	4	100	100	100	75	100	100	75	100	50	50			25
M	9	100	100	89	44	67	67	67	89	33	56	11	44	67
O	5	100	100	100	20	60	40	20	60	20	40	60	40	60
Q	14	86	71	71	50	57	21	21	36	14	7	14	14	7

Table 6.6f Major Clusters by Selected Financial and Health Activities

	N	pay cash	checks	credit	lottery	savings	IRA	stocks	business news	ATM	check blood pressure	vitamins	follows health news	diet	aroma-therapy
		% R	% R	% R	% R	% R	% R	%O/R	% R	% R	% R	% R	% R	% R	%O/R
AX	5	20		20	40	40	20		80	40	40	100	80	40	
B1	6	33	67						17			67		33	
B1a	26	62	12	4	31	12		4	27	15	54	27	50	69	19
B1b	56	20	82	5	5	9	2	2	30	11	27	38	9	7	2
B2	33	3	94	12		15		3	39	9	67	73	15	3	
B4	148	15	32	7	9	13	3	5	11	3	16	27	4	4	1
B8	15	7	87	47		13	13		27	13		20		7	
B9	13	15	92	38	15	38	15		15	69	8	77		15	
B10	4	25	100		50		50				25	100		50	
B11	18		78	72	6	72	67	6	11	56	11	89	11	11	
B12	7	14	100	71		86	43		86	57		71	14	29	
B13	10		100	80		50	30		20	10				10	10
B14	4		75	50			100	50	25	25		25			
B15	9	11	100	22		11			33		44	11	67	22	
B16	115	5	84	31	7	36	5	11	43	5	50	82	36	17	5
B17	18	22	61	11	44	72			78	50	22	22	17	11	
B18	48	13	85	44	8	63	33	29	56	13	31	81	50	35	10
B19	4	25	100	50		50			25		25	100	50	50	50
B20	4		100	75		75	50		100			100	100	75	25
B21	6		83		17	17		50	50	50	83	100	100	17	17
B22	6		100		17	17			67	33	33		33		
B23	30	20	63	33	13	30	10	23	60	7	67	83	37	7	
B*	84	20	67	27	23	32	10	10	44	19	25	48	14	8	5
C1	8		63	63	13	38	63	25	50		25	88			
C2	4		100	25	100	100	100		25	25		75			25
C3	4		100	100	75	75		100	100	25		75		25	
C4	4	25	75	25	75	75	100	50	75	50	25	25			
D1	17	12	71	24	6	29	18	6	29	53		12	18	12	
E3	22	5	62	38	19	29	29	43	24	5	24	67	5	10	
E4	12		75	75	17	58	75	58	83	83	17	42		8	17
E5a	9		56	22	22	44	78		44	33		22			
E5b	24	29	29	8	13	21	46	8	17			13			
E5*	13	38	38	8	8	46	31	15	31	8	46	31		8	
E6	15	40	93	13	20	40	27		27	20	7	7			7
E7	7	14	86	29	29	43	57		71	14	86	29			
E8	11	45	64	27	9	36	18	18	55		45	45	18	36	
F1	4	100	25			25			25	50				50	
F2	7	57	71	14	14	43			29	29		14			14
F4	13	23	92	8	38	38	15	8	46	8	15		15	31	31
F5	17	75	25		6	13	13	6	44	13	25	6	6		25
H1	9	22	100	67	11	56	11	11	78		56	100	56	22	11
H2	4	50	75			75	25	25	25	50		100	50		
H3	18	17	78	28		28	17	17	50	17	11	78	11	22	
H4	6		100	83	17	67	17	50	83		33	83	17	17	17
I1	50	10	98	38	22	64	52	28	64	30	26	70	50	34	38
I2	12	8	75	75	8	83	67	67	83	92	8	67	33	25	25
I3	21		95	57	5	90	62	38	48	24	5	76	38	14	43
I5	4		75	25	25	75	75			75		75	75	50	50
I6	4		100	100	25	75	75		100	75		25	75	25	50
IX	9		100	89	67	89	78	44	56	22	11		22	11	56
J1	4		100	50				25	100		100	100	75	75	25
J2	7		86	57			29	14	43			100	14	14	
K	4	25	100	25		50	75	75	25		50	75		75	25
M	9	56	100	44	11	44	56	33	89	44	56	100	78	33	100
O	5	60	80	20		80	80	40	40	20		100	20	60	20
Q	14	14	93	50	7	43	21	7	50	21	36	71	14	14	

Table 6.6g Major Clusters by Selected Religious Activities

	N	prays / meditates %R/D	attend services %R	tithes %R	religious fasts %O/R	reads holy book %R/D	says grace at meals %R/D	listens to relig. music %R/D	preaches %O/R	Catholic %	Protestant %	Baptist %	Methodist %	Presbyterian %	Episcopalian %
AX	5		20				20	20	20	20	20	20			
B1	6	33	80	17	17	33		33	17		100	83	17		
B1a	26	27	27	4	12	8	4	12		8	42	8	15	12	
B1b	56	34	31	11	5		2	4	2	16	38	11	9	11	
B2	33	70	45	24	6	9	12			12	70	3	39	12	6
B4	148	16	24	11	4	5	13	7	1	8	35	9	16	3	2
B8	15	40	58	47	7	33	20	7	13	20	53	20		13	
B9	13	15	27			8					38	31	8		
B10	4										50		50		
B11	18	28	61	50	17	6				28	44		17	6	22
B12	7	29	67	43	14		29			29	43		14	14	14
B13	10	60	70	40	10		10			40	40			20	10
B14	4								25		25			25	
B15	9	78	78	44	11	44	56	67	11		89	33	22		
B16	115	82	86	77	29	43	38	35	11	26	63	17	17	11	4
B17	18	22	11	11	6				6	22	50	11	6	6	11
B18	48	81	94	81	29	38	38	33	15	21	73	6	23	19	17
B19	4	25	50	25							75	75			
B20	4	75	25	25							75	25	25	25	
B21	6	100	100	50	83	100	67	50	67	33	67				
B22	6	67	83	83		17		33	17	33	67	33	17		17
B23	30	63	89	87	20	23	30	30	3	27	63	23	10	23	7
B*	84	30	37	20	8	10	12	10	5	15	51	11	24	5	5
C1	8	13	88	25			13			13	63		50		13
C2	4	25	25			25				50	25		25		
C3	4	50			50		25			25	25				
C4	4	25								50	25				25
D1	17	88	94	82	35	76	76	71	47		94	24	18	6	6
E3	22	19	61	43	5	5	10	5		19	43		14	10	14
E4	12	50	67	58	8	33	33	17		17	67			25	8
E5a	9	22	44	33	11	11	11			33					
E5b	24	13	21	4			4			8	25		13	4	
E5*	13		36	23	15					8	54		31	8	15
E6	15			7						13	33		20	7	
E7	7	14	14		14		14			43	29	14	14		
E8	11	18	40	18	18	18	9			18	45	9	18		9
F1	4	25	25	25						25	25		25		
F2	7	14	43				29			14	29				14
F4	13	15	8				15				38	15	23		
F5	17	31	33		19	6	13			25	25	6	19		
H1	9	89	89	100	56	89	78	78	22	11	78	22	11	22	
H2	4	100	100	75	50	25	100	25		25	75	25	50		
H3	18	94	94	100	28	61	56	56	33	6	100	17	17	11	17
H4	6	33	100	100	33	33	67	33		17	83		33	33	
I1	50	40	48	20	12	4	8	8	2	26	48	2	24	8	10
I2	12	75	100	67	67	17		42	25	42	50		25	8	17
I3	21	95	100	86	52	33	62	52	71	38	52	10	19	14	5
I5	4	75	75							25	50		50	25	
I6	4	50	75	25	25					75	25		25		
IX	9	56	67	56	44	33	33	33	44	44	44		44		
J1	4	100	100	100		100	75	75	75		100		75	25	
J2	7	100	100	100	86	57	100	43	71	57	43				
K	4	100	100	75	25	25	50	50	25	50	25			25	
M	9	67	33	11	22			11		22	33	11	11		11
O	5	60				20	40			20	60		40		
Q	14	43	62	36	14	21		7	14	36	64		21	7	21

Table 6.6h Major Clusters by Selected Political Activities

	N	discusses politics %R/D	attends village tngs %O/R	follow political ews %R/D	political talk shows %R/D	write Congress %O/R	write opinion letters %O/R	Donate to candidates %O/R	vote in Pres. elections %	vote in local elections %	displays flag %R/D	Conserv. %	Republican %	Democrat %	Liberal %
AX	5	60	20	40	40	20		20	60	40	20		60		
B1	6					17	17		17	17	17		33	17	
B1a	26	12	8	23	8	19	4	4	27	31	35	4	23	19	
B1b	56	4		14	5	2	6	2	41	36	9	2	25	13	4
B2	33	3	3	12	6	9		6	67	64	9		42	18	
B4	148	2	5	9	2	4		3	25	18	8	3	20	7	
B8	15	13	7	13	7	7	7		40	27	13		13		
B9	13		8	8		23	15		69	69	31		46	15	
B10	4								75	75	25			25	25
B11	18	17	6	17	6	11			72	67	33	6	33	17	11
B12	7			14	14	14		14	86	86	29		86		
B13	10	20	10						60	60	10	10	60	10	
B14	4			25					100	25				75	
B15	9		11	22		11	11		89	78	22		56	11	
B16	115	3	10	28	8	25	5	9	73	76	37	14	53	14	1
B17	18	11	17	22	17	11	11	11	67	44	56	6	44	28	
B18	48	6	33	42	17	42	17	19	75	85	56	6	56	23	8
B19	4					25			75	50	25		100		
B20	4			25	25				100	50	50	25	50	25	
B21	6	33	33	67	67	33	17		67	50	33	33	33	33	
B22	6	50	17	83	67	17	35	50	67	33	17	17	33	17	
B23	30	30	33	60	43	44	37	20	97	90	33	30	80	7	7
B*	84	15	13	30	19	14	4	9	56	55	29	8	27	21	5
C1	8	38	13	50	13	25	13	13	88	88	25		75	13	
C2	4		50			50			100	50			50	25	
C3	4	75	50	75	75	100	25	75	100	100	50		75	25	
C4	4			50		25			50	25	50		25		
D1	17	6		35		12	12		76	59	24	12	41	12	
E3	22	33	14	29	24	10	10	14	62	76	43	14	52	19	
E4	12	33	8	42	25	8	8	8	83	83	25	33	92		
E5a	9	44	11	33	22	11			78	56	22		44	22	
E5b	24	4	8	4		4	4		29	38	17		42	4	
E5*	13	23	8	8	8	8	8		54	54	46		38	15	
E6	15	13	35	27	7	14			47	33	33	7	27		
E7	7	14	29	43	29	14		14	71	57	57	43	71	14	
E8	11		27	36		18	18	9	82	73	36		36	36	
F1	4					25									
F2	7	14		29	14				29	29	43		29		
F4	13	8		8			8		31	15	15		31	8	
F5	17	13		25	6	6	6	6	56	31	19		38	6	
H1	9	44	44	100	44	56	22	22	89	89	89	22	78	11	
H2	4	25		50	25	50	25		100	100	50		100		
H3	18	22	11	28	17	33	17	17	94	78	17	33	78		
H4	6	50	100	50	50	83	17	33	100	100	67	33	100		
I1	50	4	14	14	6	14	12	2	72	68	46	4	32	24	4
I2	12	33	58	50	33	33		8	75	75	50		50	33	
I3	21	38	29	57	19	62	24	19	90	86	29	24	57	33	10
I5	4	25		25	25				50	25			50		
I6	4	75	75	100	50	25		50	75	75		25	50	25	25
IX	9	44	44	67	22	67	11	11	78	100	56		22	33	11
J1	4	50	25	100	25	100	50	25	100	100	100	50	100		25
J2	7	29	29	43		29	14	43	86	100	43	57	57	29	
K	4	25	25	25	25	50		25	75	100	75		50		
M	9	56	67	56	33	22	11		89	89	56	11	22	33	
O	5	20	20	20	20		20		20	20	40	20		20	
Q	14	14	7	36	21	29	14	21	93	71	29	21	50	29	

Table 6.6i Major Clusters by Selected Athletic Activities

	N	aerobics	basketball	softball /baseball	jogging /running	walking for fitness	bowling	swimming /diving	golf	canoing /kayaking	hiking	camping	fishing	hunting	target shooting
		%O/R	%O/R	%O/R	%O/R	%O/R	%O/R	%O/R	%O/R	%O/R	%O/R	%O/R	%O/R	%O/R	%O/R
AX	5	20				100	20	60				40	20		20
B1	6					50							17		
B1a	26	12			4	54	24	19	4		4	27	24		4
B1b	56	2	2		2	46	11	9	2		9	9	9	4	
B2	33	3				36	3	3	7			7			
B4	148	2	5	5	2	26	14	12	7		9	11	16	10	3
B8	15		13	13		33	13	7			7	27	13	13	7
B9	13	24	8	15	15	54	31	46	8		15	38	8	8	
B10	4				25	50					25		25	25	25
B11	18	11	6	17	22	61	22	11	17	17	28	44	28	17	11
B12	7	14			14	86		29	14	14	29				
B13	10	40	40	20		60	10	20	50	10	10	20	10	10	10
B14	4	25	25					25	25			25			
B15	9	11				67	11	22			11	11	11		
B16	115	7	1	1		57	4	10	11	3	7	10	5	2	1
B17	18	11	17	17	11	67	28	33	17			22	39	17	11
B18	48	23	4	6	6	83	10	23	17	13	40	29	15	8	4
B19	4	25				75	25	25				25			25
B20	4					100		25	25		25	25	50	25	
B21	6	50	33	17	17	33			17	17	33	17	33		
B22	6	17			17	67	33	33	17	17	33	33			
B23	30					50	3	17	7	3	10	10	20	10	7
B*	84	7	5	6	8	51	17	15	18	1	17	18	21	18	10
C1	8		25	75	25	50	50	38	38	25	25	63	38	75	63
C2	4					25	50	50	50		25	50	50		25
C3	4	25				100		25	25		25		25		
C4	4			25		25	25					25	25	25	
D1	17	12	18	24	18	48	18	29	29	12	24	48	12	18	6
E3	22	5	5	5		48	5	24	24	5	5	19	29	29	10
E4	12	17	17	17	8	75	25	25	42	17	42	33	17		8
E5a	9		56	44		33	56	22	67	11		44	33	22	11
E5b	24		17	33	4	17	42	38	25	13	33	46	58	67	54
E5*	13		8	8		31	15	8	15		8	24	24	46	24
E6	15	7	40	27	7	20	40	33	27	7	20	53	53	67	33
E7	7		29	14	14	43	14	14	29			43	71	86	57
E8	11			10		55	18	18	10	10	45	55	55	55	55
F1	4	25			25	75		25				50	75	50	
F2	7	29	14	29	43	14	43	43				14	43		
F4	13	38	24	15	8	62	38	38			8	38	31	8	
F5	17		19	19	6	44	69	44	6	19	38	63	56	31	25
H1	9					78		11				33	11		
H2	4	25				100	25	25	25	25	50	50	25	25	25
H3	18	33			6	89	6	11		6	33	28	6		
H4	6	33	17		17	83	17	50	67		17	17		33	17
I1	50	26	4	4	10	76	14	38	6		22	22	8	10	8
I2	12	42	8	25	25	92	33	67	58		17	25		8	17
I3	21	24	14	10	19	90	19	39	5	19	57	39	24	14	10
I5	4	25	25		25	100	25					25		25	
I6	4	50			50	75	25		50	25					25
IX	9	44	11	33	11	67	67	78	44	33	11	56	33		
J1	4					75	25	25		25	25	100	25	25	25
J2	7					71	14		14	14		29	14	14	
K	4	25	25	25		75	25	25	50			25			
M	9	44	11	11	11	89	33	44	22	33	22	67	33	22	11
O	5	40	60	60	40	100	100	80			80	60	80	20	20
Q	14	14				57		7	29	7	29	21	14	7	7

Table 6.6j Major Clusters by Selected Recreational Activities

	N	art: painting	antiques	auctions	garage sales	collect coins	birdwatch	photography	gambling	card games	board games	computer games	internet	investing	travel
		%O/R	%O/R	%O/R	%R	%O/R	%O/R	%O/R	%O/R	%O/R	%O/R	%O/R	%R	%O/R	%O/R
AX	5	40	40	20	20	20	20	40		20					40
B1	6	17	17		33					17	17	17			
B1a	26	8	12	15	23	12	15	12	23	58	42	35	4		15
B1b	56	4	2	20	20	7	14	13	9	32	18	13	4		18
B2	33		9	9	6	12	24	12	9	30	9	15	9	6	21
B4	148	3	5	9	4	4	14	7	8	29	15	17	3	5	19
B8	15		13	7		7	27	13	7	20	13	20	7		13
B9	13		8	8	8	8	15	8	8	38	15	62	38		15
B10	4					50	50	25	25	25					
B11	18	6	39	11		6	28	17		28	22	22	50		33
B12	7			14				14	29	14			14		86
B13	10			20	10		10		20	40	20	40	20		40
B14	4							25			25	50	75	25	50
B15	9		11	22	22	11	44	11	11	56	33	22			
B16	115	3	15	15	10	6	21	19	10	37	19	7	4	10	47
B17	18	6	22	11	6	28	28	28	44	56	17	22	6	6	17
B18	48	13	33	33	13	19	35	25	17	48	27	15	6	23	60
B19	4	25	75	50	25	25	25	25			25	75	50		25
B20	4		50	75		25	50	25		50		25	25		50
B21	6	33		17	17	17	33	17		50	50			17	17
B22	6	17		17			17		17	17	33	17			50
B23	30		30	30	10	13	30	7	3	20	17	13	7	17	33
B*	84	6	11	13	11	8	19	8	13	35	23	27	8	7	37
C1	8		25	38		13	38	25	38	75	50	100	50	38	63
C2	4		25	25		25	25	100	100	75	50	50	50	25	75
C3	4	25	50	50		50	25	75		75	50	50	25	75	75
C4	4			25		25			50	50	25	25			
D1	17	6						6		35	29	35	24	6	47
E3	22		19	19		10	10	19	19	29		14	10	24	43
E4	12	8	50	33	8	33		25	25	33	33	25	33	42	67
E5a	9		22	22			22	11	22	44	33	56	22	22	44
E5b	24		8	33		8	4	13	17	46	29	25	8	4	33
E5*	13		15	54	8	15	15	23	31	38	15				54
E6	15	7	20	53	7	20	7	13	20	33	27	40	27	13	27
E7	7		29	43	14	43	29	43	57	43	14	14	14	14	43
E8	11		18	55		36	27	55	27	45	36	18	9	9	64
F1	4	50	25		25	25		25	25	75	50	50	25		
F2	7	14	14	14	29	29			29	43	43	29	14		
F4	13	15	15	23	15	23	8	8	38	69	54	69	23		38
F5	17	19	25	19	13	6	13	31	25	69	38	25		6	31
H1	9	22	44	33	22	22	56	22		56	11			22	56
H2	4	50	50	25	50			25	25	50	25	25		50	25
H3	18	17	28	33		6	28	28		50	44	22	6	11	56
H4	6			33		17			33	100	67	50	50	17	83
I1	50	8	34	30	10	12	28	28	24	46	36	54	36	20	52
I2	12	8	25	33	8	8		17	25	58	42	92	42	33	75
I3	21	24	29	24	10	10	14	43	5	48	48	38	48	29	86
I5	4			25		25	25	25		50	25	50	25		50
I6	4			25				50		25	25				50
IX	9	22	56	56	33	22	22	33	33	44	44	56	56	22	67
J1	4		25	25	25		75	50		75	50	50	25		75
J2	7	14	43	29	14		14	43		14		29	14	57	29
K	4		50	50				25	25	50	75		50	25	50
M	9	11	22	22	22		44	44	11	44	22	44	22	22	67
O	5		60	80	40	100	40	80	40	60	100	80		40	100
Q	14		29	7	7	21	14	36		43	21	21	36	14	64

Table 6.6j Major Clusters by Selected Recreational Activities (Continued)

	N	dining out %R	shopping %R	dancing %O/R	sewing projects %O/R	quilting %O/R	knit / crochet %O/R	gardening %R	houseplants %R	home improvement %R	woodwork %O/R	car shows %O/R	work on autos %O/R	motorcycles %O/R	repair appliances %O/R
AX	5	40	80	20	20	20	20	20	20						
B1	6	17	33		17		17	33	17	17	17	17	17		17
B1a	26	12	35	23	42	15	23	12	31		4	4	15	4	8
B1b	56	21	32	21	25	9	29	5	21	2	5	7	4	2	2
B2	33	18	39	12	24	6	21	18	39	3	6	6	3		6
B4	148	13	12	11	8	2	9	9	4	3	9	7	12	1	5
B8	15	33	13	7	20	33	7	7		13	7	7	7	7	
B9	13	31	15	23	23	8	23		8			15	15	8	
B10	4	25	50	25				100	75	75	25		25		
B11	18	22	22	11	17	17	11	28	22		11	6	6	6	6
B12	7	29	71	29	29	14	14	43	57					14	
B13	10	20	30		10	10		30	10	40	20	10	20		
B14	4	50	25		25			25		25			25	25	
B15	9	11	33	11	33		67	22	44			11			
B16	115	24	30	12	32	19	36	18	31	10	3	5	1	3	3
B17	18	11	28	33	17	6	6	11	22	17	28	28	28	11	17
B18	48	38	29	23	40	13	25	40	46	21	13	19	10		8
B19	4		50		50	25	25	75	75			25			
B20	4		50	50	50		50	50	50		25				
B21	6	17	67	33	17		17	17	17	33	50		17	17	33
B22	6	17		17	33	17	67	17	33	17					17
B23	30	20	27	7	7		3	27	10	10	13	7	13		13
B*	84	24	29	14	12	8	15	15	19	13	18	13	10	1	8
C1	8	13			13	13	13	13	13	25	50	50	63	25	38
C2	4	25	50	75	25						25	75	25	50	25
C3	4	50	75	25	25		25		25	25	25	25			
C4	4		25				25	25		25	25	25			
D1	17	6	18	12	6		18	6		18	6	6			
E3	22	24	14	10				19		14	19	5	10	10	5
E4	12	83	50	17	17		8	42	17	8	8	8	17	17	
E5a	9	11	11	11				11		33	67	33	44	11	22
E5b	24	29	17	4	4			8	4	8	33	29	38	17	4
E5*	13	15		8	8			15		8	23	31	54	23	
E6	15	40		27						33	40	47	60	20	13
E7	7	14	29	14			14		14	57	29	57	57		29
E8	11	27	27	36	9		9	45	9	9	55	36	45		36
F1	4	25	50	25		25	50	25	50	25			25		
F2	7	43	29	29	14										
F4	13	23	54	54	23	15	15		23	8		31	8		15
F5	17	13	38	38	13		19	13	38	13	31	31	44	13	25
H1	9	67	56	22	44	11	44	22	56	22					11
H2	4	25	75	75	75	50	25	50	50	50	25	50	25		50
H3	18	6	22	6	44	17	22	61	50	11					6
H4	6	17	17	67	33	17	17				17	33	33	17	33
I1	50	22	48	22	34	24	22	28	44	24	12	6	4	2	
I2	12	50	42	25	25	8	33	33	33	8					17
I3	21	48	33	24	43	29		48	43	24	5	5	5		
I5	4	50	75		25			25	50	50		25	25		
I6	4		25		75	25	25	75	50	50		50			
IX	9	56	56	44	33		11		11	44	44	22	11	11	11
J1	4	25								25	50	25			25
J2	7	14	14	29	29	14	14	14	29	29	29	14			
K	4	75	75	25	25	25		25	25	25	50				25
M	9	33	67	44	33	33	56	33	56	56	11		11	11	33
O	5	60	40	80	40	20	40	20	60	20	40	40	40		60
Q	14	50	7	21	14		7	21		14	21	14	7	7	7

Table 6.6k Major Clusters by Selected Fan Sports and Teams

	N	soccer %	baseball %	MLB A %	NASCAR %	football %	NFL A %	NFL B %	NFL C or D %	NFL SF/ GB Mia/Dal/Den %	basketball %	hockey %	NHL A %
AX	5		20			40	20						
B1	6	33	33	17		17							
B1a	26	8	12	15	8	46	35	8	4	19	15	8	8
B1b	56	2	18	7	9	21	11	4		5	2	2	2
B2	33	6	12	9	3	15	15		3		9		
B4	148	4	20	9	6	25	14	1	3	6	8	2	
B8	15		13	13	7	20	13				20	13	7
B9	13	15	31		23	46	23		8	15	31		
B10	4				25	50					50		
B11	18	22	17	6		28	11					11	6
B12	7	29	43	14	14	29	29						
B13	10	10	50	30	30	60	10	10	30		30	30	10
B14	4		25	25	25	75		25	50		25	25	
B15	9		22	11		44	44						
B16	115	8	18	8	9	17	12	1	1	1	4	1	1
B17	18		39	22	22	67	61	6	11	6	11	11	
B18	48	19	42	25	6	31	21	2		8	13	4	
B19	4	25											
B20	4	25	75	50	25	75	75				50		
B21	6	17	17		17	33		17					
B22	6	17	17		17	17	17			17	17	17	17
B23	30	3	23	13	3	43	37	3			17	7	3
B*	84	7	32	18	12	35	21	5	1	7	8	2	1
C1	8	25			38	88	63			25	25	25	13
C2	4	25			50	75	50				25		
C3	4		75	75		100	75						
C4	4		50	50	50	100	50	25			25		
D1	17	29	35	12	18	24	6			6	12	12	6
E3	22	10	38	19	14	43	29		5	10	14	5	
E4	12	25	33	17	42	50	33	17	8		33	33	17
E5a	9	11	33	22	11	78	33	22		11	44	22	33
E5b	24	4	33	33	29	38	29	4	4	8	8	8	8
E5*	13	15	15	8	38	38		8		8	15		
E6	15	13	20		27	47	20		7	7	20	7	7
E7	7		57	14	71	100	14	43		43			
E8	11		18		36	18	9						
F1	4	25			25	75	25				50		25
F2	7	29	14		14	57	14			29	29		
F4	13	15	31	15	31	46	23				8	38	31
F5	17	6	6		6	63	38			13	6	25	19
H1	9	11	33	11		11					11	11	
H2	4				25	25	25				25		
H3	18	17	11	6		39	39			6	17		
H4	6		17	17		50	67	17	17		17		
I1	50	28	10	6	8	28	16	2		4	14	8	2
I2	12	33	33	17	25	83	75	8	8		33	17	
I3	21	29	38	24		33	24			5	24	5	5
I5	4	25	25	25		50	25						
I6	4	25				50	25			25	50		
IX	9	56	56	11	11	33	33				56	11	
J1	4		50	25	25	50	50				25		
J2	7					29	14			14			
K	4		25			25							
M	9	33	56			44	22				22	56	
O	5		60	40	40	80	60				40		
Q	14	21	36	29	14	71	57				7	14	14	14

Table 6.6l Major Clusters by Selected Pet Ownership Variables

	N	Spend time with pets %Reg	pet birds %	pet fish %	pet cat(s) %	pet dog(s) %	Collies & herders %	guard and work breeds %	Beagles & hounds %	retreivers & Spaniels %	terriers & Schnauzers %	toy breeds %
AX	5	40	20	20	20	20						
B1	6	17		17	50	50	17					
B1a	26	50	15		35	27	4	4	4	12	4	
B1b	56	30	13		25	25			4	4	2	4
B2	33	18			24	6						3
B4	148	22	5	4	23	22	2	3	4	3	1	3
B8	15	13	13		20	20				7		
B9	13	31		38	62	62		8	8	15		
B10	4	75			100	50						
B11	18	50	6	22	44	56			11	17	11	6
B12	7	57	14		29	57	29			43		
B13	10	30		10	30	60	10	20				
B14	4				25							
B15	9	33	33	11	33							
B16	115	23	2	2	16	19		2	3	4	2	4
B17	18	33	6		17	28		11	6	17		
B18	48	35	8	6	25	21	4	2	4	4	2	
B19	4	75			50	75		25			25	
B20	4	50	25	25	50	25	25					
B21	6	50			33	33	33					
B22	6	17			17							
B23	30	33	7		23	20			7	7		
B*	84	36	5	4	39	31		1	4	8	2	5
C1	8	75		25	25	75			25	38		13
C2	4	25	25			50		25		25		
C3	4											
C4	4	25		25	50	50	50					
D1	17	12		6	18	18				6		
E3	22	29		14	29	57				19		
E4	12	67		25	42	50	8			25	33	
E5a	9	44		22	44	33	11	11				
E5b	24	13			21	58	17	8	13	8		
E5*	13	31		8	38	69	15		8	31	15	
E6	15	20		13	27	33		7	7	13		
E7	7	14			29	14				14		
E8	11	18			36	45		9	9	9		
F1	4	50	25	75	25	25				25		
F2	7			14		57		14		14		14
F4	13	15	15	8	23	31	8			8	8	
F5	17	44	19	19	44	38	6			6		
H1	9	56	11		33	44	22			11		11
H2	4	50				50		50				
H3	18	33		11	28	44	6	6		22	6	
H4	6	33		33	17	83	33			17	33	
I1	50	44	10	20	48	40	6		6	6	8	4
I2	12	67	8	25	42	92	25	17	8	17		
I3	21	57		10	43	62		5	10	10	10	
I5	4	25	25		50	50	25		25			
I6	4	25		25		25						
IX	9	56			44	67		11		44		
J1	4	25				75		25				
J2	7	14			14	29					14	
K	4	50			50							
M	9	67		22	44	56					11	
O	5	100	20	40	40	80				20		
Q	14			14		7	7					

Table 6.6m Major Clusters by Selected Consumer Products

	N	coffee %R/D	tea %R/D	soda / pop %R/D	diet soda %	store brand %	7Up %	Sprite %	ginger ale %	rootbeer %	Mountain Dew %	orange soda %	Coke or variant %	Pepsi or variant %	gum / candy %R/D
AX	5	100	60	20			20		20	20					60
B1	6	67	33	50				17				17		33	67
B1a	26	77	35	73	38	8	4	4	8	4	15		35	50	50
B1b	56	79	41	64	16	5	2			4	9	4	16	38	46
B2	33	82	24	24	6		3	6		12		3	6	9	52
B4	148	61	30	45	8	4	1	2	1	2	2	2	11	25	31
B8	15	53	33	60	13	7	7			13	7	7		27	53
B9	13	38	23	77	23	23		8				8	8	46	54
B10	4	100		25				25					75	50	50
B11	18	50	33	61	28	11	6	6	11	6	6		50	33	61
B12	7	57	43	86	29	14		14					57	14	57
B13	10	50	30	100	30						20	10		90	40
B14	4		50	100	50				50	25			50	75	25
B15	9	67	44	56	22	22	11	11	11	11	22		11	11	11
B16	115	81	52	40	12	3	3	4	5	5	2	1	10	23	46
B17	18	94	39	67	11	6				6	6	6	11	50	44
B18	48	77	44	54	17			4	10	8			15	42	54
B19	4	100	50	75	75								50	50	50
B20	4	100	50	75				25					50	50	100
B21	6	67	33	33	17									17	33
B22	6	67	67	33									17	17	50
B23	30	73	37	33	13					10			17	17	37
B*	84	76	24	50	12	6	1	1	2	4	2	1	15	30	51
C1	8	100	13	100									38	63	63
C2	4	75	50	75	25		25							100	100
C3	4	100		75	50		25	25					50		100
C4	4	100		75								25	25	75	50
D1	17	59	12	35		12		6	12		12			24	76
E3	22	67	19	24	24		5			5			5	33	52
E4	12	50	17	83	33		17	25	8		8	8	17	42	50
E5a	9	78		67	11								11	67	78
E5b	24	63	17	71	8	4				8	29		13	46	67
E5*	13	85		54	15	8		8	8	8	8	15	15	54	46
E6	15	73		60			7	13		13	20		13	27	47
E7	7	100		86	29							29	43	43	57
E8	11	100	45	36	36							9	18	18	45
F1	4	50	25	50	50								50	50	100
F2	7	43	29	57				14				29	14	14	71
F4	13	85		77	8	8					8		8	77	85
F5	17	75	38	88			6			25	25		19	75	81
H1	9	67	67	22	22		11	11	11				33	22	56
H2	4	75	50	50			25		25				50	25	75
H3	18	78	61	56	11	6	6	22		11			22	33	56
H4	6	67	17	33	17			17	17				17	33	67
I1	50	82	40	68	24	4	2	6	2	4			30	46	68
I2	12	58	25	83	42		17		8	8			50	33	92
I3	21	62	62	67	19			10		5			38	48	71
I5	4	25	75	50								25		25	75
I6	4	75		50	50								50		25
IX	9	78	56	100	33	11						22	33	89	78
J1	4	100	25	75		25			25	75			25	50	50
J2	7	43	57	57					14		14		71	29	57
K	4	100	25	25									25		75
M	9	78	44	67	11			11	11				22	67	78
O	5	60	20	100	40			20					20	60	100
Q	14	86	36	43	29	7							21	43	29

Table 6.6m Major Clusters by Selected Consumer Products (Continued)

	N	beer %R/D	Miller %	Coors %	Michelob %	Budweiser %	wine %R/D	cocktails %R/D	shot of liquor %R/D	chew tobacco %R/D	cigarettes %R/D	Marlboro %	Doral %	lights / ultralights %	100s /120s %
AX	5										40				20
B1	6										17				17
B1a	26	12	8		4	4		4	4	4	46	15	12	8	4
B1b	56	11		2	4	2	11	9	4		27	4		2	4
B2	33	9				3	6	9	9		9		3	3	3
B4	148	14	1	2	3	3	5	7	1	2	31	7	5	5	5
B8	15	13			7	7	7				7		7		
B9	13	38		8	8			23	8		23	8	8	8	8
B10	4														
B11	18	39		22	6	6	50	6			6				
B12	7	29		14			43	29							
B13	10	30	20	30	10		10	10			20	10		20	
B14	4	50													
B15	9			11							11				
B16	115	7	1	2			13	9	2	1	7		2	1	3
B17	18	44		6	6	11	6	11	11		44	6	22	6	6
B18	48	8		2	2		25	4	2		4		2		
B19	4	25			25			25			25				
B20	4	25	25			25					25				
B21	6	17									17				
B22	6						17				33	17			
B23	30	13			3		17	7	3	3	3				
B*	84	25	4	4	2	4	14	14	8	1	30	6	7	6	7
C1	8	88	13		13	50	13	13		13					
C2	4	100		50		25	75		25		50	25			
C3	4	25	25				25	50							
C4	4	75									100		25		
D1	17	18		6			6				12				
E3	22	38	10	5		5	24	24		5	14	5			
E4	12	50		25	8		67	17			17	8			
E5a	9	67		22	22	22	33	33		22	22	11			
E5b	24	38		4	13	13	17	4	4	8	33	8	8	4	
E5*	13	38		15				8	8	15	46	8	8	8	
E6	15	67		13	20	7	7	13	7	7	40	7		13	
E7	7	100		14		43	14				43	14	29		
E8	11		9				18		18		18	18			9
F1	4						25	25	25		50	50			
F2	7	29			29			14			29	14			
F4	13	23	8	15	23	8	23	8	8		69	54	15	23	15
F5	17	69		6	13	13	19	31	25		38	6	13	6	6
H1	9				11			11							
H2	4	50		25							50				
H3	18	11					33	11			11			6	6
H4	6	17	17				33	33	33		50	33		33	
I1	50	18		4	12	4	30	8	2		28	12		4	12
I2	12	42	17	8	17	8	42	33	17	8	25	8	8	17	
I3	21	14		10		5	33	5	5		10		5	5	5
I5	4	25		25			25	25			25	25			
I6	4	50	50	25			50	25			50	50		50	
IX	9	44	11	11			67	44							
J1	4														
J2	7	14		14				14			14				
K	4										50		25	50	25
M	9	44				22	33				11			11	11
O	5	40	20				40	20	20		40	20			20
Q	14	29	14	21	7		50	29	7		7				

Table 6.6n Major Clusters by Selected Clothing Sources

	N	local stores %	factory outlets %	mail order %	rummage sales %	thrift stores %	makes own %	Sears catalog %	JC Penney catalog %	LL Bean catalog %	Lands End catalog %	Chadwick catalog %	Lane Bryant catalog %	Blair catalog %	Haband catalog %
AX	5	80	40	80	40	60	20		20	20				20	
B1	6	67	33	17	33	67		17							
B1a	26	92	8	38	62	69	8	4	8	4			4	8	
B1b	56	68	11	25	38	43	11	2	5				7	13	2
B2	33	67	6	42	6	9	6	3	3	9	3	3	3	15	9
B4	148	59	8	24	22	30	2	1	5	4			1	7	6
B8	15	53	20	60	7	20	13		7			7	13	13	
B9	13	77	46	23	23	23								15	
B10	4	100		25						25					
B11	18	50	44	72	6	11	6		17	28	17		6		
B12	7	43	29	71	14	14			14	29	29	14	29		
B13	10	50	30	70	10	10	10	20	30	10	20				
B14	4	75	25	75							50		25		25
B15	9	67	11	33	67	44								33	22
B16	115	75	20	46	19	30	7	2	21	1	3	3	2	21	13
B17	18	78	17	22	17	44	6	6	6	6				11	
B18	48	75	29	50	27	29	13	4	17	15	13	2	2	13	
B19	4	100	25	25										25	
B20	4	50	75	75	25	25			25	50			25	25	
B21	6	67	17		50	67									
B22	6	83	17	50	33	17					33	17			
B23	30	50	17	47	17	27			3	3	7	7	10	10	7
B*	84	64	26	32	21	35	2	6	8	5	1	5	2	11	2
C1	8	75	25	50		13			13	13	25	13			
C2	4	75	100	75	25	50							25		
C3	4	25	75	75		25	25			25		50	25		
C4	4	50	50		50	25					25	25			
D1	17	53	24	35	24	41			24	6	6		6	6	
E3	22	71	24	43		5			5	10	5				5
E4	12	25	33	58					17	8	25				
E5a	9	56	22	33		22		11	22			11			
E5b	24	67	8	33	8	21			4	8	4				
E5*	13	62	15	8	23	31			8	8					
E6	15	80	33	33	13	27			7	7	7		7	7	
E7	7	71	43	57	29	14			14	14				14	
E8	11	82	27	64	18	36			18	18	18			9	
F1	4	100			25										
F2	7	29	57	14	29	29					14				
F4	13	100	62	46	54	69			23	23				8	8
F5	17	81	19	25	44	44	6	6	6	6					
H1	9	44	44	44	11	11	22	11	33	22		11		11	
H2	4	75	50	50	25	50					25			25	
H3	18	72	33	56	28	50	11		33	11		6	6	11	6
H4	6	33	50	67		17			33	17		33			33
I1	50	72	50	52	38	44	8	6	18	14	8	10		6	
I2	12	67	58	67	17	8	8	8	33			25	17	8	
I3	21	62	67	76	24	29	10		19	19	29	19			5
I5	4	25	75	50						50	25	25			
I6	4	75	25	100		25				25		25	25		
IX	9	100	44	67	33	33	22		11		33	11			
J1	4	100	50	50	25	25		25			25				
J2	7	29		71		29			14	29	14	14			
K	4	75	75	25								25			
M	9	67	33	33	44	44			11		33	11		11	
O	5	80	20		80	100		20							
Q	14	71	21	57	21	21	7		14	36	7				14

Table 6.6n Major Clusters by Selected Clothing Sources (Continued)

	N	women's boutique %	next town clothing %	discount dept. store %	Walmart %	Kmart %	Sears %	JC Penney %	local chain 1 %	local chain 2 %	big mall chain 1 %	big mall chain 2 %	mall shops %	dollar store %
AX	5			40	60	80			20	20				
B1	6			17	33	50	17				17	17		33
B1a	26			15	23	65		4	12					4
B1b	56	4		14	20	52	4	4	5		4	5	2	5
B2	33			6	12	48	15	12		15	6	3		
B4	148		3	12	13	33	3	2	2	3		1	3	1
B8	15			7	27	33	7			20	7			
B9	13			31	38	54	8	8			8		8	
B10	4				50	50								
B11	18			6	17	33	17	28			22	11	33	17
B12	7		14			14	29	29	29	29	14	14	14	
B13	10				10	60	30	10	10	40			30	
B14	4					50	75	75				25		
B15	9			33	11	67			11	22				
B16	115	8	2	11	19	57	17	19	10	18	3	10	3	2
B17	18		11	11	22	56	22	6	6			6	6	
B18	48	4	4	8	13	44	15	17	19	21	25	27	6	
B19	4			50	25	75	50	50	50				25	
B20	4				25	100	25	25	50	25			25	
B21	6					67	17	17						
B22	6		17	17	17	67					17	17	17	
B23	30		7	13	13	33	17	13			3	10	10	
B*	84		1	18	24	42	11	12	6	11	7	8	8	
C1	8			25	38	63	13	13					25	
C2	4			50	25	50		25	75				50	
C3	4			25		50	25	50			50	50		
C4	4			50	75	100								
D1	17			6	12	41	29	24	6	12		6	12	
E3	22				19	43	24	19		10			19	
E4	12				25	17	17	25	8	17		25	25	
E5a	9			11	33	44	11	11		11		11	11	
E5b	24			8	33	54	8	4		4			8	4
E5*	13				8	15	23	15			8			
E6	15				33	53	7	7	7	7			13	
E7	7			14	57	71	29	14						
E8	11		18	9	18	36								
F1	4					25			25					
F2	7			14	29	14	14	14	14		14	14	14	14
F4	13			23	31	77			38		15		31	8
F5	17			13	31	56	6	6	6	6		13	6	13
H1	9		22	11	22	44	11			22	11	11		
H2	4					50	50	25		50		25		
H3	18	6		22	28	56	6	11	11	17	11	11	22	
H4	6		17		17	33	17	17				17	33	
I1	50	4	2	18	28	52	8	16	22	16	18	22	4	
I2	12			17	8	67	17	42	25	33	8	33	8	
I3	21	14			10	48	10	38	14	14	19	43	14	
I5	4						25		25				75	
I6	4				25	25	50	25	25		50	25		
IX	9				33	89	33	44	22	56	11	22	11	
J1	4		50	25			50	25	25	25				
J2	7	14	14	14	14	29	29	14			29	29	14	
K	4					50	50	25	25	25			25	
M	9			11	22	44		11	22	22	11	22	11	
O	5			20	80	100	20	20		20				20
Q	14			7	14	50	7	50	7	7	14	14		

Table 6.6o Major Clusters by Selected Furniture Sources

	N	furniture stores %	rummage sales %	antique shops %	/estate sales %	makes own %	thrift stores %	dept store furniture %	Tyboro furniture %	nearby 1 store %	nearby 2 store %	Sears %	discount dept. store %	Walmart %	Kmart %	chain 1 %
AX	5	100	60	20			40	60	80	20			20	40	40	
B1	6	17	67				83	17					17	17	17	
B1a	26	35	46	4	4		54	27	4			4	8	4	15	
B1b	56	46	32	7			36	41	9	2	2	9	11	9	18	
B2	33	73	15	3	6		6	33	33			3	3	6	9	
B4	148	34	23	3	3	5	22	15	14	2	1		3	3	7	
B8	15	60	13	7				13	7		7	7	7		7	
B9	13	69	31	8			23	62		15	8	8	31	31	8	23
B10	4	100	25	25												
B11	18	89	6	28	22		17	11	28	22	22	6	6		6	
B12	7	100							14	29	29	14				
B13	10	100	20			10	10	70	30	10		50	20	10	20	30
B14	4	25	25						25	25						
B15	9	44	33				22	89	33				22		33	
B16	115	78	12	10	2		13	30	42	8	7	17	6	4	8	
B17	18	78	28	6	6		44	67	33	6	6	17	11	6	39	
B18	48	90	21	17			15	33	58	8	10	13	13	2	15	8
B19	4	100	25	25				50		25	50		25			
B20	4	100	50	25				25	75						25	
B21	6	17	50			33	83	33			17				17	
B22	6	33	33				17	50	17				17	17	17	
B23	30	70	3	20		7	7	33	33	7	3	13			3	
B*	84	70	27	5	4		23	30	31	7	8	8	5	7	7	2
C1	8	75		13				75	25	38	38		25		13	25
C2	4	75	50	25			25	75	50	25	25	25	25		25	25
C3	4	100				25		50	75	25	25	25		25	25	
C4	4	25	75			25	50	50	25			25	50	25	50	
D1	17	53	24	6			35	18	12			6	12	6	12	
E3	22	90	5	19			10	19	33	29	10	14	5	5	14	10
E4	12	83		33	17		8		17	8	17					17
E5a	9	89		11			22	11	44			11		11	11	11
E5b	24	54	17	13	13		21	17	17	8	4		8	8	13	
E5*	13	85	8	23			8	23	15	8	8	8		15	15	8
E6	15	60	33	33	7		20	40	7	7	7	33	7	7	7	7
E7	7	100	14	14	14		14	43	29	14		43			14	14
E8	11	91	27	27			9	55	27	27		9		9	9	
F1	4		50				25	75								25
F2	7	29					29				14					
F4	13	85	46	8			15	62	23	8		8	8	8	46	8
F5	17	63	50	6	6		56	38	13				19	13	19	6
H1	9	89	11	22			11	44	44				22	11	11	22
H2	4	75	50	50	25		50	50	50			25	25			
H3	18	89	28	17			33	44	33	17	6	6	6	6	17	
H4	6	100		17			17	17	33	17	17					
I1	50	90	22	22	4		18	42	22	14	8	16	10	6	14	8
I2	12	92	17	17	8		25	42	67	17	25	17	8		25	
I3	21	86	29	24	5		14	29	71	29	14	10			5	
I5	4	100		25				75				50		25	25	
I6	4	75	25					25	50	25		50				25
IX	9	100	56	44				44	78	44	33	22	11	22	11	11
J1	4	50			25	25	25	75	50	25		50				
J2	7	43	29	14		29	29	29	29				29			
K	4	25	50	50			50		25				25			
M	9	100	33	33			22	44	33	22		33	22	11		11
O	5	40	40	40		20	80	60	20		20		20	20	60	
Q	14	100	21	14	7		14	29	64	7	7	7	14	14	14	7

Table 6.6p Major Clusters by Selected Home Furnishings

	N	video camera	videogames	computer	VCR / DVD	camera	CD player	answering machine	cell phone	dishwasher	formal dining table	firearm	piano or organ	woodstove	hut tub
		%	%	%	%	%	%	%	%	%	%	%	%	%	%
AX	5	20			100	80	60	100	40	60	80	60		60	20
B1	6		17	33	83	83	67	83				17			
B1a	26	4	27	19	81	58	62	73	8	27	27	8	8	4	4
B1b	56	4	18	11	73	59	39	46	11	11	14	14		2	
B2	33			18	48	48	12	45	6	30	45	6	3	6	
B4	148	5	17	14	46	43	34	35	11	22	27	23	6	12	2
B8	15	27	40	47	73	80	60	67	40	20	33	33	7		7
B9	13	23	46	46	85	92	62	85	31	54	69	15		8	
B10	4	25	50	25	50	50	50	75			25	25			
B11	18	44	28	78	94	94	72	94	61	61	61	44	11	11	6
B12	7	43		43	86	100	86	100	29	71	86	57	29	43	29
B13	10	50	20	60	100	100	100	100	70	70	60	30	20	40	20
B14	4	50		100	100	75	100	100	50	25	25		75		25
B15	9	33	22		89	67	33	33		44	11	22			
B16	115	12	4	17	66	77	40	57	27	40	57	26	11	9	
B17	18	17	17	28	89	67	67	78	28	39	61	44		6	
B18	48	23	27	48	90	92	58	83	42	56	75	27	23	6	
B19	4		25	50	100	100	75	100	25	50	75	75	25		
B20	4	25		25	100	100	50	75	25	25	25	25	25		
B21	6	17		17	83	100	17	83	17	17	67		17		
B22	6		17	17	33	33	67	17		17	33				
B23	30	13	13	47	70	73	37	53	13	60	57	40	13	13	3
B*	84	24	26	38	79	77	62	69	25	39	50	39	8	15	6
C1	8	88	88	100	100	100	100	100	63	88	63	88	25	25	25
C2	4	50	25	50	100	100	75	100	50	25		75			
C3	4	50	50	75	100	100	75	100		100	100	75			
C4	4	25	75	25	100	75	100	75	50	75	75	75	25		25
D1	17	35	35	65	100	94	88	88	41	41	53	18	35	12	6
E3	22	48	43	62	90	100	95	86	57	81	76	62	24	33	14
E4	12	33	50	67	100	92	100	92	58	67	75	33	58	25	17
E5a	9	22	56	78	100	78	78	100	56	56	67	44	22	11	11
E5b	24	46	63	46	88	71	75	79	42	54	54	75	4	33	
E5*	13	46	38	23	92	92	69	85	31	62	31	85	15	31	
E6	15	33	73	53	100	100	73	100	53	67	67	73		27	7
E7	7	43	57	71	100	100	71	86	57	71	86	86	14		29
E8	11	18	27	18	91	91	64	64	64	73	55	73	9	27	
F1	4		100	25	100	100	50	75		25	50	25			
F2	7	29	71	43	100	71	86	71	43	14	57	29	14	29	
F4	13	31	77	77	100	85	100	69	31	46	23	38	8	8	8
F5	17	19	44	19	81	88	81	50	25	13	31	44		6	
H1	9	11	11	22	44	89	67	44	33	56	78	33	33	22	11
H2	4			50	75	75	50	100	25	50	25	50	25		25
H3	18	33	33	72	94	89	83	67	39	61	78	44	28	33	
H4	6	50	50	100	100	100	83	100	33	83	67	33	50	17	
I1	50	30	58	72	98	94	86	96	46	60	60	48	14	22	6
I2	12	50	58	100	100	100	92	92	50	58	83	42	33	17	17
I3	21	24	52	90	100	100	100	100	48	86	81	48	62	48	19
I5	4	25	25	75	100	100	100	100		50	75	25		50	
I6	4	75	25	100	100	100	100	100	100	75	50	50		25	25
IX	9	89	100	100	100	100	89	100	67	78	89	56	44	11	44
J1	4	50		75	100	100	50	50	50	75	25	75	50		
J2	7	29	29	86	100	100	71	86	43	43	57	29		57	
K	4			25	100	75	25	75		25	75	50	25		
M	9	44	33	67	100	100	89	89	67	78	56	22	33	22	11
O	5	40	100	60	100	100	80	80		40	20	60		20	
Q	14	29	21	36	64	86	64	79	29	36	71	43	14	7	

Table 6.6q Major Clusters by Vehicle Year and Typical Models

	N	Vehicle 1			Vehicle 2			Typical Makes & Models
		Min	Med	Max	Min	Med	Max	
AX	5	1991	1993	1998	*	1998	*	
B1	6	1989	1990	1990	*	1989	*	Dodge pickups, couple Jeeps, sedans
B1a	26	1984	1988	1998	1984	1986	1987	nearly all sedans, mostly domestic
B1b	56	1979	1992	2000	1978	1984	1988	nearly all sedans, many Chevy, Olds, Dodge
B2	33	1986	1994	2000	*	1983	*	nearly all Buick, Olds, and Chevy sedans
B4	148	1976	1992	2000	1976	1992	1997	sedans & pickups, heavy on Ford and Chevy
B8	15	1984	1992	1995	1982	1989	1998	mix
B9	13	1984	1996	1997	1988	1988	1993	mix
B10	4	1992	1992	1999				
B11	18	1989	1996	1999	1979	1995	1998	mix
B12	7	1989	1998	1999	*	1990	*	mix
B13	10	1991	1996	1999	1991	1993	1998	mix
B14	4	1990	1998	1998	1982	1991	2000	
B15	9	1975	1988	1995	*	1991	*	mix
B16	115	1983	1993	1999	1979	1992	2000	mix, heavy on Buick, 2nd vehicle many pickups
B17	18	1983	1996	1999	1985	1991	1999	sedans & pickups
B18	48	1977	1995	2000	1977	1990	1996	mix, heavy on Olds, Buick, Chevy, some Fords
B19	4	1990	1994	1999				
B20	4	1990	1997	2000	*	1988	*	
B21	6	1982	1989	1992	1988	1989	1990	heavy on minivans
B22	6	1993	1993	1993				
B23	30	1979	1993	2000	1984	1989	2000	mix, all domestic, heavy on Ford & Dodge
B*	84	1978	1993	2000	1982	1991	1999	mix, nearly all domestic
C1	8	1987	1993	1997	1987	1996	1999	mainly pickups & minivans
C2	4	1994	1995	1996				
C3	4	1990	1994	1999	1989	1992	1992	
C4	4	1987	1996	1997	1987	1992	1996	
D1	17	1984	1990	1997	1991	1993	1996	mix, over a third foreign makes
E3	22	1987	1994	1999	1987	1994	1996	mix
E4	12	1991	1996	1999	1987	1994	1997	mix, heavy on Toyota Camry
E5a	9	1987	1995	1998	1991	1995	1996	pickups, some sedans, heavy on Ford & Chevy
E5b	24	1981	1990	1999	1980	1995	1998	pickups & sedans, heavy on Ford & Chevy
E5*	13	1985	1993	1999	1982	1987	1993	Chevy & Ford pickups, Harleys, Buick sedans
E6	15	1975	1994	1999	1985	1988	1995	nearly all Dodge & Chevy pickups, Harleys
E7	7	1990	1995	1996	1987	1993	1996	mix, heavy on pickups
E8	11	1985	1993	1999	1948	1994	1999	mix, heavy on pickups
F1	4	1985	1985	1997	*	1983	*	
F2	7	1972	1992	1999	*	1991	*	mix
F4	13	1984	1992	1995	1988	1989	1990	mix
F5	17	1979	1989	1997	1988	1990	1992	mix, heavy on Chevy
H1	9	1983	1995	1998	1990	1992	1997	mix
H2	4	1988	1994	1995				
H3	18	1986	1995	1998	1987	1993	1996	mix
H4	6	1990	1996	1999	1969	1987	1993	mix
I1	50	1986	1995	2000	1986	1992	1998	broad mix, heavy on Chevy, a fifth foreign
I2	12	1995	1998	1999	1994	1995	1996	mix
I3	21	1987	1995	1998	1986	1995	1998	mix
I5	4	1981	1994	1997	*	1997	*	
I6	4	1992	1996	1998	*	1993	*	
IX	9	1991	1995	1999	1993	1996	1998	minivans & pickups, some sedans
J1	4	1991	1994	1995	*	1994	*	minivans & pickups
J2	7	1986	1990	1995	1978	1992	1999	sedans, some pickups
K	4	1986	1992.5	1997				
M	9	1993	1995	1998	1987	1989	2000	mix, heavy on minivans
O	5	1987	1987	1997	*	1992	*	
Q	14	1990	1995	1999	1991	1991	1999	mainly sedans, some minivans

Table 6.6r Major Clusters by Selected Travel Destinations

	N	nearby urban 1	nearby urban 2	state capital	Toronto	DC	NYC	Carolinas	Florida	in state	state 1	state 2	state 3
	N	%O/R	%O/R	%O/R	%O/R	%O/R	%O/R	%O/R	%O/R	%	%	%	%
AX	**5**	60	20	20	20			40	20				
B1	**6**	50	17	17					17		17		
B1a	**26**	50	42	4	4	8	4	23	23	19	19	12	8
B1b	**56**	43	22	2	4	6	11	9	26	5	5	7	2
B2	**33**	45	12	3	3		12	27	24	9	3		
B4	**148**	27	17	4	6	6	3	12	20	5	7	1	3
B8	**15**	40	13					7	53	7	13		20
B9	**13**	85	38	23	8		15	23	46	8	8		
B10	**4**	50											
B11	**18**	94	56	6	33	28	33	28	39	11	28	11	11
B12	**7**	86	57	29	57	29	29		57	14	14		
B13	**10**	80	70	10	60	20	50	20	60	10	30		20
B14	**4**	100	50		25		50			50	50		
B15	**9**	67	11		11		11	11		11	11		
B16	**115**	62	33	9	13	12	18	35	57	10	17	3	6
B17	**18**	67	61	11	11	6	33	28	39	11	28	11	11
B18	**48**	81	63	33	38	23	29	46	48	8	21	6	10
B19	**4**	100	50		25	50		25		25	25		
B20	**4**	100	75	50	25	25	25	75	100	50	75		
B21	**6**	67	33		17		33	17	50				17
B22	**6**	17	17		17	33		17	50	17			17
B23	**30**	73	30	17	7	13	17	17	53	23	3	7	3
B*	**84**	65	37	14	18	13	20	24	35	17	8	6	2
C1	**8**	100	100	13	38		25	88	63	13			
C2	**4**	75	100		25		25	25	50	25			
C3	**4**	100	75	25	25			25	50				
C4	**4**	50	25				75	25	50	25			
D1	**17**	82	59	12	35	12	12	35	18	24	24	6	
E3	**22**	100	33	14	5	5	14	10	67	14	10	10	5
E4	**12**	100	42	17	42	33	58	42	33		8		8
E5a	**9**	100	67		22	22	11	56	44		33	11	11
E5b	**24**	63	38	13	4	4	25	21	25	13	13	4	8
E5*	**13**	54	23	8	15		8	23	54	15	8		8
E6	**15**	73	47	7	20		20	20	27	7	27	7	20
E7	**7**	71	43	14				43	29	29			
E8	**11**	82	36	9	9	9		45	64	36	18		18
F1	**4**	25	25				25		25	50	25		
F2	**7**	57	43					14	29		14		14
F4	**13**	77	54			8	8	23	38	8	8	8	8
F5	**17**	75	69	6	13	13	19	25	25	19			
H1	**9**	67	67	22		33	33	44	89	11	33	11	
H2	**4**	75	25			25		25	50		50		25
H3	**18**	89	56	17	11	17	17	33	39	17	22		6
H4	**6**	100	83	67	33	33	33	100	83	17		17	17
I1	**50**	86	42	2	24	14	12	34	42	12	22	8	4
I2	**12**	100	92	50	50	33	58	67	67	17	25		25
I3	**21**	100	57	43	67	57	52	62	62	29	14	10	19
I5	**4**	75	100			25	25	75	25		25		
I6	**4**	75	50	50	50	75	50		50	50	25		
IX	**9**	100	78	22	56	56	33	78	78		44	11	
J1	**4**	100	50	25	50	25	50	50	50	25	75	25	25
J2	**7**	100	29	29			29		29	29	14	14	
K	**4**	75	50	25	25		50	50	50	25			
M	**9**	100	89	33	78	44	44	56	44	22			
O	**5**	100	80		20	20		40			60		
Q	**14**	79	64	36	50	14		64	64	86	86	86	93

Table 6.6r Major Clusters by Selected Travel Destinations (Continued)

	N	New England %	South (not FL) %	Midwest %	West %	California %	Pacific NW %	Alaska %	Hawaii %	Canada %	(Other) Americas %	Europe %	Asia / Africa %
AX	5	20			20					20			
B1	6					17		17					
B1a	26		15	12	4	4			4	12	4		
B1b	56	5	7	2	9	5	4		4	9	5	4	2
B2	33	6	15	3	18	12			9	6	3	3	
B4	148	5	8	5	6	3	2	1	2	5	5	7	1
B8	15			13	20					13			
B9	13	23	15	8	15				8				
B10	4												
B11	18	11	6	28	6					6		17	6
B12	7		29						14	14	29	14	
B13	10	10	20			10				10	20	30	
B14	4					25							
B15	9		11				22			11		11	
B16	115	15	15	9	23	12	3	4	7	14	5	16	2
B17	18		11	6	6	6				11		6	
B18	48	23	13	15	25	10	8	2	4	13	15	15	2
B19	4	25	25										
B20	4	25	25			25				25			
B21	6		17		17			17			17		
B22	6		33							17	17	50	33
B23	30	7	10	10	7	10		7	7	13	13	13	3
B*	84	4	15	5	10	6	1	2	5	8	10	13	2
C1	8	25			38								
C2	4	50	50	25	25					25	25		
C3	4		25		50							25	
C4	4	25	25	25						25		25	
D1	17	12	24	12	18	29				18		6	
E3	22	23	14	5	32	5					18	18	
E4	12	25	33		25	8				8		25	
E5a	9	11	33		11					11			
E5b	24	21	17	8	8		4	4		13		8	
E5*	13	8	23	8	8		8		8		8		
E6	15		7	7	13	7				13	7		
E7	7	14	43		14	14				14			
E8	11	27		18	36			9	18	27		9	9
F1	4		25							25			
F2	7		14	14	14	14				14			
F4	13	15			8	8						15	
F5	17		12	6	24	6				19			
H1	9	22	22	33	22	11	11		11	11			
H2	4		25	25	25	25	25			25	25	25	25
H3	18	17	33	22	22	11	11	6		22	17	22	
H4	6	17	33		33					17		17	
I1	50	8	26	4	14	8				18	4	10	
I2	12	8	17	17	25	8	8	8	8	25	17	25	
I3	21	19	29	10	29	14	14		10	19	14	29	10
I5	4	25	25	25	25								
I6	4	50	25	25	25	25							
IX	9	11	44	11	22	11			11	44	22		
J1	4	50	100		50								
J2	7		43		29							43	14
K	4				25						50		
M	9	11	44		11	11				33	33	33	11
O	5	20			20								
Q	14	86	86	100	100	64	64	50	36	43	14	14	14

Table 6.6s Major Clusters by Selected Local Orbit Locations

	N	Tyboro Nat'l Bank	Chain Bank	County Trust Co.	FCU 1	FCU 2	grocery chain 1	grocery chain 2	discount grocery	next town grocery	next town disc. groc.	town edge conv. store	drug chain 1	drug chain 2	drug chain 3
		%R	%R	%R	%R	%R	%R	%R	%R	%R	%O/R	%R	%R	%R	%R
AX	5	40		20			100	40	40				40	40	60
B1	6	33			33	17	33	33	17		33		33		67
B1a	26	42	8		4	12	65	38	54		23	4	23	12	42
B1b	56	43	4	9	4	14	64	46	46	5	16	5	18	5	55
B2	33	55	12	12	6	3	73	52	18	3		3	21	9	58
B4	148	25	5	5	9	7	39	25	28	3	7	5	8	3	19
B8	15	13	7	33	7	20	53	47	40	20				7	20
B9	13	23	15	8	8	23	69	31	31		23	15	23	8	54
B10	4	100					50	100	25						75
B11	18	44	6	11	17	28	83	22	11			11	11	6	33
B12	7	29	43	43		29	100	29		14	29			29	43
B13	10	40	10	10	10	60	100	40	20	20			20	10	40
B14	4		25				50	25		25		25			
B15	9	67		11	11	11	67	56	56		22		11	11	56
B16	115	51	6	9	6	20	74	45	37	4	12		16	8	50
B17	18	50	22	6	33	22	61	56	39		17	11	17		33
B18	48	48	15	13	25	17	77	56	38	4	25	4	19	2	50
B19	4	50	50	25				50	75		75	25		25	50
B20	4	75			25	50	100	50	25						75
B21	6	33	50	17			83	50	33		17		17	17	33
B22	6	67	17				67	17	17				33		33
B23	30	43	17	3	10	17	67	37	33		10			13	43
B*	84	30	12	12	14	18	65	37	32	1	10	12	12	7	45
C1	8	25		13		25	63	38	25			13		13	25
C2	4	50				50	50	25	100			25			50
C3	4	25		25		50	100	50	50					50	50
C4	4	50					50	50	50		25	25			75
D1	17	35	12	6	6	24	65	35	41	6	29		6	12	18
E3	22	67	14	10	5	24	76	29	14	5	10	14	10	14	33
E4	12	58	8	17	8	8	92	17	8	25		17	8	25	42
E5a	9	44		11		22	89	11	33			11			
E5b	24	21		8	8	21	50	13	21		13	25	4	4	8
E5*	13	54	8	8	8	8	62	23	8		15	15	15	8	23
E6	15	60	7	13	20	13	53	40	13		7		7	13	7
E7	7	29	14	14	29	14	71	14	43			14	29	14	14
E8	11	36			18	27	73	18	27		45	9			82
F1	4	75				25	75	75	50		25	25	25		25
F2	7	43	14		14	43	57	43	14	14		14			43
F4	13	46	8		15	46	77	46	54	15	15	15	15	15	54
F5	17	31	19	13	13	13	63	44	38	6	25	6	13	25	25
H1	9	67	22	22	22		56	56	56			11	11	11	67
H2	4	75		25		25	75	25			50				25
H3	18	28	6	22	6	39	78	39	67	6	22		22	11	39
H4	6	83	50				33	83	17		17		17	17	33
I1	50	52	6	4	16	36	72	38	34	8	20	8	18	6	40
I2	12	42	8	8	8	25	100	33	25	25	8	8	42	8	25
I3	21	38	10		29	52	90	33	29	10	10	5	19	14	38
I5	4	25		25		50	100	25	25						50
I6	4	25	50			25	100						25	25	25
IX	9	56	33	11	11	44	100	56	44	11	22	33	33	11	44
J1	4	100	25		25	25	75	50	25				25	25	25
J2	7	57				29	57	14	57	14	14		43	14	57
K	4	50		25	75	25	50	75	50		25		25		25
M	9	33	11	11	11	22	100	22	22	33	22	11		22	22
O	5		20	40	20	60	100	40	100			60	40	20	20
Q	14	64	7	7		21	64	36	14		14	7	7	7	36

Table 6.6s Major Clusters by Selected Local Orbit Locations (Continued)

	N	any fast food %O/R	Italian restaurant %R	Italian restaurant %O/R	Hotel Italian %O/R	Mexican restaurant %O/R	Chinese buffet %O/R	fine dining %R	fine dining %O/R	next town fine dining %O/R	lakeside dining %O/R	hamlet restaurant %O/R	family restaurant 1 %O/R	family restaurant 2 %O/R
AX	5	80		20			100	60		20	20	60	20	40
B1	6	33	17				17							50
B1a	26	62	4	4	19	4	31		15			19	19	31
B1b	56	46	11	4	18	4	27	2		7	2	14	18	34
B2	33	33		15	9	15	18			9	12	33	36	45
B4	148	34	8	6	10	9	18	3	5	3	6	18	14	24
B8	15	60	27	7	13	7	33	7		7		13	13	40
B9	13	92	15	15	8	23	46		8		8	23		
B10	4	75					50					25		50
B11	18	67	22	33	50	44	72	17	39	56	33	22	44	17
B12	7	57		43	14	29	86	14	29	57	29	57	14	86
B13	10	100	10		20	50	50		30	20	30	60	30	40
B14	4	75	25				75	25						
B15	9	67			11		33	11	22	11		33	44	33
B16	115	46	8	8	20	10	51	3	14	24	18	58	37	56
B17	18	61	17	6	33	6	56		6	28	6	50	33	28
B18	48	73	15	29	25	19	54	6	42	35	44	54	44	56
B19	4	75				25	50				50	75	75	25
B20	4	50	25	50	50	50	50		25	25	50	25	25	25
B21	6	83	33	17	33	17	67		33			17		33
B22	6	17					33				17		33	50
B23	30	40	10	3	7	17	43	3	17	20	23	63	60	47
B*	84	56	17	17	18	21	48	7	10	24	18	35	29	38
C1	8	100	38	38	25	38	88	13	13	38	50	50	63	38
C2	4	100	25		50	25	25		25	50	50	75	50	
C3	4	75		25	50	25	75		50	25	50	50	25	100
C4	4	50	25			25	25					50	25	
D1	17	76	6	6	18	41	47	6	24	24	12	12	24	29
E3	22	71	14	10	29	33	29	5	38	29	52	48	48	38
E4	12	83	42	25	25	42	67	42	25	58	75	8	25	50
E5a	9	78	44	22	22	11	44	11		22	11	11	11	11
E5b	24	83	33	4	13	25	46	4		21	4	25	17	17
E5*	13	54	8	23	23	8	31		15	23	15	62	23	54
E6	15	73	27	27	20	33	53	7	13	13	27	33	13	27
E7	7	86	43	14	29	14	43			29	14	43	29	14
E8	11	91	9		9	18	36		9	45	18	82	55	55
F1	4	75	50		25	25	75	25						
F2	7	86	57		14	14	43	29				14	14	
F4	13	92	38	31	15	23	69	8	8	15	15	31	23	38
F5	17	81	19	25	38	25	44	6	19	25	6	19	25	13
H1	9	22		11	11		44			11	22	67	44	56
H2	4	100					25			25	25	50	50	25
H3	18	94	28	17	33	28	50	6	17	11	44	33	11	44
H4	6	50	33	50	50	50	50		67	50	67	67	33	67
I1	50	88	16	24	34	40	62	12	18	32	34	36	30	30
I2	12	92	42	42	58	50	67	33	25	42	33	42	50	33
I3	21	81	24	33	57	67	95	14	29	52	62	48	62	52
I5	4	75	25		50	25	50	25		50	25	75	25	50
I6	4	50		75	25	25	50	25	25	50	50	75	50	25
IX	9	100	78	44	67	67	89	56	22	56	67	22	33	22
J1	4	75			25		50		50		25	50	75	50
J2	7	57	14		29	14	43		14		29	29	43	
K	4	50	25		25	50	75	25	25		25			
M	9	78	11	22	56	22	89	11		56	67	44	33	44
O	5	100	20				80	20		20		20		40
Q	14	71	7	36	36	71	64	14	21	29	29	43	43	50

Table 6.6s Major Clusters by Selected Local Orbit Locations (Continued)

		downtown diner		soup and sandwich		local burger stand	steakhouse chain	local coffeehouse	donut chain	out of town sports bar		downtown sports bar	downtown "tavern"	rustic bar
	N	%O/R	%R	%R	%O/R	%O/R	%O/R	%O/R	%O/R	%R	%O/R	%O/R	%O/R	%O/R
AX	5	60	40	40	20	40		20						60
B1	6	83	33		33	50	17							83
B1a	26	58	12	8	15	58	12	23	8		8	15	15	58
B1b	56	59	16	4	11	52	7	20	4		5	2		59
B2	33	70	12		3	55	3	9	3		3			70
B4	148	39	7	5	6	38	3	20	5	1	3	7	4	39
B8	15	33	13			47		27	7	7	7	7		33
B9	13	62	15	8		85		38	23		23	15	8	62
B10	4	50	25									25	25	50
B11	18	56	6			28	17	44	61	11	39	22		56
B12	7	57	14		14	29	29	43	29	14	14	14		57
B13	10	80	10	20	10	40		40	40	10	40	30	10	80
B14	4	25				50	25	50			50	25		25
B15	9	56	11	22	22	89		11	11			11	11	56
B16	115	76	21	17	4	48	20	8	10	3	8	1		76
B17	18	72	6	6	17	61	6	22	11	6	28	11	11	72
B18	48	77	23	15	2	52	35	31	21		13	2	2	77
B19	4	75				50	25	25	25		25			75
B20	4	100	25			75	25	75	25		25			100
B21	6	33				50	17	33						33
B22	6	67	50	50		83		17			17			67
B23	30	70	27	10	7	47	13	7	3		3			70
B*	84	61	15	12	5	51	13	18	19	2	13	11	5	61
C1	8	88	13	13	38	75	13	88	75	13	25	38	25	88
C2	4	75			25	75	25	50	50	25	25	75	25	75
C3	4	100	25			50	75		25					100
C4	4	25				25		50				25		25
D1	17	53	6			41	12	12	29	12	6			53
E3	22	71	24	24	5	43	19	24	19		19			71
E4	12	75	25	8		17	25	33	50	25	50	33	25	75
E5a	9	33			11	44	11	22	44	11	33	33	22	33
E5b	24	67	8	17	4	58		29	29	4	25	29	25	67
E5*	13	77	15	23		38		23	31	8	31	23	8	77
E6	15	60	27	20		67		27	40	7	40	40	20	60
E7	7	71	14		14	29	14	43	43	29	57	29		71
E8	11	82	18	9	18	64	9	27	9					82
F1	4	25	25			75		25					50	25
F2	7					57		57	29	14	14	14	29	
F4	13	62	23	38	8	77	23	46	31		38	54	8	62
F5	17	44	6	19	6	69	19	31	13		44	50	44	44
H1	9	67	11	11		78	11	22						67
H2	4	100		25		50		25	25			25		100
H3	18	50	6			50	11	22	6					50
H4	6	83	33		33	50	50	67	50		33	33	33	83
I1	50	60	14	8	10	56	24	48	26	6	26	18	4	60
I2	12	100	42	25	25	58	50	50	50	33	67	17		100
I3	21	86	19	5	10	57	52	62	33	5	33		5	86
I5	4	75	25		25	50			75		25	25	25	75
I6	4	50	25	25		25	75	25	75	50	50	50	25	50
IX	9	67	11		22	78	33	33	67	11	44	22		67
J1	4	50	25	50		75	50	25	25					50
J2	7	71	14				14	14						71
K	4	75	50			25	50	50	50		25			75
M	9	67	11	11	11	33	33	56	33	11	33	22		67
O	5	60	20			100	20	100	40	20	40	60	60	60
Q	14	93	36		7	50	7	36	36	14	21	7		93

Table 6.6s Major Clusters by Selected Local Orbit Locations (Continued)

	N	downtown Tyboro %R	post office %R	library %R	senior apts %R	nature park %R	county office bldg %R	country club %O/R	high school %R	feed & farm store %O/R	lumber & hardware 1 %O/R	lumber & hardware 2 %O/R	hardware & plumbing %O/R	chain hardware %O/R	guns & sports %O/R
AX	5	60	60	40	40	20	40		20	80	60	60	40	80	20
B1	6	50	50	33		17	33		33	17	33			17	33
B1a	26	35	31	15	12	15	12		15	19	31	8	35	31	4
B1b	56	20	20	11	32	2	4	4	2	20	27	9	30	30	2
B2	33	15	33	18	12			9		52	27	21	58	52	3
B4	148	15	18	7	7	3	6	5	3	32	32	17	44	34	8
B8	15	7	13	20	13			7		13	40	33	33	33	27
B9	13	23	23	8			23	15	31	31	54	38	77	85	15
B10	4	25	50				25		25	100		25	100	100	25
B11	18	28	28	17		11	11	22	61	56	39	17	56	44	22
B12	7	29	57	14	14			29	29	43	71	14	57	57	29
B13	10	60	60	20				40	60	60	40	50	50	50	
B14	4							25	25	50	25		75	50	
B15	9	33	22	33	11	11	11			56	22	11	67	78	
B16	115	29	34	14	20	1	1	15	9	57	53	23	57	54	4
B17	18	33	44	17			22	11	11	61	72	44	89	83	17
B18	48	46	52	21	23	10	23	29	33	77	71	42	83	63	4
B19	4			25			25		25	100	25			75	
B20	4	50	50				25	25	25	75	75	25	100	100	25
B21	6			17	17	17				67	50	17	67	50	
B22	6	50	67	33	33			17		33	17			67	17
B23	30	33	27	10	23	7	7	17	3	67	50	23	73	53	17
B*	84	21	35	12	13	4	11	19	13	52	39	26	54	52	17
C1	8	38	38	13		13	25	13	63	75	38	63	88	100	63
C2	4				25			25	25	50	25	25	50	25	25
C3	4	50	25	50				25	25	25	50	50	100	50	25
C4	4	25				50			25	50	25		75	25	
D1	17	29	41	18			12	24	35	24	47	12	41	47	12
E3	22	29	38		5	5		38	14	71	76	67	76	48	24
E4	12	58	8			25	17	42	17	50	33		50	67	17
E5a	9	11			11			67	22	56	44	44	67	56	22
E5b	24	42	8			21	17	25	25	54	46	50	79	54	67
E5*	13	38	8				8	23	23	92	69	38	85	85	38
E6	15	40	40			20	20	13	27	47	47	40	87	47	53
E7	7	29	29		14	29	14	14	43	57	29	43	86	71	57
E8	11	27	64	9	9	9	36	9		91	82	64	100	73	64
F1	4	25		25		25	25						25	25	
F2	7	29	29	14					29			14	14	29	
F4	13	38	46	15	8	23		23	62	38	23	23	38	31	31
F5	17	25	50	13		6	6	13	25	38	50	31	63	56	31
H1	9	33	33		33	11		11	11	67	56	33	67	67	11
H2	4	25	50				25			75	75	50	75	75	25
H3	18	44	56	44	17			11	28	67	50	22	56	67	6
H4	6	67	67			17	50	33		67	83	17	83	67	67
I1	50	32	42	16	4	6	18	22	48	70	50	28	60	54	10
I2	12	58	25	17		25	8	58	58	50	42	17	50	58	8
I3	21	43	62	29	10	19	24	43	71	81	67	24	86	67	10
I5	4	50	25			50			25					50	
I6	4	50	75				50	25	25	50	75	75	75	75	50
IX	9	56	33	11			11	44	78	78	44	67	67	67	33
J1	4	75	75					25		75	75	100	100	50	100
J2	7	71	57	29		14			14	43	86	29	86	57	
K	4	25	50				25	25	50	75	75	25	75	25	
M	9	56	67	22		22	11	22	33	56	44	22	44	56	11
O	5	60	20	20	20	20	20		20	60	40	20	100	60	20
Q	14	43	43	7	7		14	29	21	64	64	43	71	79	29

Table 6.6s Major Clusters by Selected Local Orbit Locations (Continued)

	N	any local florist %O/R	rent-to-own store %O/R	downtown bowling %O/R	out of town bowling %O/R	local movies %O/R	out of town movies %O/R	any local drycleaner %O/R	any local laudromat %O/R	benefit dinners %O/R	Kmart %O/R	Kmart %R	Wal*Mart %O/R	Wal*Mart %R
AX	5	60					20	20	20	20	100	100	80	60
B1	6					33	33		33		100		83	17
B1a	26	35	8	15	4	15	23		15	19	96	54	42	15
B1b	56	21	4	9	7	13	14	9	16	9	91	48	59	23
B2	33	42					9	30	3	9	97	55	64	9
B4	148	14	3	9	3	13	9	11	11	12	71	24	35	7
B8	15	20		13	7	13	13	7	7		87	13	40	27
B9	13	31	15	8	8	38	46	15	23		100	46	85	15
B10	4	75				25	25				100	100	50	25
B11	18	56		33	6	50	67	33	17	28	100	72	72	33
B12	7	57					57	43			100	71	71	29
B13	10	90		30	10	50	70	10		10	100	80	90	60
B14	4	50				25	25				100	25	50	
B15	9	44		22	11	22	22	11	33	56	100	78	56	11
B16	115	51	2	7	3	1	19	31	5	26	93	50	65	18
B17	18	39	6	22	17	17	28	33	22	17	89	44	67	17
B18	48	63	8	8	4	13	38	63	25	40	98	65	71	13
B19	4	75		25		25	25			25	100	50	75	25
B20	4	50						50		75	100	75	75	25
B21	6				17	17		33			83	83	33	
B22	6	17		17	17			33		17	100	50	50	17
B23	30	20					20	17	3	30	93	33	37	7
B*	84	35	4	13	6	15	27	24	8	15	93	48	61	19
C1	8	50		38	50	50	38	13		50	100	63	75	38
C2	4	50		25	25	50	50	25	25		100	50	100	25
C3	4	100				50	25	50		50	75	50	75	
C4	4	25		50		25					100	100	100	25
D1	17	35		29	6	18	24	24	12	18	100	47	76	12
E3	22	62		10		24	38	52	5	14	95	57	57	33
E4	12	50		25		25	58	75	8	42	75	42	67	25
E5a	9	33		67	44	22	33	11	11	33	89	33	44	22
E5b	24	33		25	13	25	33	13	21	21	92	29	71	29
E5*	13	46		15	8	8	15	15		8	85	54	77	8
E6	15	53		40	20	40	27		13	27	87	40	60	20
E7	7	71		43		29	43			43	100	43	71	14
E8	11	55	9	9	9	9	36	36	9	27	100	45	73	9
F1	4	25				50	25				100	50	50	25
F2	7	43			14	71	57	14		14	86	57	71	43
F4	13	77		38	23	85	62	15	15	31	100	54	69	31
F5	17	56	6	56	31	38	31	6	38	25	88	50	63	19
H1	9	56					11	44	11	33	78	56	56	33
H2	4	75						75	25	75	75	25	100	50
H3	18	61		6		11	44	44	17	44	100	56	94	22
H4	6	83		17			50	67		50	100	17	83	33
I1	50	62	2	22	2	36	58	32	10	28	98	62	80	44
I2	12	92		33	8	50	75	50	25	75	100	75	100	67
I3	21	86		14		29	62	76	14	71	100	62	86	19
I5	4			25		75	50	50		25	75	75	100	75
I6	4	75		25		25	25	100		25	75	50	25	25
IX	9	56		33	22	33	89	67	22	56	100	89	89	67
J1	4	50					75	50		75	100	50		
J2	7	29		14			29	43	14	43	100	71	86	14
K	4	25				25	50	25		50	100	100	25	25
M	9	78		44	22	56	56	33	22	22	100	56	67	33
O	5	60	20	80	20	60	100			40	100	100	100	80
Q	14	64		7	7	14	29	50	7	14	100	50	86	7

Table 6.6s Major Clusters by Selected Local Orbit Locations (Continued)

	N	regional mall		discount dept store		locale 1		locale 1 shops	locale 2		locale 2 shops	locale 2 ice rink	locale 3	
		%O/R	%R	%O/R	%R	%O/R	%R	%O/R	%O/R	%R	%O/R	%O/R	%O/R	%R
AX	5	80	20	80	60	40		40	80		20	20	60	
B1	6	50	17	83	33	33			50		17		50	
B1a	26	50		54		31		12	58		12	4	23	4
B1b	56	57	11	68	20	36	5	9	30	14	16	2	18	9
B2	33	61		82	12	42	6	9	55	6	9		27	3
B4	148	34	5	39	7	28	1	8	30	5	8	1	16	2
B8	15	53	27	47	33	33	7	13	27	20	20	13	7	
B9	13	85	23	92	15	38	8	15	54	23	23		38	8
B10	4	25		75					25				25	25
B11	18	100	44	78	17	67	17	56	78	22	78	33	33	
B12	7	86	43	43		71	29	57	86	57	29	14	43	29
B13	10	100	60	80	10	90	30	40	80	40	20	10	50	10
B14	4	75	50	50		25			50	25	50	25	50	
B15	9	56		89	11	67		56	78	11	22		22	
B16	115	63	10	71	17	50	6	24	48	11	17		31	4
B17	18	83	6	72		67	11	17	78	17	22		44	6
B18	48	88	21	85	21	77	13	50	79	23	48	8	46	17
B19	4	75	25	100		100			75	75	25	25	100	
B20	4	100	50	100	25	75	25	50	75	50			25	
B21	6	33		17		33			33			17	17	
B22	6	33		33		17	17	17	33				33	17
B23	30	57	13	50	13	47	3	7	60	10	17		23	10
B*	84	70	14	61	17	51	11	21	54	12	23	4	32	8
C1	8	100	25	75	13	63	25	38	88	63	50	50	50	38
C2	4	75	25	75		50	25		50	50	25		25	
C3	4	100		25		75	25		50		50		25	
C4	4	25		75		25	25	25	100		75		50	25
D1	17	76	29	71		41	12	12	65	18	29	24	41	18
E3	22	76	29	43		62	14	29	71	33	24		43	5
E4	12	100	33	50	17	83	67	67	92	58	42		58	17
E5a	9	67	22	56	11	67	33	22	56	22	22	11	44	
E5b	24	63	13	46	4	46	25	21	75	21	13	17	50	13
E5*	13	85	8	46	23	54	38	8	77	31	8		38	8
E6	15	73	27	33		73	27	20	53	13	7	7	73	33
E7	7	86	43	43	29	71	14	29	43	29		14	14	
E8	11	91	9	82	9	45	9	18	64		18		36	9
F1	4	50		50		50			25		25		25	
F2	7	100	57	57	14	29		14	86	71	29	29	29	14
F4	13	92	15	85	23	69	38	62	69	31	23	8	46	8
F5	17	75	25	69	13	69	19	31	81	19	38	31	38	19
H1	9	56	11	78	22	78	11	33	78		22		11	
H2	4	75		25	25	75			75	75	25		75	50
H3	18	83		89	6	72	17	44	78	28	22	6	61	22
H4	6	100	33	50		100	17	67	83	17	67		67	17
I1	50	88	28	84	18	80	24	50	72	26	42	14	48	8
I2	12	100	50	83	42	58		25	100	67	58	17	50	33
I3	21	100	48	86	10	81	52	57	90	57	71	29	57	24
I5	4	100	100	75	50	100	75	50	100	75	75	25	50	25
I6	4	75	25	25		50			100	50	25	50	25	25
IX	9	100	33	78	22	78	44	89	100	78	89	44	89	
J1	4	50		75		75			50		25		50	
J2	7	100		86	14	57		43	100	14	29	14	43	
K	4	100	25	75		75	25		50		25	50	50	25
M	9	89	67	44		78	56	56	56	33	67	44	78	33
O	5	100	20	100	20	80		80	100	40	60	20	100	60
Q	14	79	14	64	7	64	14	43	57		64		36	

Table 6.6t Major Clusters by Selected Radio Preferences

	N	%R/D	Tyboro AM oldies	Tyboro FM pop/country	pop 80s-90s 1	pop 80s-90s 2	Christian	country 1	country 2	country 3	oldies 1	rock 1	rock 4 (modern)	rock 6	PBS / NPR
	N	%R/D	%	%	%	%	%	%	%	%	%	%	%	%	%
AX	**5**	100	40	80											
B1	**6**	83	17	33	17			67	50		17				17
B1a	**26**	58	8	50	27		12	8			12		8		
B1b	**56**	64	5	41	4		4	11		5	7				4
B2	**33**	52	9	42	3		3			3					
B4	**148**	48	7	32	8	1	3	4	3	1	1	3	1		1
B8	**15**	47	7	7	13		7	7				7			7
B9	**13**	69		31	23	15		31		8		23	8		
B10	**4**	25		75							25				
B11	**18**	89	17	72	33		6				22		6		6
B12	**7**	71	14	43	14							14			29
B13	**10**	100		60	30					10	10	30			
B14	**4**	100		100	25	25					50	25		25	50
B15	**9**	89	22	67	11		44				22				
B16	**115**	63	6	47	3	1	16	2	1	1	1				2
B17	**18**	72	17	67	11			11		6	6				
B18	**48**	73	8	52	6	2	21	6	2		4	2			13
B19	**4**	100		75	25					25	25				
B20	**4**	75		75	25										
B21	**6**	83	17	50			33								
B22	**6**	50					17								
B23	**30**	67	13	47			23	3							7
B*	**84**	76	12	43	19	4	4	5	2	2	2	4	5	1	2
C1	**8**	100		63		13		25	25	13	25	25	25	13	13
C2	**4**	75		25	50			25			25				
C3	**4**	50		100											
C4	**4**	100		50						25		25			
D1	**17**	76		24	12	6	59					6	6	6	12
E3	**22**	76	5	62	5	5	5	5		5	5				
E4	**12**	83		42	25		17		8		8	17	25		
E5a	**9**	89	22	56	11	11		11				11	11		
E5b	**24**	83	8	38	8	4				4	13	13	17	4	
E5*	**13**	92		62	15			15	8			15	8		
E6	**15**	100		53	27	7			7				13		
E7	**7**	86	14	86	29				14		14	29		14	
E8	**11**	82	9	45	9		9	9							
F1	**4**	100		50	50			25				25	25		
F2	**7**	100		43	100	29		14				29	29	29	
F4	**13**	92	23	77	54			8			23	8	15	8	
F5	**17**	88	6	50	25	25				6	6	13	19	25	6
H1	**9**	100	22	44			44								
H2	**4**	75		25			25	25	25						
H3	**18**	94		44	6		56	6				6			6
H4	**6**	67		33			17								
I1	**50**	96	8	64	24		10	4	6	4	2	2			
I2	**12**	100	8	67	33		17		8	8	25	8			
I3	**21**	81	14	71	24		29				14				10
I5	**4**	100		75	75	25			25		25	25		25	
I6	**4**	100		75	25										
IX	**9**	89	11	89	56		33								
J1	**4**	100		75			50								
J2	**7**	86		43			57								14
K	**4**	100	25	50	25		25								
M	**9**	100		44	22		11	11			11	33	11	22	11
O	**5**	100		100							20		40		
Q	**14**	57		71	7		7							7	14

Table 6.6t Major Clusters by Selected Radio Preferences (Continued)

	N	news %	classified ads %	morning show %	talk radio %	music w/o genre %	oldies 50s/60s %	country %	rock/pop %	classic rock %	soft rock/easy listen %	christian/gospel %	classical %	jazz %	alternative %
AX	5			20		40									
B1	6	17	17		17	100	50	83	17				17	17	
B1a	26	15	12	12	4	54	19	23	15	8	4	12			
B1b	56	32	4	2	2	41	9	18		2	2	2	4		2
B2	33	33	3	3		27		3				3			
B4	148	17	1		3	29	5	10	5	4	3	3	1	1	
B8	15	20				27		13				7			
B9	13				8	77		31	8	23					
B10	4					50	50								
B11	18	11		6	17	50	28		17	6	6		6		
B12	7	29				57	29	14		14					
B13	10	30				40	10	10	10	10					
B14	4	50		50		75	50			25	25				25
B15	9	67	33			56	33					33			
B16	115	30	9	3	7	37	5	6			1	10	3		
B17	18	22		11		33	6	11			6				
B18	48	42	2	4		50	8	8	2			6	15	8	
B19	4	75			25	75	50	25							
B20	4	50			25	25									
B21	6	17			17	50	17		17			33			
B22	6	17			17	17			17		17	17			
B23	30	40	3		13	37	3	3	3				20	3	
B*	84	30	2	2	1	45	10	14	7	8	5				
C1	8	25		13		75	25	38	63	63				13	
C2	4	25				50	25	25	50						
C3	4	50		25		50			25						
C4	4					75		50	25	50					
D1	17	18		12	12	53	6	6	6	6		35	6		
E3	22	29		5	5	43	10	10	5	14		5			
E4	12	25		8		67	8	25	17	25	8	8			
E5a	9	22				67	11	22	11	11					
E5b	24	17	4	4		58	17	8	17	29					8
E5*	13	23	8	8	8	62	8	15	15	23					
E6	15	20		7	7	40	7	7	20	20					13
E7	7	43			14	86	43	14	43	29	14				
E8	11	36			9	45	9	27			9				
F1	4					25									
F2	7					29		29	14	14	14				
F4	13		8			62	23	31	15	8	8				
F5	17	13		6	6	56	6	6	25	19					6
H1	9	44				44			11			33			
H2	4	25		25		75		50			25				
H3	18	33		17	11	44	11	6				28	6		
H4	6			17		50	33								
I1	50	34	4	12	4	58	6	20	8	4	2	6			
I2	12	25	8		8	67	33	17	33	25	17	17			
I3	21	29		29	10	71	19	14	5			5	10	5	10
I5	4					50				50	50				
I6	4	50		25	25	75	50			50	25				
IX	9	22			11	67	33			22		11	22		
J1	4	75			25	50									
J2	7	29		14	14	29	14					14	43	14	
K	4	25		25		75	50	25					25		
M	9	22	11		22	89	22	22	11	22		11	22		
O	5	20	20			60	20	20	40	20					
Q	14	29	7		14	71			7	7			7	7	

Table 6.6u Major Clusters by Selected Music Preferences

	N	%O/R (attend live music show)	R/D (listens to music)	Vince Gill %	Gaithers %	Alan Jackson %	Reba McEntire %	Beatles %	Shania Twain %	Garth Brooks %	AC/DC %	Elton John %	Billy Joel %	Barbara Streisand %	Celine Dion %
AX	5	60	60												
B1	6	50	67				17								
B1a	26	35	50			4	4	8	8	4					
B1b	56	21	52	4	4	5	4	2	5						2
B2	33	6	6	3			3								
B4	148	14	24	1	1	4	1		1	3	1				
B8	15	20	40			7									
B9	13	38	54				15		15	8	8				
B10	4	25	25			25					25				
B11	18	39	67				6		11	11		17	11	11	11
B12	7	57	71							14		14			14
B13	10	80	90				20			20	20				
B14	4	100	100								25				
B15	9	67	44			11	11			11					
B16	115	46	50	3	3	1	1	1						3	1
B17	18	56	39	6						6	6	6	6		
B18	48	71	58	8	6	6	2	2	4	2				2	
B19	4	75	50			25									
B20	4	75	100	25		25		25	25						25
B21	6	17	83											17	
B22	6	-99	33												
B23	30	30	43		10	3	3					3		3	
B*	84	42	55			2	1	5	4	2	4	4		1	
C1	8	63	88				13		13	25					
C2	4	50	75						25						
C3	4	75	25						25	25					
C4	4	25	100			25			25		25				
D1	17	65	76		6				6	12	6				
E3	22	52	57	5											
E4	12	67	83						8	17		8	8	8	8	8
E5a	9	11	56					11	11						
E5b	24	46	46			4			13		8				
E5*	13	23	46												
E6	15	67	80								7				
E7	7	43	29	14					29	14					
E8	11	64	55					9							
F1	4	50	100				25								
F2	7	43	100				29			29		14			
F4	13	77	92			8				23	8	8			
F5	17	63	88				6		6	19	13				
H1	9	56	78	11	11										
H2	4	75	75	25	25	50	25								
H3	18	61	72								6		6	6	
H4	6	83	83												17
I1	50	62	78	4		6	2		10	14	2	4	2	6	4
I2	12	83	75				25		25	8			8		
I3	21	86	86		5				10	5			5	14	5
I5	4	25	100							25					
I6	4	75	100						25	25		50	25		
IX	9	67	78					22	11						
J1	4	75	25												
J2	7	43	71		14					14					
K	4	100	100				25	25	25	25					
M	9	89	89							22					11
O	5	100	100									20		20	
Q	14	43	36												

Table 6.6u Major Clusters by Selected Music Preferences (Continued)

	N	country	gospel	religious pop	easy listening	classical	jazz	big band	50s	60s	oldies	light rock	classic rock	hard rock	80s / 90s pop / rock
		%	%	%	%	%	%	%	%	%	%	%	%	%	%
AX	5	40				20	20								
B1	6	83	50		17	17	17				33				
B1a	26	50	8	8	4	12	8		12	12	8	4	31	4	35
B1b	56	59	2	2	7	7			2	2	5	4	11		9
B2	33	27	3			9	15	12	6		3				3
B4	148	30	3	1	1	5	3	1	1	1	3	2	11	2	8
B8	15	27		7			7						13		13
B9	13	69											38		23
B10	4	100										25	50		25
B11	18	22			6	28		6	6	6	22	22	33	6	33
B12	7	29			14	14	14	14	14	14	14	14	43		29
B13	10	20			10	20	10				10		50	10	60
B14	4					50	25						25	25	75
B15	9	56	44	11	33	22						11	11		11
B16	115	38	31	2	4	23	4	7	2	1	5	3	5		7
B17	18	50				11	6					11	39		28
B18	48	42	35	4	4	35	8	6	2	4	10	6	17		25
B19	4	50				25	25	25	50	50	50				
B20	4	75				50	25						50	25	25
B21	6			17		17	33		17	17			33		33
B22	6	17				17			17	17					
B23	30	30	20	7	3	17	3	10			7	3	3		10
B*	84	44	6		4	12	8	6	5	2	4	4	29	2	26
C1	8	75					13						63		63
C2	4	50											25		25
C3	4	25				25			25	25					25
C4	4	75											50	25	50
D1	17	12	18	47		24							12		12
E3	22	38	10		10	5			5	5	10		24		14
E4	12	50		17		17					8		58	8	58
E5a	9	56										11	44		33
E5b	24	50						4			13	8	50	4	46
E5*	13	54				8			8		15		23		15
E6	15	47											53	20	47
E7	7	43							14	14			43		43
E8	11	55	9				9	18	9			9	18		9
F1	4	50											50		
F2	7	57			14		14				14	14	43	14	57
F4	13	69			8	8	8		8	8	8		54	15	46
F5	17	50	6			13	6				13	25	63	6	69
H1	9	67	67	11		44	22								11
H2	4	100	25			25									
H3	18	39	33	22	6	33	11	6					11		11
H4	6			17	33		33					17	17		
I1	50	62	10		4	6	8	2			10	4	36		48
I2	12	67		8	8	25			17	8	8		42		42
I3	21	24	14	19		38	33	5		10	5	10	38		38
I5	4	75				25							75		75
I6	4	25								25		25	50		50
IX	9	22	33			11					11	11	56		56
J1	4	25	50			25					25				
J2	7	29	29	43		43	14								14
K	4	75											25		25
M	9	56	22			11	22				22	11	44		56
O	5	80	40			60	20		20	20			80		80
Q	14	36	7			29	7						7	7	21

Table 6.6v Major Clusters by Selected Television Preferences

	N	watches TV %R/D	Movies %	News %	Dateline %	20/20 %	60 Minutes %	PBS %	Discovery Chnl %	history %	Wheel of Fortune %	Jeopardy %	Price Is Right %	Talk Shows %
AX	5	100	60	40	20	20	20				20	20		
B1	6	83	33	17	17						17	17		17
B1a	26	81	8	15					12	4	12	8		12
B1b	56	91	13	20	2	2				4	11	7	5	4
B2	33	97	36	30	6	3					15	21	3	9
B4	148	64	5	17				1	3	1	8	6	2	1
B8	15	80	7	20								13		
B9	13	100	31								8			
B10	4	50	25		50									
B11	18	78	6	33	11	22	6			6				
B12	7	86	14	57	29	14	14				14	14		14
B13	10	100	10	20	10	10								10
B14	4	100		25										
B15	9	100		11							11	33	11	
B16	115	93	19	37	3	3	5	5	1	5	21	17	8	7
B17	18	94	11	17		6			6	6	17	17	11	
B18	48	77	17	31	4	8		6	4	2	15	23	4	8
B19	4	100	25	25				50	50					
B20	4	100		25			25							25
B21	6	100		17				17	17					
B22	6	50		33				17		17				
B23	30	97	10	53			7	3	3	10	17	13		10
B*	84	88	13	25	5	2	5	5	7	4	6	8	4	4
C1	8	100		50					13	13				
C2	4	75												
C3	4	100		25				25						
C4	4	100	25						25	25				
D1	17	76		35	6	6			6		6	12		6
E3	22	95	5	29	5		5		5	5	14	5		5
E4	12	92		17						8				
E5a	9	100	22	22					11	11	11	11		
E5b	24	83	8	4					4	8	4			4
E5*	13	100	23	15					23		8	8	8	
E6	15	100	13	7					7	7				
E7	7	100		14					14	14	14		14	
E8	11	82	18	27				9	9	9				
F1	4	100												
F2	7	71												14
F4	13	100	8	8		8			8		8			15
F5	17	94	19	13					6	6	6	6		6
H1	9	100	22	67	11	11					22	11	11	22
H2	4	75	25	75					25	50				25
H3	18	89	11	11			6		11	6	6	11	6	
H4	6	83		17										
I1	50	88	6	20	10	14	12		10	2	2	8		4
I2	12	92		17			8			17	8	17		17
I3	21	86	19	24	10	5	5	5				5		5
I5	4	100			25									
I6	4	100		25	25	25								
IX	9	100		22					11					11
J1	4	100		25								50		
J2	7	57	14	14	14	14		14			14			
K	4	100	25					25	25	25		25		
M	9	89	11	11	11	11		11	22			11		11
O	5	100	20						40	20		20	20	20
Q	14	71	7	36				14	7		14	7	14	7

Table 6.6v Major Clusters by Selected Television Preferences (Continued)

	N	ER %	police shows %	Law & Order %	NYPD Blues %	Providence %	Touched By An Angel %	mystery (genre) %	sports %	sitcoms %	Friends %	Frasier %	Seinfeld %	Drew Carey %
AX	5													
B1	6	17					17			33				
B1a	26	8	12	15	8			4	19	12		4		
B1b	56	7	7	2	2	4	9	5	9	23	2	5		2
B2	33	9		3		3	6		9	15				
B4	148	3	1	3	1	1	1	7	12	11	1			
B8	15	7				7	7		7	20	7			
B9	13	23	8	15			8	15	8	31	15	8		15
B10	4	50				50				75				
B11	18	33						11	17	56	17	17	6	11
B12	7	14	14	14					14	14	29	14		29
B13	10								30	40	20			20
B14	4	25		25					25					
B15	9					11	11			33	22			
B16	115	3	4	5	1		7	9	12	16	3	5		1
B17	18		17	11				17	11	11	11	6	6	6
B18	48	8	6	8	2		8	13	19	27	8	6	2	2
B19	4						25	25		50	25	25		
B20	4	50		25					25	50				
B21	6	17		17					17					
B22	6	17						17	17	17				
B23	30	3					10	13	27	23		7		
B*	84	11	6	5	4	1	2	7	17	17	4	4	1	2
C1	8	13							50	63	25			13
C2	4	25	25							75	25			
C3	4							25	75	25		50		
C4	4								25	25				25
D1	17					6	18	12	12	12	6			
E3	22		5	14		5		10	14	19			5	5
E4	12	17			17	8	17	17	8	58	25	8		8
E5a	9	22		11					67	33				
E5b	24	4		4					38	25	4	4	8	21
E5*	13	8	8						46		8	8		
E6	15			7					33	27	7			13
E7	7		14	29	14				57	29	14	14	14	
E8	11	9						9	18	18				
F1	4			25					25	25				
F2	7		14		14					43	29			
F4	13	8	15	15	8		15			38	15			15
F5	17	25	6	6	6	13			19	44			6	13
H1	9						22	11						
H2	4					25	25							
H3	18	17				11	11	11	11	33	6	6	6	6
H4	6	17					17		17	17		17		
I1	50	16	6	10	2	6	2	6	8	36	12	4	2	6
I2	12	25	8	17	8	8			8	33	8	17	8	8
I3	21	24	5	10		5	10	5	14	33	14	5	5	
I5	4				25	25			25	25	25			50
I6	4					25			25	50	25			
IX	9	44					22			22	11			44
J1	4						50	50	50				25	
J2	7			14			14	29	14					
K	4		25						25	50			25	
M	9	11			11		11	11		22		11		11
O	5	20							80	80	60		20	20
Q	14	7				7		14	36	21	7			7

Table 6.6w Major Clusters by Selected Movie Preferences

	watches movies	comedy	romance	musicals	family	classics	mystery	drama	action	westerns	war	science fiction	suspense / thriller	horror
	N %R/D	%	%	%	%	%	%	%	%	%	%	%	%	%
AX	5 40		20					20		20				
B1	6	17	17			17	17		50				17	
B1a	26 31	19					12	19	19	8	4	8	8	4
B1b	56 14	14	4		4	7	5	2	16	5		4	2	7
B2	33 9	15	12	9	9	3	3	3		6				
B4	148 9	11	2	2	1	3	2	4	8	6	3	3	3	3
B8	15 13	7	7						7	7				
B9	13 46	15	8				8	8	23	15	15	15		15
B10	4 25								25					
B11	18 50	44	17				6	33	11			6	6	
B12	7 29	43	14				14	43	29					
B13	10 70	50	10	10				30	20				20	
B14	4	25	25	25				25	50			75		
B15	9 11	11							11					11
B16	115 10	14	13	9	1	7	7	3	2	6			1	
B17	18 17	22	6				22	6	22	17	11			
B18	48 10	25	27		2	6	21	6	4	8		2		
B19	4	25	25	25	25	50	75		50					
B20	4 25	50	25	25			25							
B21	6 17		17							17				
B22	6	17		17				17						
B23	30	10		3	7	3	7			13	3	10	3	
B*	84 27	17	4	4	4	5	11	17	24	14	4	2	5	5
C1	8 25	50	13			13		25	38					
C2	4	50						25	25					25
C3	4 50					25	25							
C4	4 25	25	25						50	25	25			25
D1	17 35	35	12		12		6	18	12			6		
E3	22 10	14	5		5	5	10	5	19		5	10	5	
E4	12 67	50	8			8	8	17	25		8		8	
E5a	9	44	11	11					33	11				
E5b	24 38	21	4					17	42	4	4	17	4	4
E5*	13 8	8							46	15	8			8
E6	15 60	27					7	7	60			7	7	7
E7	7 29	29					14	14	29				14	
E8	11 9	18		9			9	9	9		9			
F1	4 50	25	25						25					25
F2	7 71	86	43			14		43	29					
F4	13 46	31	54				8	8	23	8			15	15
F5	17 44	25	19	6		6		13	31	6		6	12	13
H1	9 22		11		22					22				
H2	4				25									
H3	18 17	44	6		11	11	11	22	6	6	6		6	
H4	6	17					17							
I1	50 38	32	28	2	6	8	6	16	30	2	2	2	8	
I2	12 42	42	17	8	17	8	8	8	25				17	
I3	21 52	33	24		10	5		33	5				10	
I5	4 50	50						50	50					
I6	4 75	50	25					50	25					
IX	9 56	67	11	22			11	11	44			22		
J1	4	25			50			25	25					
J2	7	14	29		14		29		14					
K	4 50	50	25			25		50						
M	9 89	11	33				11	22	22	11			11	
O	5 40	100							80				60	
Q	14 14	21	7					14	21	7		7		

Table 6.6w Major Clusters by Selected Movie Preferences (Continued)

	N	Sister Act %	Sound of Music %	Grease %	Sleepless in Seattle %	Titanic %	Gone With The Wind %	Pretty Woman %	Forrest Gump %	Saving Pvt. Ryan %	Schindler's List %	Speed %	Top Gun %	Star Wars (various) %	Star Trek (various) %
AX	5														
B1	6					33	17								
B1a	26	4				8							4		
B1b	56	2	2	2		4	4								
B2	33						3	3							
B4	148				1	1	1	1	1	1		1	1	1	
B8	15	7				7									
B9	13													15	15
B10	4														
B11	18					11									
B12	7										14				
B13	10		10							10					
B14	4													25	25
B15	9									11					
B16	115		1		2	1	3	1	1	1					
B17	18					6									
B18	48			2	2	2	2	2							
B19	4														
B20	4					25				25					
B21	6														
B22	6			17											
B23	30						3								10
B*	84		4	1		2	4	1	1	5	1				1
C1	8					13		13							
C2	4														
C3	4														
C4	4														
D1	17													6	
E3	22														
E4	12						8							8	
E5a	9		11	11											
E5b	24												4	4	8
E5*	13											8			
E6	15														
E7	7												14		
E8	11							9							
F1	4					25									
F2	7							14				14	14		
F4	13			8		15		23					15	8	
F5	17			6		6		13						6	
H1	9						22								
H2	4		25				25								
H3	18		6		6	6									
H4	6													17	
I1	50			4		4	6	8	4			2		4	4
I2	12					8	8								
I3	21				5			10	5						
I5	4					25									
I6	4			25	25	25	25			25	25	25	25		
IX	9		22				11							11	
J1	4														
J2	7	14	14												
K	4														
M	9							11							
O	5	20				60				20					
Q	14							7	7	7	7			7	7

Table 6.6w Major Clusters by Selected Movie Preferences (Continued)

	N	Bruce Willis %	John Wayne %	Clint Eastwood %	Harrison Ford %	Robert Redford %	Meryl Streep %	Meg Ryan %	Julia Roberts %	Mel Gibson %	Tom Cruise %	Tom Hanks %	Sandra Bullock %	Robin Williams %	Whoopi Goldberg %
AX	5											20			
B1	6								17						17
B1a	26	4	4	4	8			4	4	8	4		4		4
B1b	56		4	4	2	2	2				2	2		2	2
B2	33		3	3	3		3			6					
B4	148	1	2	3	1				1	1	1	2			2
B8	15		13		7									7	13
B9	13	8	15		8	8				8	8				
B10	4														
B11	18				17			6	17		6		6	6	
B12	7			14			29	14					14		
B13	10				10				20					10	
B14	4				25			25					25		
B15	9											11		22	11
B16	115		4	2	4	2	1	3	3	2		3	1	3	1
B17	18	6	11	11				6		6	6				
B18	48	2	6	2	4	4	2		4	2	4		2	8	
B19	4			25	25			25							
B20	4												25		
B21	6														
B22	6														
B23	30		10	3		3	3							3	
B*	84	5	5	7	5		2	2	2	2		4	1	1	1
C1	8	25	13		13										
C2	4														
C3	4														
C4	4									25					
D1	17			6	12							6			
E3	22		5	5	5	5									
E4	12	17	8	8	25		8	8	17	17			8		
E5a	9		11	11							11				
E5b	24		8	8	4		4				4		4	4	8
E5*	13		23	23	8										
E6	15									7	7				
E7	7				43									29	
E8	11	9	9		9	9			9						18
F1	4														
F2	7				14			14	43	14			14	14	
F4	13	15			8				31		8		23	15	
F5	17			6				6	19				6	6	
H1	9		11	11				11					11		
H2	4														
H3	18		17		17			11	6	6	6	6	6	6	6
H4	6								17						
I1	50	2	2	8	8	4		6	10	2	12		4	8	6
I2	12				8					8			17		8
I3	21				10		14	10	14	5	5		10	10	
I5	4	25													
I6	4							25	25	25	25	25	25		
IX	9	11			33	11		11		11		11	11	11	22
J1	4				25	25							25	25	
J2	7				14	14	14	14						14	14
K	4														
M	9				11		22	11				11	11	11	
O	5	20										40			40
Q	14	7			7					7	7		7		7

Table 6.6x Major Clusters by Selected Newspapers & Magazines

	N	reads newspaper %R/D	reads magazines %R/D	Tyboro weekly %	Tyboro County daily %	nearby town daily %	regional daily %	metro 4 paper %	pennysaver %	USA Today %	Sports Illustrated %	National Geographic %	Time %	Newsweek %	People %
AX	5	100	100	60	80		20	20					20		40
B1	6	50		33	67										
B1a	26	65	42	23	69	8	23	8	8		4		8	4	4
B1b	56	63	41	25	63	7	9	2					7		5
B2	33	79	55	24	73		15	15		6			6	3	3
B4	148	47	21	17	50	2	7	4	1	1	1	1	3	3	
B8	15	80	40	20	53		27		7	7					
B9	13	54	31	8	77		23	8							8
B10	4	50	50		75	50	25								
B11	18	89	83	11	83		11			11		11	11	6	17
B12	7	86	100	29	71			14				14	14	29	
B13	10	90	70	20	70		40	10	20	10	20		10	10	10
B14	4	25	75		50					50	25				
B15	9	56	56	44	89		11								
B16	115	86	70	25	79	3	14	7	2	3		3	3		3
B17	18	83	39	11	78	6	17	6	6	6			17	11	
B18	48	83	71	29	77		8	8	6	4		8	10	4	4
B19	4	100	75	25	100		25								
B20	4	100	25	25	100		25		25			25			50
B21	6	33	83	17	67			17							
B22	6	67	83	50	50			17					17	17	
B23	30	93	57	7	90		10	23		3	3	3	10	13	3
B*	84	74	44	18	75	1	18	2	4	6	1	2	5	1	6
C1	8	100	88	25	75		13			25		13	25		
C2	4	50	25		50		25								
C3	4	75	75	50	50		25	50	25	25	25		25		25
C4	4	100	50		100	25	50	25					50	50	
D1	17	71	47	24	47	6	6			12		6		12	6
E3	22	86	52	14	67	5	14			10	10				5
E4	12	67	58	8	75		25	33	8		17		8	33	33
E5a	9	67	22	11	78		11	22		11					
E5b	24	33	33	13	63		4	4	4	8	4				8
E5*	13	77	38	23	77		31	8		8					
E6	15	93	73	20	60	7	13	20	13	13			7		
E7	7	100	86		57	14	57	14		14					
E8	11	82	55	18	82	9	18	9	18	9		9	9	18	9
F1	4	25	25	25	50		25		25						
F2	7	57	86	14	86		14				14				14
F4	13	62	54	54	92		46		8			8			8
F5	17	69	56	31	69	6	19		6	6	6				
H1	9	100	100	44	89							11	22	22	
H2	4	100	75	50	100	25	25		25						
H3	18	89	83	44	78	28	28	17	11				6	17	
H4	6	83	67	17	83			17				17	17		17
I1	50	90	76	36	82	2	24	4	12	2			14	2	16
I2	12	92	83	33	92	25	8						25	33	17
I3	21	90	71	38	86		14	10	10	5		14	14	19	10
I5	4	100	100		100					25					
I6	4	100	100		75	25	25			50		25	50		
IX	9	100	89	22	100		22	22		11			11	11	33
J1	4	100	75	50	100			25							25
J2	7	86	71	57	86	14	29						29	14	
K	4	75	75		75		50	25							
M	9	100	100	11	67		44	33	11	11	11	11	11		33
O	5	100	100	20	100		40	20	20				20		
Q	14	71	64	29	64		36	7		21		7			7

Table 6.6x Major Clusters by Selected Newspapers & Magazines (Continued)

	N	Country / Countryside	AARP Maturity	Readers Digest	Taste of Home	BH & G	Good Hsekeeping	Family Circle	Country Woman	Woman's World	Woman's Day	Ladies Home Jrnl	McCalls	Redbook	Cosmo-politan
		%	%	%	%	%	%	%	%	%	%	%	%	%	%
AX	5			20											
B1	6					17									
B1a	26			4			8	4			4			4	8
B1b	56	4	4	11	2	2	5	7			7	4			
B2	33	3	6	18		9	21	6	3	3	3		9	3	
B4	148		1	8		2	1	2		1	5	1	1	1	1
B8	15			13			13	7			13	20	13	7	
B9	13			8				8	8						8
B10	4			50									25	25	
B11	18	6	6	17		6	11	6				6		6	
B12	7			14	14	29	14	14					29	14	14
B13	10			10			10					10			
B14	4					25									
B15	9	11		22	22	11	11	33		11	22	22	33	11	
B16	115	4	4	30	4	5	15	10	7	2	15	3	3	2	1
B17	18		11	17			6								
B18	48	4	10	21	6	4	10				4	2	6		
B19	4			75					25	25	25				
B20	4						25								
B21	6							17			17				
B22	6			33											
B23	30	10	7	17											
B*	84	7	2	12	1		4	2	2	4	1	1		4	
C1	8												13	13	13
C2	4												25		
C3	4			50				25							
C4	4														
D1	17	6		6	6	6	6				12				
E3	22	5	5	10											
E4	12				8			8					8		
E5a	9														
E5b	24	4		4											
E5*	13														
E6	15														
E7	7						14	14			14	14			
E8	11			18											
F1	4							25							25
F2	7														14
F4	13			8	8		8			15	8	8	8		8
F5	17	6		6				6		6	6				13
H1	9			22			11	11	33		11		11		
H2	4	25	25	25				25							
H3	18		6	6	17		17	6	11	11	6		6		
H4	6			17										17	
I1	50	4	2	10	4	2	14	6	10	2	10	6	10	8	2
I2	12	8		25		17		8		17		8	8	17	
I3	21		10	19		10					5		5	5	
I5	4			25	25							25			
I6	4														
IX	9			11			22	11			11	22		11	
J1	4			50											
J2	7			14											
K	4						50		25						
M	9				11		33	22			11	11		11	11
O	5							20							
Q	14	7	14	43		14	7	14				7		7	

Table 6.6y Major Clusters by Selected Reading Preferences

	read books N	%R/D	Patricia Cornwell %	Sidney Sheldon %	James Patterson %	Tom Clancy %	John Grisham %	Danielle Steele %	Stephen King %	Dean Koontz %	VC Andrews %	M. Higgins Clark %	Nora Roberts %	Louis L'Amour %	B. Taylor Bradford %
AX	5	60							20					20	20
B1	6	67						17	17	17	17				
B1a	26	46	4				8	8		8	4	4			
B1b	56	48					5	7	7	2	2	2	2	2	2
B2	33	36	3	3				6	3				6		3
B4	148	16	1			1	1	3	4	2		1		1	
B8	15	60					7	13		7		7			13
B9	13	38						23				8	15	8	
B10	4	25						25							
B11	18	56			11	11	11	11	11		6	6			
B12	7	71			14		14	14	14						
B13	10	20							10	10					
B14	4	75				25			25						
B15	9	56						11	11			11			
B16	115	55	1	3	1		7	14	1		2	7	2		1
B17	18	11							6	6					
B18	48	63	2	2			6	10	2				2		2
B19	4	100			25		25	50				50			
B20	4	25				25		25	25						
B21	6	67								17		17		17	
B22	6	67				17			17						
B23	30	43	3	3			3	7	3	3		3		7	
B*	84	32	2	1	1	2	4	5	7	2		1	2	1	2
C1	8	13								13					
C2	4														
C3	4	50						25	25			25			
C4	4	25						25	25						
D1	17	53					6								
E3	22	14													
E4	12	42							17	8			8		
E5a	9														
E5b	24	4								4	4			8	
E5*	13														
E6	15	13					7	7		7		7			
E7	7											14			
E8	11	18													
F1	4	75							25	25	25				
F2	7	43		29	14	14	29	14				14			
F4	13	54	8						8	23	15	15			8
F5	17	56							6	31		6			
H1	9	67							11						
H2	4	75							25			25			
H3	18	67					6		6						
H4	6	50			17	17	17					17			
I1	50	52	2	8	4		10	6	6		2	6			
I2	12	75		8	8	8	8	25	8			17			
I3	21	76	5				5	19	14	5	5		5	5	
I5	4	25									25				
I6	4	75				25	50								
IX	9	22					11		33	11	11	11			
J1	4	75	25	25	25										
J2	7	43					14								
K	4	50											25		
M	9	67		11				11		11					
O	5	80								20					
Q	14	43								14					

Table 6.6y Major Clusters by Selected Reading Preferences (Continued)

	N	non-fiction %	biography %	religious %	history %	science fiction %	horror %	suspense %	novels %	mystery %	romance %	historical fiction %	westerns %
AX	5								20		20		20
B1	6	17						17	17	17	17		
B1a	26	12	4	8		4		4	12	12	12	4	
B1b	56	4	5	2		2	2	4	13	14	14	4	5
B2	33	3	3					3	21	3	3	6	
B4	148		1			2	3	1	3	9	5	2	3
B8	15		27	13	7	7			7	13	27		
B9	13		8		8	15	8			15	23		8
B10	4										25		
B11	18	6			6	6	11	11	11	33	17	6	
B12	7	14	14		14	29			29	29	29		
B13	10							10			10		
B14	4				25	75					25		
B15	9			11		11			11	11	33	11	
B16	115	3	10	12	3				16	26	21	11	1
B17	18				6	6	6		6	11			6
B18	48	4	21	4	13				31	19	13	2	
B19	4								50	50	25	50	
B20	4									50	25	25	25
B21	6			17						17	17		17
B22	6			17						33	17		
B23	30	3	10	7		7	3		3	13	3	10	10
B*	84	5	2	1	4	4	2	4	10	11	7	2	5
C1	8					13	13	13					
C2	4										25		
C3	4								25	50			
C4	4								25		25		25
D1	17	6		24		6			6	18	6		6
E3	22	5			5	5		5	5	10			5
E4	12		17	8			8	8	42	17	17	8	
E5a	9				22								11
E5b	24				8	4	8					4	4
E5*	13				8								
E6	15	7							7	13			
E7	7	29	14						29				
E8	11		18		18					18		9	
F1	4						25				25		
F2	7	14						29		29	43		
F4	13	8			8		8	15	8	8	54	8	
F5	17	6					25		6	25	25		
H1	9		33	33	11				11	11	11	11	11
H2	4		25	25	25						25		
H3	18	11	6	22					22			11	6
H4	6									33			
I1	50	8	2		4	4		4	16	16	14	4	
I2	12		25	8	8			17	8	50	33	8	
I3	21	14	19	14	5				38	14	14	10	5
I5	4								25	25			
I6	4	25							50	50	25		
IX	9						11		11	11	11		
J1	4		25	50					25				
J2	7		14	14					29	14			
K	4		25						25	25		25	
M	9		22		11			11		33	11		
O	5	20			20		20	20		40			
Q	14	7			7	7		7	7	7		14	

Table 6.6z Major Clusters by Selected Artistic Preferences

	N	email / internet %R	theatre %O/R	historic sites %O/R	museum / gallery %O/R	photography %	painting %	landscapes %	Michelangelo %	Norman Rockwell %	Claude Monet %	Vincent Van Gogh %	Andrew Wyeth %	Renoir %	Thomas Kinkade %
AX	5		40	40			20								
B1	6	33	17	17	17										
B1a	26	8	4	19	8		12		4						
B1b	56	4	7	11	9	2	2	2	2					2	
B2	33	15	9	12							3		3		
B4	148	5	7	16	5				1	1	1				
B8	15	7	13	13		7	7					7			
B9	13	46	38	8				8							
B10	4														
B11	18	78	39	50	28		11		6		11	6		17	
B12	7	43	57	71	29				14	14				14	
B13	10	60	30	20	20						10				
B14	4	100	75	25	50							50			
B15	9		22	22	22				11						
B16	115	8	39	37	20	1	3	2			1	3	1	3	4
B17	18	17	33	61	17										
B18	48	21	58	60	42	2	10	4		6	6	4	2	2	4
B19	4	50	50	75											
B20	4	25	50	50	25			25			25				
B21	6		33	33	17										
B22	6														
B23	30	17	30	37	17			3			7	7	3	3	
B*	84	19	24	29	14	2	4		1	2	8	7	1		
C1	8	50	50	75	13										
C2	4	50													
C3	4	50	75	75	75		50								
C4	4		25	50	25						25				
D1	17	41	29	29	18		12	6							
E3	22		48	33	10										
E4	12	67	33	67	25						8	8	8		
E5a	9	22	33	22	22					11					
E5b	24	13	8	25	13										
E5*	13	15		23											
E6	15	33	13	27	7										
E7	7	43		57		14									
E8	11	9	36	64	27										
F1	4	25		25	25										
F2	7	57	29	43	14										
F4	13	31	31	31	31										8
F5	17	6	38	44	25		6				6	6	13		
H1	9		22	44	22		22								
H2	4	50	25	75	25				25	25	50				
H3	18	17	44	72	44	6	17	6	6	6	6	6			
H4	6	50	83	67	83					17					
I1	50	56	38	44	30	6	2	4	2		6	6	2	4	2
I2	12	67	92	67	42		8				8	8			
I3	21	67	81	76	67	5	19	5	19		5	24	10	10	
I5	4	50	25	50	50	50									
I6	4	100	50	75	75	25	25		25	25	25				
IX	9	78	67	67	78	11	11					11			11
J1	4	25	100	75	25	25	25				50				
J2	7	29	29	57	71		14				29			14	
K	4	50	50	50	50						25				
M	9	67	78	89	89			11		11	11	22		11	
O	5		80	100	80					40					
Q	14	29	36	64	43		14				7		14	7	

Table 6.6 Ratio of Mean Square Dissimilarities (Between to Within) for Each Cluster

	Work	Home	Money	Hlth	Rel.	Pol.	Leis.	Cons.	Mat.	Orbit	Trav.	Read	Listen	Watch
AX	**2.41**	1.42	0.85	1.40	**3.28**	0.86	**1.62**	**1.77**	0.86	1.21	**3.23**	1.06	**3.63**	**1.72**
B1	**3.68**	**1.56**	**1.78**	1.42	**2.05**	1.45	**1.67**	1.20	**1.62**	**1.52**	**2.80**	1.21	1.16	1.01
B2	**13.16**	**2.11**	**2.58**	**3.94**	**2.03**	**1.89**	**3.21**	**2.33**	**2.13**	**2.07**	**3.50**	**1.52**	**2.74**	**1.58**
B4	**4.39**	1.31	**2.25**	**2.22**	**2.59**	**2.15**	**2.18**	**1.39**	**1.73**	**1.58**	**2.81**	**1.94**	**2.28**	**2.47**
B8	**2.34**	1.28	**1.81**	**3.20**	1.36	**1.71**	**1.56**	**1.47**	**1.37**	**1.55**	**4.95**	0.69	**2.17**	**2.05**
B9	**2.26**	**1.95**	**2.15**	**2.33**	**4.26**	**1.71**	1.05	0.93	1.26	**1.43**	**2.79**	**1.58**	**1.52**	0.81
B10	**5.31**	**1.99**	**2.81**	**3.73**	**23.28**	**3.84**	**1.72**	**2.61**	1.36	1.36	**97.95**	**1.99**	**2.94**	**5.34**
B11	**5.93**	**1.47**	**1.75**	**1.99**	1.53	1.23	0.99	1.01	1.30	1.12	**1.84**	0.82	0.66	1.22
B12	**3.87**	**2.42**	**1.46**	1.41	1.49	**2.44**	1.09	1.19	1.09	0.92	**1.55**	0.44	0.62	0.79
B13	**2.03**	**1.68**	**1.74**	**4.13**	**2.25**	**1.61**	0.84	1.03	1.11	1.33	1.34	1.34	0.92	0.95
B14	**2.04**	1.02	**1.99**	**3.73**	**3.81**	**2.47**	0.99	1.33	**2.30**	**2.75**	**3.69**	1.10	0.36	0.92
B15	**36.25**	**2.51**	**3.06**	**2.35**	1.02	**2.54**	**1.93**	**1.55**	**1.78**	**1.63**	**3.63**	**1.38**	0.92	**1.55**
B16	**6.39**	**1.73**	**1.68**	**2.02**	1.19	1.31	**1.93**	**1.78**	**1.43**	**1.41**	1.25	0.99	**1.51**	1.34
B17	**3.88**	1.36	**1.75**	**2.87**	**2.24**	1.20	1.08	0.82	1.21	1.19	**2.06**	**1.86**	1.47	0.99
B18	**4.64**	**1.86**	**1.54**	1.48	1.32	1.14	0.92	**1.65**	1.14	1.07	0.87	0.83	0.86	0.89
B19	**3.58**	**1.50**	**2.81**	**1.72**	**3.45**	**2.79**	1.38	1.13	**1.51**	**1.48**	1.74	0.73	0.67	0.51
B20	**5.84**	**3.42**	**2.52**	**3.20**	**1.61**	**1.90**	0.59	**1.38**	0.96	1.25	1.03	0.78	0.52	0.52
B21	**2.43**	1.32	1.01	**2.65**	**1.71**	0.69	0.90	**1.66**	**1.70**	**1.74**	**2.67**	0.95	1.12	**3.08**
B22	1.39	**2.67**	**1.79**	**8.45**	**1.55**	0.67	0.84	**1.94**	1.22	**1.58**	1.27	1.22	**2.89**	**1.94**
B23	**8.31**	1.45	1.04	**2.98**	1.31	1.21	1.45	**1.66**	**1.60**	**1.41**	1.23	1.04	1.43	1.27
C1	1.00	**1.51**	**1.63**	**1.92**	**2.48**	**1.89**	0.59	**2.06**	**2.06**	1.15	**3.93**	**2.06**	0.72	0.73
C2	**2.62**	**2.60**	**3.49**	**2.49**	**2.17**	1.46	0.87	0.78	1.17	0.74	1.09	**3.10**	1.19	1.37
C3	∞	**1.59**	**2.67**	**11.95**	**1.93**	**1.82**	1.05	1.23	**1.88**	1.13	**2.13**	0.36	**1.50**	**1.86**
C4	1.21	**1.74**	1.07	1.28	**3.72**	1.19	1.11	**1.98**	0.97	**1.40**	1.82	1.23	0.81	1.14
D1	**2.00**	1.11	1.46	**2.75**	**1.59**	1.42	1.19	**1.85**	1.20	1.24	1.49	**1.73**	1.17	**1.48**
E3	1.11	**1.69**	1.24	**2.30**	**2.03**	1.15	1.24	1.07	1.31	1.12	1.64	**3.31**	**1.57**	**1.84**
E4	1.57	1.23	**1.63**	1.53	1.16	**1.97**	0.48	0.81	1.27	0.90	1.35	0.74	0.72	0.61
E5	1.35	**1.54**	1.23	**2.32**	**2.69**	**1.57**	0.97	0.84	1.21	1.23	**2.05**	**2.67**	1.15	1.31
E6	1.24	**1.53**	1.43	**2.52**	**11.86**	1.26	0.89	0.88	1.27	1.21	**2.50**	1.32	1.26	1.39
E7	1.22	1.09	1.07	**4.18**	**3.23**	0.99	0.96	**1.44**	1.08	1.04	**2.19**	1.19	0.71	0.85
E8	**1.98**	**1.80**	**1.80**	**1.97**	1.40	1.30	1.22	**1.83**	1.20	**1.37**	1.08	**1.51**	1.12	**1.58**
F1	1.60	**1.53**	1.37	**4.48**	**2.02**	**23.69**	0.77	0.74	**1.89**	**1.93**	1.89	0.88	**2.90**	1.40
F2	**2.17**	**2.04**	1.31	**4.54**	**2.42**	1.21	0.99	0.95	1.12	**1.35**	**2.22**	0.86	0.53	0.80
F4	1.06	**2.58**	**1.65**	1.60	**2.89**	**1.95**	0.91	0.95	1.06	1.21	**4.11**	0.82	0.89	0.82
F5	0.81	**2.30**	1.49	**1.93**	**1.92**	**1.61**	0.77	0.68	1.07	1.02	**2.84**	1.01	0.76	0.76
H1	**2.66**	1.26	**2.07**	1.35	**2.13**	1.18	1.20	**1.86**	1.09	**1.79**	1.00	1.29	1.47	1.05
H2	1.69	**1.85**	1.56	**3.73**	**1.71**	**4.09**	0.87	0.71	0.75	1.16	0.53	0.42	1.04	0.72
H3	1.86	**2.38**	1.32	**1.72**	**1.67**	1.11	1.31	1.23	1.02	**1.65**	0.97	0.71	1.05	0.78
H4	**2.12**	**1.72**	**3.77**	1.34	**1.98**	**2.33**	0.91	0.61	1.33	0.74	1.38	1.19	**1.69**	**2.94**
I1	1.32	**2.33**	1.50	1.13	**1.76**	1.31	1.06	1.01	0.97	1.22	1.71	0.88	1.08	0.70
I2	**2.42**	**3.45**	**2.07**	**2.69**	**1.59**	1.06	0.58	0.67	1.18	1.02	1.00	0.68	0.67	0.67
I3	**2.00**	**2.16**	**1.81**	1.47	1.51	0.96	0.82	1.16	1.13	1.28	0.70	0.54	0.72	0.72
I5	**2.62**	1.28	**1.75**	1.36	**3.18**	1.18	0.95	0.87	**1.83**	1.27	**2.04**	**2.72**	1.23	0.82
I6	**4.17**	**3.11**	**5.52**	**2.84**	**1.60**	0.55	0.67	0.63	**1.45**	1.08	0.82	0.47	0.62	0.32
IX	1.11	**2.07**	**2.12**	1.32	0.61	1.09	0.53	1.20	1.16	1.05	0.96	0.73	0.92	0.67
J1	1.87	**1.44**	**5.46**	**3.51**	**9.63**	1.11	0.93	**1.90**	0.95	**1.63**	0.47	0.80	**2.31**	0.58
J2	1.34	0.98	**1.70**	**3.87**	**2.16**	0.67	**1.91**	1.28	1.00	**1.64**	1.63	1.33	0.80	1.00
K	**2.43**	**2.91**	1.06	1.13	1.42	**1.51**	1.26	**2.13**	1.24	0.97	1.75	0.71	1.03	0.71
M	1.24	**1.72**	1.33	**2.43**	1.49	1.45	0.56	0.97	0.87	1.25	0.86	0.59	0.48	0.86
O	1.46	**1.63**	0.79	**3.11**	**1.86**	0.89	0.47	0.67	**1.40**	**1.87**	**5.42**	1.04	0.68	0.41
Q	**5.62**	1.19	1.30	1.31	1.11	0.88	1.33	0.89	1.24	0.87	0.32	0.98	**1.52**	0.84

Table 6.7 Benchmark Ratios from Clustering of Randomly Assigned Dissimilarities

	Work	Home	Money	Hlth	Rel.	Pol.	Leis.	Cons.	Mat.	Orbit	Trav.	Read	Listen	Watch
Mean	1.38	1.22	1.29	1.31	1.23	1.23	1.23	1.18	1.18	1.18	1.34	1.15	1.20	1.17
S.D.	0.25	0.11	0.15	0.19	0.16	0.14	0.13	0.09	0.08	0.08	0.32	0.11	0.15	0.13

CHAPTER SEVEN

EXPLAINING LIFESTYLE SIMILARITY

Categorical Analysis of Case Classifications

Is there correspondence between persons' position in the network of social

relations and their lifestyle, such that a set of persons whose social position is highly

equivalent will tend to be part of the same lifestyle cluster? At a categorical level of

measurement, this relationship may be assessed with Cramer's V, an overall measure of

association, and lambda coefficients, which allow a proportional reduction in error (PRE)

interpretation in explaining lifestyle clusters. Table 7.1 presents the Cramer's V and

lambda statistics for all four versions of the relation type equivalence cluster schemes and

various demographic variables sorted in descending explanatory ability.

[TABLE 7.1 ABOUT HERE]

Column four of Table 7.1 shows the lambda statistic obtained when cluster B4

and cases that are defined as not belonging to any cluster are dropped from the analysis.

The reason for analyzing without the undefined cases is that they constitute a residual

"cluster" for which dissimilarity rather than similarity is expected. The reason for

analyzing without B4 is that this "Do Little" cluster contains those persons who answered

few of the survey questions, so filtering them out is a control for respondents who may

have skipped substantial numbers of questions. The only major change this produces is in

the predictive power of occupation, which essentially doubles when these cases are filtered from the analysis.

Each of the variables in Table 7.1 has a bivariate association with lifestyle cluster, ranging from the moderate V=.264 for average link equivalence sets without imputed relations to the very high V=.544 for gender. However the lambdas measuring each variable's ability to predict lifestyle cluster membership are often quite small. Gender is a prime example, explaining less than one percent (λ_{LC}=.003) in the main analysis, though this rises somewhat (λ_{LC}=.047) when B4 and the unassigned "cluster" are excluded from the analysis, despite its high overall association with lifestyle cluster. Presumably the reason this happens is because each gender, and each category of the other variables with low lambdas despite overall association, tends to dominate series of clusters rather than just one or two each. Knowing a person's lifestyle cluster can give a big advantage in guessing the person's gender, e.g. the lambda for predicting gender based on lifestyle cluster is λ_G=.314, but knowing gender still leaves a many possibilities open in guessing their lifestyle cluster membership (SPSS, 2001).

Complete-link relation type equivalence clusters explain about 13% to 15% of the variation in lifestyle cluster. While this may seem modest, it is greater explanatory power than any of the demographic variables, except occupational classification when B4 and the unassigned cases are excluded.[i] Occupation is comparable to relational equivalence in explanatory power, explaining over 11% of the variation, or 23% when the B4 and unassigned cases are removed, but the next best variables (e.g. work status, decade of age, and income) account for only about half as much of the variation. Moreover occupational classification and equivalence set, i.e. complete-link without-imputed

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[i] However, this greater explanatory power may well be an artifact of the categorical nature of the analysis and particularly of the relative number of categories associated with each dimension, as suggested below in discussion of dyadic results.

relations, explain over half the total variation (λ_{LC}=.502 generally, λ_{LC}=.533 with B4 and unassigned cases omitted) in lifestyle cluster membership (SPSS, 2001).

Cohesion

In Chapter Two it was hypothesized that lifestyle homogeneity within lifestyle clusters might be increased by cohesive relations among persons in an equivalence set. With equivalence sets only loosely corresponding to lifestyle clusters, it may be advisable to consider not only cohesiveness in equivalence sets, but cohesiveness within the lifestyle clusters themselves. Analysis of lifestyle homogeneity is limited to survey respondents, since they are the only cases for which lifestyle similarity is scored.

For each lifestyle cluster, the ratio of observed network relations within the cluster to the total number of possible dyads in the cluster, n(n-1)/2, known as network density, was computed. For almost half the main clusters, i.e. AX, B12, B19, B20, B21, B22, B8, B9, C2, C4, E3, E6, E7, F1, F2, F4, H2, H4, I2 ,I5, I6, J2, K, and M, no internal relations were reported, yielding a ratio of zero. Clusters with one or two ties and yielding density ratios from .002 to .167 included E5, B17, H3, F5, D1, E8, Q, H1, IX, E4, C1, B13, B15, O, B10, B14, C3, and J1 (in ascending order). B2 and I3 had density of .006 and .014 respectively with three ties each. Clusters B1, B4, B16, and I1 each had 8 or more relations but low densities due to their large size. B23 had 4, B18 had 13, and B11 had 7 relations, including 3 that were multiplex, giving them density ratios of .009, .012, and 046 respectively. The very low density of cohesive ties in all but a handful of lifestyle clusters has important implications for the relative impact of cohesive vs. equivalent social ties on lifestyle similarity. It shows rather dramatically that lifestyle clusters are not constituted on the basis of cohesion because in all but a few of these clusters people have similar lifestyles without having cohesive ties to the other persons in their lifestyle cluster.

Comparing Table 7.6 scores for (1) clusters with no internal ties, (2) those with any ties, and (3) the subset of the second group with ratios of .008 or greater, there are no notable differences except in the travel and work indices (data not shown). The difference in the travel index is entirely attributable to the high travel homogeneity of cluster B10. The average work index is 2.266 for clusters without ties versus 4.716 for clusters with ties and 5.046 for clusters with ratios of .008 or more. Even factoring out the high values of B2 and B15, the mean indices for the latter two groups are 3.050 and 3.455, suggesting cohesive ties may have some impact on homogeneity of work activities within clusters. Why this should be is unclear. It could, of course, represent a real relationship, but why would cohesive relations increase similarity of occupational activities and only occupational activities? Speculatively it the possibilities that it may be a spurious result of the correlation between occupation and cluster combined with shared occupation leading to highly similar work activities and increasing the likelihood of a social tie between two persons. The latter association may be particularly strong in the context of a small town where the number of people of a given occupation is limited and the numbers of employers are few enough that all the people sharing some occupations may even be coworkers of one another. Other than these two peculiarities, cohesiveness within lifestyle clusters does not seem to have an impact on lifestyle similarity.

Figure 7.1 is a scatterplot of mean lifestyle similarity of respondents in each complete-link without-imputed cluster, by the level of cohesion, i.e. internal density, of that cluster. Three clusters had more than 27 cases, having 51, 86, and 289 cases respectively. The far right outlier was a cluster of size two: a dyad. The next two right outliers were size 5 and 4 respectively. Four cases was the second smallest cluster size. Based on the scatterplot, the lifestyle similarity of an equivalence set does not appear to be associated with the density of cohesive relations among persons within that set.

[FIGURE 7.1 ABOUT HERE]

Dyadic Analysis of Lifestyle Dissimilarity

The expectations of this research were also assessed on a dyadic level. Dyadic analysis offers the advantage of assessing ratio-level lifestyle similarity and equivalence scores across every pair of respondents, rather than relying on the reduced information of a categorical analysis. The use of a nominal dependent variable facilitates multivariate analysis, via regression analyses. However, dyadic analysis also comes with a major statistical consideration. Regression models typically assume independent observations, but observations from any dyad are likely to be autocorrelated with the observations of two sets of other dyads, i.e. those which share one or the other of their two members. Autocorrelation among observations does not adversely impact ordinary least squares (OLS) regression coefficient estimates, but does bias estimation of their standard errors. Since the data in the current study is a population of persons-in-dyads within a case study of a single community rather than a random sample and thus does not involve statistical testing or inference, biased standard errors might seem irrelevant, except some basis for assessing the relative strength of each variable's effect on lifestyle similarity is still desired. Biased standard errors would be a flawed yardstick.

This problem of autocorrelation has been approached in a number of ways, including controlling for it statistically with dummy variables and quadratic assignment (QAP). The dummy variable approach is cumbersome. Since it requires a dummy variable for all but one case, its use in the present research would require 1201 dummy variables! It is also entails some statistical concerns including the possibility that it may fail to yield unbiased estimates when used with autocorrelated dyadic data (Krackhardt, 1990, as cited in Mizruchi, 1992, p.114).

The QAP approach assesses the strength of the observed results by directly estimating the probability of having gotten them randomly. This is done by conducting a large number of Monte Carlo runs, in which the distribution of data is randomized, to

determine the proportion of those runs that yield results as unusual as those of the observed data. To be effective as a control for autocorrelation the randomization needs to preserve the shared quality each dyad has with other dyads that contain either of its two persons. An unstructured scrambling of data would fail to do this, but QAP permutes both the rows and columns of the dependent variable matrix in identical randomly-determined orders, which preserves the structure among cases while still randomizing the data (Krackhardt, 1987, 1988; Mizruchi, 1992, p.114-116).

Variables used in the categorical analysis were translated into dyadic measures for the QAP Regression analysis. One such measure was the absolute value of the difference in age of the two persons in each dyad. Another was the absolute value of the difference in ordinal income category. These two measures had missing values when the age or income of either person was unknown, i.e. the skipped or refused the question. Relation type equivalence scores for both the with- and without-imputed data were the two forms of the primary independent variable, and lifestyle dissimilarity was the primary dependent variable. Binary variables were created to indicate if both persons in a dyad were female, male, married, widowed, separated or divorced, single, parents of minor children, in debt, had assets in excess of half a million dollars, were homeowners, renters, high school graduates, college graduates, worked full-time, worked part-time, were retired, self-employed, unemployed, identified as homemakers, and had the same two-digit occupational classification. The scores for each of these variables were imported as edgelists to create separate matrices in UCINET which could be used in UCINET's QAP Regression procedure (Borgatti, Everett, and Freeman, 2002).[ii]

[ii] The analysis was initially done using UCINET 5, but the coefficients produced by the QAP Regression procedure in UCINET 5 were trivially small, incongruent with the categorical results, and made no intuitive sense. SPSS (2001) OLS Regression was run using virtually the same data as a check and yielded very different coefficients. However SPSS Bivariate Correlation Procedure produced exactly identical correlation coefficients to UCINET QAP Correlation. QAP Regressions were rerun with UCINET 6, which yielded coefficients similar but not identical to those of SPSS. The discrepancy may be due to the dependent variable being rounded to the nearest .00001 units in the UCINET version of the data or to

[TABLE 7.2 ABOUT HERE]

Table 7.2 shows bivariate Pearson correlation coefficients between the dyadic independent variables. The correlation between equivalence scores for with- and without-imputed runs (r=.95) is extremely high, as should be expected, but few other pairs of variables have notable correlations. Both being retired was correlated (r=-.25) with age difference because nearly all retirees tend to be older than 40 and most are older than 60. Both being married was correlated (r=.36) with both being homeowners. Both being parents was correlated (r=.20) with both working full-time. With 1202 cases in the analysis, there were 721,801 dyads for most correlations. Missing values in age and income differences reduced the number to 634,169 and 535,095 valid dyads respectively for correlations with other variables and to 515,861 valid dyads for the correlation between age and income.

Table 7.3 shows unstandardized OLS regression coefficients and corresponding QAP probabilities for six regression equations. Each equation regresses lifestyle dissimilarity score on different sets of dyadic variables. The QAP probabilities are each based on comparison with regressions of 1000 random permutations of the dependent variable matrix. Each coefficient represents the impact that a unit change in the independent variable would have on the dependent variable of lifestyle dissimilarity, holding other variables in the equation constant, except that the coefficient for the two relation type equivalence variables is for a .01 unit change in equivalence. In interpreting coefficients it should be kept in mind that a change of a tenth of a unit is substantial: the dependent variable only ranges from 0 to 1.84, with a mean value of .9376, as shown in Figure 7.2. If we think about the change in terms of hundredths of units rather than a full unit, the unstandardized coefficients are should be multiplied by 100. The dependent

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possible slight differences, e.g. "rounding error" in the two programs algorithms. UCINET 6 includes a substantially upgraded QAP regression routine relative to UCINET V, which apparently fixed some bug(s) that produced the initial, flawed results (Borgatti, Everett, and Freeman, 1999, 2002). Original QAP permutation, also known as Y-permutation QAP, was used with 1000 runs of each equation.

variable is dissimilarity, so a negative coefficient indicates increased similarity while a positive one indicates greater dissimilarity, but the nature of the independent variables should also be kept in mind. Most of the independent variables are binary indicators of qualities where both persons in a dyad share a status that arguably may impact lifestyle similarity, but equivalence is ratio measure and age and income difference are interval measures. Both age and income difference are reverse direction measures in that higher scores indicate dissimilarity on the underlying dimension rather than similarity. If greater similarity on these dimensions means a more similar lifestyle, we will expect negative coefficients for most variables, but positive coefficients for age and income difference. The coefficient of determination, R^2, for each equation indicates the proportion of variability in lifestyle dissimilarity that is accounted for by the independent variables in the equation.

[TABLE 7.3 ABOUT HERE]

[FIGURE 7.2 ABOUT HERE]

Equation 1 includes the without-imputed-relations equivalence score (EQS) with the other dyadic variables. Equations 2-4 regress lifestyle dissimilarity on reduced sets of dyadic variables, focusing on those that are significant. Equation 5 regresses lifestyle dissimilarity on just EQS and occupation, the two key independent variables from the prior analysis. As represented by the R^2 of the first four equations, the collective set of variables explains only a little over a tenth of the total variability in lifestyle dissimilarity, and dropping the insignificant variables from the analysis causes little decline in it. Over half that explanatory power comes from a single variable: both members of the dyad being retired. Regressing lifestyle dissimilarity on this one variable yields R^2=.065 and β= -.1267 (not shown). Equation 3 includes the without-imputed equivalence score, for which Equation 4 substitutes the with-imputed equivalence score, and both include all the other independent variables that are significant at the p≤.05 level, making them the focal models of this analysis. The with-imputed score in Equation 4 yields a slight better

coefficient for the EQS variable and slightly increased R^2 for the whole equation. In contrast to the first four models, and apparently contrary to the results of the categorical analysis, occupation and equivalence score explains just 1% of lifestyle variability, as shown in Equation 5.

Though the impact of relation type equivalence on lifestyle dissimilarity represented by the regression coefficient is quite small, it is nevertheless very statistically significant ($p \leq .000$). None of the random runs for any of the equations, a total of 5000 randomizations, produced coefficients as great as the observed values. The relation is also in the right direction, increasing similarity. However, it would take a gain of seven to nine percentage points in EQS to increase lifestyle similarity by .01 units. The impact of increasing the EQS score of a case from its observed minimum to maximum value would increase lifestyle similarity by less than a tenth of a unit, holding other variables constant. Relation type equivalence clearly has a non-random effect on lifestyle, but the impact is very small. This may mean that one's position in a the network of social relations have less impact on lifestyle than anticipated, but it is also possible the true relation is only being hinted at in this analysis as a result of methodological issues, such as substituting relation type equivalence for regular equivalence, respondents' tendency to answer the network generator primarily with affective relations and leave off other kinds of relations, and the impact of missing data.

For most significant variables, greater similarity on the independent variable leads to greater similarity of lifestyle. Working full-time was the exception. Dyads in which each person works full-time have a lifestyle dissimilarity score about .013-.015 units greater on average than other dyads that have the same scores on other variables. Both persons being retired was the variable with the greatest impact on dissimilarity, typically reducing it by over a tenth of a point, ceteris paribus, followed by both being widows or widowers which reduced it by over .07 units. In order of descending impact other significant indicator variables were: both being unemployed, both being of same or

similar occupation, both being renters, both being female, both being in debt, and both being male. These variables had $.02 < \beta < .05$, and all were significant at $p \leq .001$ level, meaning at most one random permutation in a thousand yielded coefficients of greater absolute value. Home ownership was also significant but less so ($p \leq .05$), and had lesser impact. Both persons being homeowners only improved lifestyle similarity by about .01 units, ceteris paribus.

Each year of age difference between members of a dyad corresponds to a .0004 increase in lifestyle dissimilarity. Thus a difference of 25 years would be a .01 increase. Still, fewer than one permutation in a hundred was that strong. A difference of one income category between members of a dyad, where the five categories up to $60,000 have a width of $12,000 greater annual income followed by categories of $40,000, then $100,000, then unlimited width, corresponds to a .013 increase in lifestyle dissimilarity. Thus a change from poverty to a six-figure income would equate to about a tenth of a unit increase, ceteris paribus.

Along with the increased importance of retirement and other variables, the lessened importance of occupation and EQS relative to the categorical analysis is a bit curious. It should be kept in mind that cluster membership exists at an aggregate level relative to dyadic lifestyle dissimilarity. They are not identical. While factors that correlate with one are likely to correlate with the other, there is room for variability in this regard. Likewise equivalence sets and dyadic equivalence scores. Moreover, several categorical variables were strongly associated with cluster membership even though they were weak predictors of it. Retirement was a category of work status, which was strongly associated with cluster membership. Work status was also the strongest of the variables other than equivalence set and occupation at predicting cluster membership. These variables tended to be weak predictors of cluster membership because there were several possible clusters associated with each category. Occupation and equivalence set were stronger predictors mainly by virtue of having more categories: the distribution of

clusters was more concentrated for each category. In other words the predictive ability, strong or weak, in the categorical analysis is to some extent an artifact of the relative number of categories into which each variable is coded. Dyadic analysis replaces the multiple boxes of lifestyle clusters and equivalence sets each with a score on a single dimension, and replaces multiple occupational boxes with a binary categorization of same or different occupation, eliminating the artificial constraints of the categorical analysis.

Equation 6 regresses lifestyle similarity on a set of independent variables intended to represent a traditional relations-of-production class model: occupational similarity, high assets, debt, renting, and homeownership. In this equation only occupation and rent are significant, each $p \leq .001$, although debt is almost significant at $p \leq .05$. Collectively these variables explain only about three-tenths of one percent of the variability in lifestyle similarity, notably less than EQS and occupation in Equation 5. Even though the unstandardized coefficients representing impact per unit increase in the independent variable are higher than that of equivalence, the variables in Equation 6 are collectively (and individually) weaker predictors than relation type equivalence alone, which yields $R^2 = .009$ ($\beta = -.0016$, $p = .000$), and weaker than income alone, another variable often cited as a determinant of lifestyle, which yields $R^2 = .023$ ($\beta = .0180$, $p = .000$).[iii]

Adjacency

Adjacency, the existence of a network relation between the two persons, is the dyadic root of group cohesiveness. Among the 721,801 dyads of the 1202 respondent

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[iii] In principle a dyadic indicator variable of shared cluster membership might also be regressed on the dyadic independent variables, but shared cluster membership would be a binary dependent variable. This complicates matters because OLS regression is unsuitable for probability functions predicting binary outcomes due to the constrained response function and non-normal distribution of error terms (Neter, Wasserman, and Kutner, 1989, p. 581). Typically logistic regression or other maximum likelihood estimation techniques is used for binary dependent variables, but the problem of autocorrelation remains. QAP has been extended to logistic regression but procedures for it appear to be limited to GLM routines in the R statistical computing environment, which the author learned of very near the completion of this writing, of which he lacks knowledge and to which he lacks convenient access.

cases, there were 1474 with observed relations, including 37 observed in one direction with imputed reciprocal. An additional 33 dyads had imputed relations, yielding .0021 network density. 586 dyads had a reciprocated relation and 921 had an unreciprocated relation. 122 dyads had multiplex relations: 3 that were mutual, 39 where one person in a reciprocal relation indicated multiplexity but the other did not, and 80 in unreciprocated relations. Considered as 1,443,602 asymmetric pairs there were 1991 observed and 102 imputed relations, yielding .0015 network density. For analytic purposes dyads in which there was an observed relation in at least one direction were scored as being adjacent without imputation.

[TABLE 7.4 ABOUT HERE]

Table 7.4 shows OLS regression coefficients and QAP probabilities for four equations in which lifestyle dissimilarity is regressed on independent variables including indicators for adjacency, reciprocity, and multiplexity. These three variables contribute almost no explanatory power (R^2 = .000). Reciprocity and multiplexity are insignificant.

Adjacency is significant at the $p \leq .05$ level, but in the wrong direction. When a social relation existed between members of a dyad the dyad tended to have greater lifestyle dissimilarity than if there were no relation, other variables held constant. Exploring why this should be, same sex dyads are almost twice as likely to have a relation as mixed-sex dyads are, despite the fact that 15.6% of respondent dyads with a relation were spouses. When gender was controlled for using the 'both male' and 'both female' variables, as shown in Equations 3 and 5, the adjacency coefficient declined considerably, while the combined effect of the two variables was greatest for cross-gender relations. This suggests that lifestyle differences between genders and the prevalence of spousal relations explains part of the reason that the effect of adjacency is in the wrong direction, but since the adjacency coefficient remains positive and is only modestly reduced by controlling for the gender composition of the dyad still suggesting that cohesion increases dyadic dissimilarity.

The tendency to have a relation is also strongly shaped by age homophily. The percentage of dyads that are adjacent declines nearly monotonically from 0.7% for those who are the same age or within a year of each other's age to 0.3% at 10 years age difference, 0.2% at 20 years, and 0.1% at 30 years. Above 50 years age difference there are no adjacent dyads. However, the inverse direction of this association makes it very unlikely that the adjacency coefficient for lifestyle dissimilarity is artificially inflated by the direct effect of age difference on lifestyle dissimilarity. When age difference is included in the equation the adjacency coefficient remains about the same, as shown in Equation 4. Equation 5 shows the coefficients of the main model when adjacency is included in the model. The effect of adjacency with these other variables included is lower, but still in the wrong direction. Why adjacency should increase dissimilarity is unknown.

Figure 7.1 Mean Lifestyle Dissimilarity by Cohesion
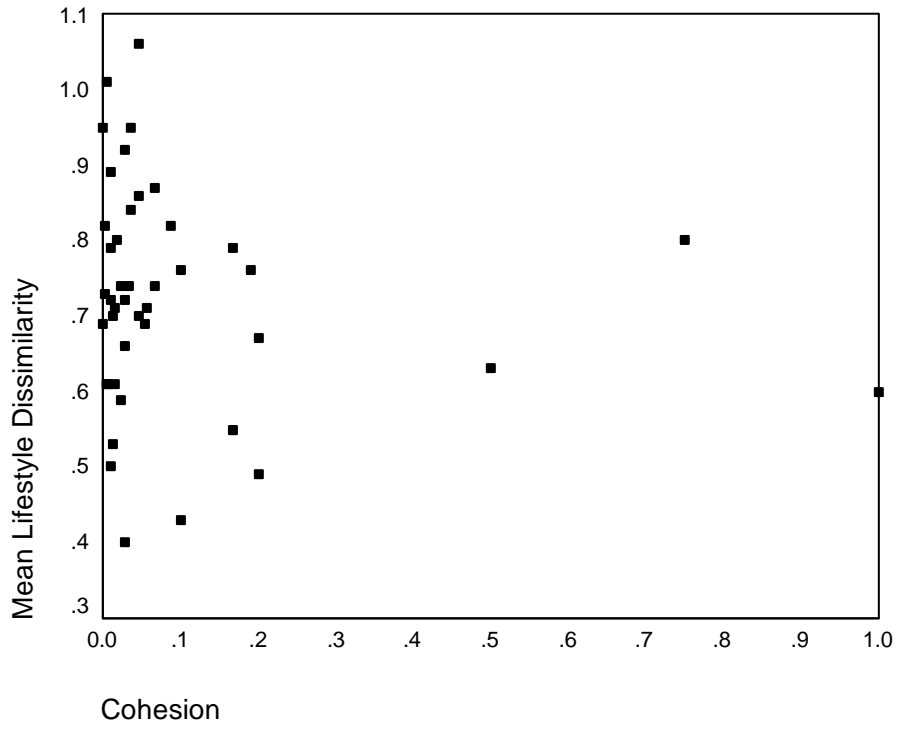
Figure 7.2 Distribution of Lifestyle Dissimilarity Index
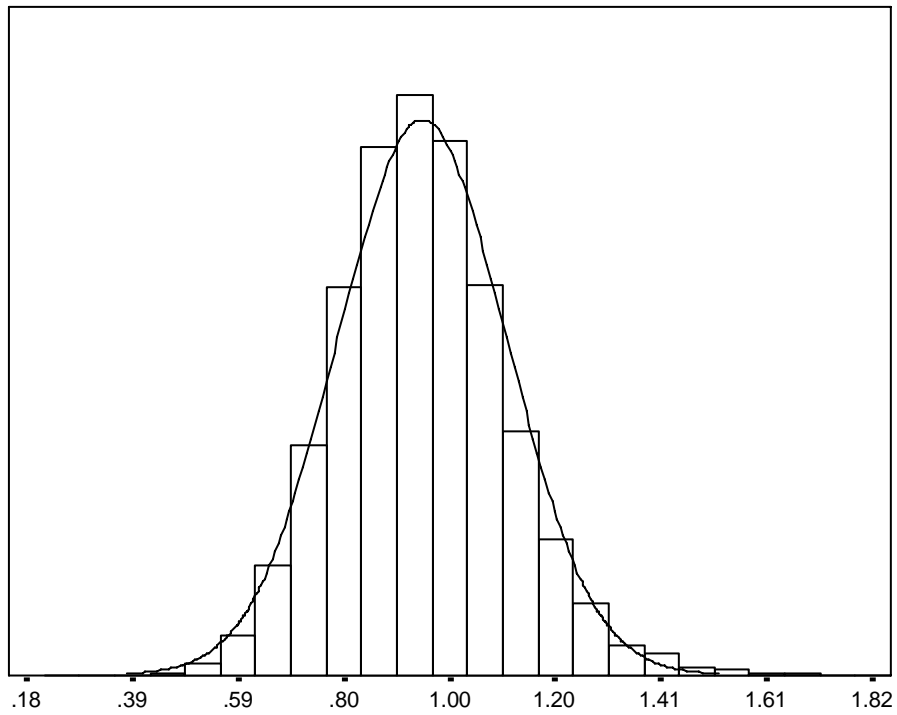
Table 7.1 Cramer's V and Lambda Statistics (Bivariate Analyses)

	Cramer's V	Lambda λ_{LC}	Lambda $\lambda_{LC}{}^{*}$
Complete Link Equivalence Set Without Imputed	.300	.134	.137
Average Link Equivalence Set Without Imputed	.264	.118	.113
Complete Link Equivalence Set With Imputed	.335	.149	.151
Average Link Equivalence Set With Imputed	.292	.115	.104
Occupational Category	.354	.114	.233
Work Status (Full- and Part-Time, Retired, Disability, Unemployed)	.417	.080	.074
Age (Decade)	.365	.065	.056
Income Category	.322	.050	.061
HS Graduate	.363	.047	.012
College Graduate	.471	.036	.003
Marital Status	.284	.035	.035
Tenancy (Owner / Renter / Other)	.293	.030	.043
Parent of a Minor Child	.476	.012	.029
Asset Category	.297	.008	.034
Gender	.544	.003	.047

Table 7.2 Correlations Among Dyadic Independent Variables

	Age	Inc	Fem	Mal	Mar	S/D	Wid	Sngl	Prnt	Debt	Asst	Own	Rent	HS	Coll	FT	PT	Ret	UnE	SE	Hmkr	Occ	EQ w/o
INC D	-0.04																						
Female	0.03	-0.10																					
Male	-0.03	0.04	-0.22																				
Married	-0.08	0.08	-0.05	0.09																			
Sep/Div	-0.06	-0.03	0.03	-0.02	-0.10																		
Widow	-0.08	-0.06	0.06	-0.05	-0.09	-0.02																	
Single	-0.02	-0.02	-0.01	0.02	-0.07	-0.02	-0.02																
Parent	-0.20	0.03	0.02	0.00	0.10	0.04	-0.04	-0.01															
In Debt	-0.03	-0.04	0.02	0.00	-0.03	0.04	-0.01	0.03	0.07														
Assets	-0.01	0.01	-0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00													
Own	-0.09	0.06	-0.05	0.03	0.36	-0.08	-0.02	-0.07	0.05	-0.06	0.02												
Rent	0.01	-0.10	0.02	0.00	-0.09	0.11	0.00	0.08	0.00	0.07	0.00	-0.18											
HS	-0.07	0.02	0.04	-0.01	0.15	0.03	-0.04	0.01	0.08	0.01	0.01	0.24	-0.03										
College	-0.07	0.05	0.02	0.02	0.13	0.00	-0.04	0.00	0.09	-0.02	0.02	0.13	-0.04	0.17									
FullTime	-0.24	0.01	-0.05	0.08	0.08	0.03	-0.06	0.03	0.20	0.03	0.00	0.11	-0.02	0.15	0.18								
PartTime	-0.02	-0.02	0.05	-0.02	0.01	0.00	-0.01	0.01	0.05	0.01	0.00	-0.01	0.02	0.03	0.00	-0.05							
Retired	-0.25	-0.10	-0.03	-0.01	-0.04	-0.03	0.18	-0.03	-0.10	-0.04	0.00	0.02	-0.03	-0.06	-0.07	-0.17	-0.04						
Unempl.	0.00	-0.04	0.01	-0.02	0.00	-0.01	0.00	0.02	0.01	0.01	0.00	-0.03	0.03	-0.02	-0.02	-0.04	-0.01	-0.03					
Self-Empl.	-0.01	0.00	-0.02	0.03	0.02	0.00	-0.01	0.00	0.01	0.00	0.00	0.03	-0.01	0.01	0.03	0.13	-0.01	-0.03	-0.01				
Homemkr	0.00	-0.05	0.12	-0.05	0.04	-0.01	0.01	-0.01	0.01	0.00	0.00	0.02	-0.01	0.01	-0.02	-0.06	0.02	0.00	0.18	-0.01			
SIM OCC	-0.06	-0.01	0.04	0.01	0.03	0.01	-0.02	0.01	0.06	0.01	0.00	0.02	0.01	0.05	0.07	0.14	0.04	-0.05	0.02	0.03	0.03		
EQS W/O	-0.06	-0.02	-0.22	-0.02	-0.14	0.03	0.05	0.03	-0.04	-0.02	0.00	-0.07	0.00	-0.16	-0.09	-0.08	-0.04	0.15	0.01	-0.03	-0.02	-0.03	
EQS With	-0.06	-0.04	-0.19	-0.04	-0.18	0.05	0.08	0.05	-0.04	-0.01	0.00	-0.09	0.01	-0.16	-0.10	-0.09	-0.04	0.16	0.02	-0.02	-0.02	-0.03	0.95

Table 7.3 QAP Regression Equations: Lifestyle Dissimilarity I

	1	2	3	4	5	6
Constant	1.0441	1.0437	1.0401	1.0497	1.0674	0.9427
EQS W/O	-.0011 p=.000	-.0011 p=.000	-.0011 p=.000		-.0016 p=.000	
EQS With				-.0013 p=.000		
Occ	-.0396 p=.000	-.0399 p=.000	-.0407 p=.000	-.0408 p=.000	-.0307 p=.000	-.0267 p=.000
FullTime	.0154 p=.003	.0149 p=.006	.0138 p=.008	.0131 p=.006		
PartTime	-.0008 p=.436					
Retired	-.1078 p=.000	-.1074 p=.000	-.1077 p=.000	-.1069 p=.000		
Unempl.	-.0418 p=.003	-.0408 p=.001	-.0445 p=.002	-.0440 p=.001		
Self-Empl.	.0039 p=.408					
Homemkr	-.0109 p=.159	-.0112 p=.140				
Female	-.0375 p=.000	-.0376 p=.000	-.0384 p=.000	-.0386 p=.000		
Male	-.0258 p=.000	-.0257 p=.000	-.0249 p=.000	-.0260 p=.000		
HS	-.0084 p=.071	-.0086 p=.057				
College	-.0005 p=.460					
Married	.0065 p=.136	.0063 p=.153				
Sep/Div	.0086 p=.161	.0083 p=.178				
Widow	-.0740 p=.000	-.0738 p=.000	-.0748 p=.000	-.0726 p=.000		
Single	-.0131 p=.134	-.0129 p=.135				
Parent	-.0064 p=.204					
Debt	-.0278 p=.010	-.0287 p=.009	-.0295 p=.005	-.0291 p=.001		-.0168 p=.079
Assets	-.0015 p=.450					-.0193 p=.271
Own	-.0100 p=.032	-.0101 p=.026	-.0100 p=.025	-.0105 p=.020		-.0036 p=.238
Rent	-.0388 p=.000	-.0389 p=.000	-.0393 p=.000	-.0390 p=.000		-.0379 p=.000
Age D	.0004 p=.003	.0005 p=.001	.0004 p=.002	.0004 p=.008		
Inc D	.0135 p=.000	.0134 p=.000	.0133 p=.000	.0132 p=.000		
R^2	.106	.106	.105	.107	.010	.003

Table 7.4 QAP Regression Equations: Lifestyle Dissimilarity II

	1	2	3	4	5
Constant	0.9390	1.0795	1.1204	1.0534	1.0497
EQS With		-.0018 p=.000	-.0021 p=.000	-.0016 p=.000	-.0013 p=.000
Adj. With	.0143 p=.030	.0143 p=.023	.0112 p=.017	.0110 p=.033	.0097 p=.039
Reciprocal	-.0066 p=.224	-.0072 p=.224			
Multiplex	-.0021 p=.438	-.0052 p=.373			
Occ					-.0408 p=.000
FullTime					.0132 p=.008
Retired					-.1069 p=.000
Unempl.					-.0440 p=.001
Female			-.0424 p=.000		-.0386 p=.000
Male			-.0220 p=.000		-.0260 p=.000
Widow					-.0726 p=.000
Debt					-.0291 p=.008
Own					-.0105 p=.021
Rent					-.0390 p=.000
Age D				.0008 p=.000	.0004 p=.004
Inc D					.0132 p=.000
R^2	.000	.013	.000	.018	.107

CHAPTER EIGHT

CONCLUSIONS & CONSIDERATIONS

The work reported in this writing consists of three connected undertakings: development and articulation of a theory in which the concept of class is reframed as lifestyle clustering and the relational underpinning and motor(s) of class are expanded from the classic Marxian model that focuses wholly on relations of production to social relations generally, from economic capital to capital of all varieties; design and operationalization of a community case study to assess the impact of social networks on lifestyle distribution and other implications of the theory; and analysis of the observed data. In this final chapter some critical consideration is given to various parts of the research project, the research is summarized, and implications are discussed.

Critical Considerations

The scale of the Tyboro research project was grand. If this is perhaps a strength of the project, it is also among its weaknesses. Despite wiser counsel, the author took on a challenge the scope of which he did not fully appreciate. There are good reasons no one previously undertook a project of this sort. In planning this project, the author overlooked details in the proposed research which present barriers to a research project of this type and scope. For example, he naïvely failed to consider the time and computational power required to assess equivalence in a network of tens of thousands, or even of several

thousand persons, and overestimated the willingness of people to participate in a network and lifestyle survey even when pains are taken to encourage such participation. The sheer time requisite is a deterrent to a single researcher taking on a project of this sort. The timing was greatly drawn out by the author's involvement in other activities – family, employment, relocations, etc – but a rough accounting suggests the author invested at least 4000 hours of labor into the Tyboro project – equivalent to two years of full-time labor – and quite likely twice that.

Theory

Of the three parts of this work, the author is best satisfied with the network theory of class. What began as a handful of intuitive and ill-organized core ideas were refined, extended, and by identifying and developing the logical interrelations among them, assembled together like a jigsaw puzzle. As such it represents the author having thought through and articulated for himself the core social processes by which he believes lifestyle clustering is created, maintained, and evolves. That in itself is a valuable achievement, regardless of the rest of the work.

It may be argued that none of the content of this theory is new. Seemingly every piece of the puzzle has been crafted by someone else. Yet the synthesis yields a uniquely new model, and has perhaps greater face validity than extant models. Even so, it is at best a well-crafted core or foundation of a theory, far from complete. This core theory touches on numerous concepts and ideas, of which few are well-developed. The potential may exist to craft an entire sociology upon this foundation by developing these various points in great detail, but this writing has not done that work. Likewise it cites far less work than it could. What is offered is an argument buttressed with references to the work of others when it was expedient to do so, not a literature review per se. The work might be stronger

if it included more review of literature, but the potential to develop in that regard is nearly limitless given the breadth of conceptual territory it touches upon.

Likewise the work may be criticized for lacking specificity or on the grounds that some of its arguments are, or at least seem, banal: truisms rather than theory. But what seems obvious to the author may perhaps not seem readily apparent to others, else these apparent truisms would surely have been presented long ago. Perhaps the apparent face validity is an illusion, if the concept of capital has now been extended so broadly as to no longer have meaning, but at least the main thrust of the argument, illustrating why local network patterns must structure social differentiation and identities, seems solid.

Regarding that argument, two critical considerations are noteworthy. One, is the theory dependent upon implicit assumptions valid only in certain cultural contexts, e.g. limited to the U.S. context? The theory has built-in adaptability in explicitly recognizing the importance of regional and local variation, making a strong case for the necessity of research grounded in local context, and also adaptability in recognizing that the relative value of different varieties of physical, social, and symbolic capital vary culturally. This does not necessarily mean the theory is generally applicable, but if there are assumptions that constrain it to particular cultures, the author is oblivious to them.

The second thing to consider critically is whether the argument is warranted by which context of all social relations is reduced to the context of specific social relations. It is a plausible argument, but also a questionable one, not well supported by citation of other authors or empirical evidence. Inherent in the assumptions on which this reduction is based, and upon which in turn both the network method and the local focus of the Tyboro research are predicated, is recognition that such a reduction must necessarily be approximate. But how closely approximate it actually is remains an open question, one that is likely to require empirical research to address, and may vary from context to context. The validity and appropriateness of the Tyboro methodology may depend heavily on this unanswered question.

Method

The ultimate yardstick of any theory is how well it explains observed phenomena: the evidence. Linking theory and evidence is method, the strategy by which evidence is elicited. With respect to the Tyboro research method, perhaps the greatest concern is that several aspects of the theory go untested as the method focuses heavily on assessing the extent to which network position determines lifestyle similarity. Demonstrating the importance of position in a local network validates expectations derived from the theory, but does not necessarily validate the theory as a whole. This disparity between theory and method is a result of their co-evolution. Method should be designed with developed theory already in mind, but the framework of the Tyboro method were arrived upon based on an early version of the theory. The theory continued to develop in rough parallel with the method, and even while the method was undertaken, leaving the method to focus on core expectations, which was in itself a more than ample undertaking.

One notable disparity is that the method is largely ahistorical. The theory is not strongly historical – the adjective 'historical' does not pop into mind in describing it – but it does explicitly incorporate history in changing patterns of social relations and in diffusion of new lifestyle contagia, and recognizes that each present moment inherits conditions from its immediate past and especially that history is contained in the symbolic aspects of the present. The method largely ignores this historical aspect of the theory, except some limited consideration to the historical context of the research site. That is regrettable, but an explicitly historical method was impractical given the other goals of the method and the constraints of time and resources.

That the method should be a case study was almost a foregone conclusion. The theory led to study of a local network and constraints of time and resources precluded studying more than one. Because it is a case study, it offers no basis for assessing how generalizable observations from Tyboro may be to other contexts, only that it has some

validity in the context of this particular community. Lacking a basis for generalization is no small sacrifice, but the research was under no obligation to show general applicability, only to demonstrate whether support could be found for the network theory of lifestyle clustering in a single locale. That it has done, however imperfectly.

The method is unwieldy. Who would replicate the Tyboro research given that it requires developing familiarity with a locality to design a survey that must necessarily be tailored to the local context, an exhaustive blocklisting of all residential addresses and supplemental archival research to identify the residents of those addresses, printing and mailing of thousands of surveys, and laborious data cleaning? The surveys are necessarily lengthy and include a network generator that many respondents are reluctant to complete. According to plan the research calculates regular equivalence scores, the computational requirements of which would seem to preclude studying any locale more populous than a small town. Even for a small town the computational power is beyond that to which most individual academic researchers currently have access, though this may be overcome by advances in computing. Even the process for calculating the work-around concept of relation type equivalence developed here is unwieldy and takes a personal computer days to run for a network of several thousand persons.

Survey Validity

A survey is a practical necessity to obtain data on lifestyle behaviors and social networks for a population of several thousand persons, but raises data validity issues. How honestly do survey respondents report their behaviors and social relations? Other than as a prank there seems little reason for deception on most lifestyle and demographic questions, with income, assets, and patronizing of the less savory drinking establishments as possible exceptions, especially since respondents were advised that they could skip questions. The income and asset questions, and the network generator, were each skipped

by a many respondents, and some skipped year of birth, suggesting people may be sensitive to answering these questions honestly.

Even if people are perfectly honest, how accurate are their subjective perceptions and recall of their own behaviors and social relations accurate? Presumably there is a continuum from questions about major aspects of their life which are likely to be answered very accurately to relative minutiae such as the frequency of relative trivial activities, amount of a particular product they consume, and the examples they call to mind of a typical meal, typical clothing, etc. Recent events may figure more prominently in their perception than those of a few weeks or months past, and perceptions may be pre-loaded by events immediately preceding answering the survey, over which the researcher has no control. Respondents may also differ in interpreting questions, both relative to each other and from the intent of the researcher, which can undermine the validity of the question. The survey was designed and pretested to minimize this, and there are no indicators of major discrepancy in interpretation of lifestyle and demographic questions, even if it is implausible to imagine that everyone interpreted the distinction between, for example, "almost daily", "regularly or often", "on occasion" and "rarely/never" in identical ways.[i]

The network generator is a different matter. Asked for full names, a number of respondents chose to list only first names, and fewer than half listed interactions for each

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[i] Of special interest in regard to survey accuracy are four respondents who each submitted duplicate surveys. Comparison of these pairs of surveys shows near perfect agreement on answers to demographic questions and definitive questions such as occupation and work status, religion, political identity, etc, but some discrepancy among items in matrix questions, particularly in reporting the frequency of activities, where a shift from daily to regular, regular to occasionally, or vice versa was not uncommon. Here and there a few items not marked at all on one survey would be marked on the other, though this was far less common. Three of these respondents skipped the network generator on the duplicate. One wrote "I completed this on the 1st survey." The one respondent with duplicate network answers listed 12 alters on one survey and these twelve plus 8 additional alters (e.g. landlord and 7 presumably adult grandchildren) on the other. The place of residence, gender, and relationship labels for the 12 were identical on both surveys, and the listed interactions for each were identical except for one specific type of interaction which one of the survey omitted for one of the alters. The frequencies of interaction, i.e. D/R/O, listed on one survey were downgraded one notch for several of the twelve.

alter. Others skipped the question entirely, and at least some, potentially a great many, declined to participate in the survey at all because of this question. These indications also raise concerns that respondents who did answer might not have been frank in their responses. The question also required a complex set of responses about a topic respondents were unlikely to have given much prior consideration, and required them to implicitly choose some relative arbitrary boundary distinguishing those to be listed from those not to be listed. An introductory paragraph and criteria were included and evolved through pretesting to reduce the interpretative subjectivity, and a list of common types of alters was offered to prompt more complete recall, but the variability in overall network size and in the types of relations included suggests a great deal of variability in how respondents understood the question. At one extreme are people who list only their spouse. At the other extreme a few who appear to have copied their address book into the survey sheet.

More important than simple variability is whether the responses represent the concept of a network of specific others or are mainly limited to close relations. The criteria respondents were given asked them to list persons who were either "someone you see, talk with, or interact with daily or every few days" or "a significant person in your life" and the list of types of alters included various examples of specific relations, with a deliberate attempt to avoid focusing on close relations, but the preponderance of relations listed were of close kin, close friends, and neighbors. This is possibly flawed survey design in that it seems likely the question could have been reworded to more accurately solicit the inclusion of specific others, but mainly it suggests respondents may have a false perception of their own relations. They readily identify alters who are "significant" in an emotional sense, but may fail to recall or fail to consider specific others who are not emotionally significant but with whom they frequently interact (e.g. shopkeepers and other exchange relations, even coworkers). The tendency of most respondents was to list alters working out from their nuclear family, from their most frequent and closest

relations toward less frequent and less close relations. This common strategy by which people conceptualize their network in "outward circles" may also tend to preclude the including specific others. Measurement of relation type equivalence depends directly on survey responses to this question, so our equivalence measure is almost certainly biased by the variability in interpretation and tendency for respondents to omit specific others with whom they frequently interact.

Data Cleaning

Cleaning network data poses another methodological concern. The method depends on the ability to match alters across surveys. Matching alters across surveys is a laborious and painstaking process which requires both computer processing and summarization of the relevant information but also human judgment concerning each possible match, and there are thousands of possible matches to consider. Even when respondents provide complete and accurate information about each alter this can be challenging. Failure to match listings of an alter or falsely matching different persons is a potential source of error in the equivalence scores and overall findings.

Measures & Analysis

How much stronger might the empirical support for the network theory of lifestyle clusters be with a superior analysis? The answer to this question might rest on issues concerning the measurement of three core concepts: network equivalence, lifestyle similarity, and clustering. The network theory of lifestyle clusters articulates why equivalence of network position should be associated with patterns of lifestyle similarity. However, the time required to compute measures of relative regular equivalence in a large network using available computing power makes it highly infeasible. That a proxy measure was necessary is a weakness of the research because relation type equivalence measures a somewhat different concept than regular equivalence. Relation type

equivalence is a useful development from the Tyboro research because it has a computation for large, relatively sparse networks, which make it a useful proxy. However the current algorithm is still unwieldy, the utility of the concept seems to be limited to use as a proxy, and it is conceptually restricted to data that include a variety of relationship types. The similar concept of role equivalence may be more appropriate.

While the issue with equivalence is substituting a somewhat different measure for that which is theorized, with lifestyle similarity there is little theoretical or commonsense guidance as to how it should be measured. Different measuring strategies yield different numbers, effectively warping how the social space is represented by artifactually moving cases closer together or further apart. Although attempts were made to ground lifestyle measurement in its theory and practical considerations, it is possible that a superior approach might have been overlooked. There are two main issues here: the relative scaling of the variables, and the formula for computing distance or dissimilarity. The combinations are myriad, and compounded by the clustering process, making it infeasible to explore more than a handful. Of particular consideration is the fact that a "quick-and-dirty" preliminary clustering analysis based on pattern dissimilarity measures using unweighted data appeared to exhibit greater homogeneity on some subsets of variables than the sum-of-differences measure with variables were scored on 14 subindices. However that quick-and-dirty result did not include all variables and also had a number of qualities that were perceived to be disadvantages.

Hand-in-hand with the dissimilarity measure is the choice of clustering algorithm. Again there were many possible choices and little basis for deciding that one or the other was superior. If the clusters had been naturally tight and well-bounded it might not matter. Since there were not, the question looms about whether the best possible cluster map was achieved. The lifestyle dissimilarity measure and combined cluster algorithm that were used yielded modest results. The results might be stronger with a different combination of clustering strategy and lifestyle metric.

Missing Data

Potentially the greatest threat to the validity of this research is missing data. One way in which missing data impacts the study is in implicit inferences drawn about the locality and its population based on the portion of residents who completed the survey. To what extent are they typical of the population generally? Comparison with Census 2000 data, supplemented in places by field observation, shows that the respondent population is biased toward women and older persons, mainly as a result of lacking younger adults, especially young adult men, and is also somewhat biased toward more educated respondents. In other regards the respondents appear to be more or less typical of the population.

The other major way in which missing data is a concern lies in the sensitivity of network measures to missing data. In a traditional sample-based study measures are typically attributes of the cases and the cases are independent of one another, so while missing data may represent a bias relative to the population about which one is drawing inferences, it does not directly affect measures of the cases for which one does have data. In contrast, measures in a network study are interdependent such that omission of a particular case or even of a relation has potential to impact the measures of the other cases. Conceptually this is more true of positional or equivalence measures than it is for some other measures.

In this Tyboro study close to 90% of potential respondents did not complete the network survey. Because people are included as alters by other respondents, almost 60% of the adult population of Tyboro is included in the network data in some way, but even so about 40% of the population is missing. Moreover, typically only a very few relations may be known for these alters who are not respondents, meaning the proportion of relations missing is certainly much higher than the proportion of missing persons. The impact may be mitigated somewhat by other factors and there is reason to believe that the

measures and findings reported here have some validity (see Chapter Five), but the potentially exists that they might be completely invalid, and they are almost certainly adversely affected by the extent to which data are missing. It is not difficult to imagine that our findings might be far stronger if this were not so.

Discussion

These considerations notwithstanding, a number of things have been achieved by this work. The concept of lifestyle cluster has been introduced as a phenomenon to explain and offered as different way of conceptualizing lifestyle segments used in marketing research and the root concept underlying sociological constructions of class and status group, in relation to a number of other sociological concepts, such as identity. Lifestyle clusters are conceived of as densely populated, well-bounded regions of lifestyle space, which is to say relatively distinct groups with highly homogeneous life-*style*, harkening back to the classic concept of *Stände*, or status groups, articulated by Max Weber a century ago, but quite uncommon in contemporary sociology. The Tyboro data reveal no bounded groups, suggesting instead a distribution of lifestyle lacking sharp divisions or separations. This calls into question the validity of this model of differentiation though it is possible an improved lifestyle metric and/or clustering methodology might reveal more subtle divisions. Tyboro data do reveal evidence of lifestyle concentrations or clumping, both qualitative in description of the analytic lifestyle clusters and quantitatively in the mean square dissimilarity scores which show, in Tables 6.6 and 6.7, clusters have a level of internal homogeneity well beyond what would be expected merely as an artifact of the clustering algorithm. While it may be a stretch to suggest that the Tyboro population is "divided" into lifestyle clusters, they are at least distributed in lifestyle clumps.

As an alternative to extant models of social stratification, the sketch of a theory is advanced to explain the existence of lifestyle clusters. The sketch is developed from a relational paradigm, integrating the social constructionism of Berger & Luckmann and a Marxian materialist theory of class, and borrowing heavily from Bourdieu, whose own construction is in many ways similar but has a more cultural less relational theory. From this perspective, the theory begins with the concept of capital and Marxian theory of class as a point of departure. The concept of capital is expanded broadly and conceptually linked to social relations as a differential resources and context which create heterogeneous existences. Attention then turns to how microsocial processes, particularly mimicry and structured social relations, differentially distribute practices to create regions of lifestyle density and potentially shape them into clusters. In a direct parallel to and extension of Marx's conception of position in the relations of production and capital property as identical concepts, the theory offered here emphasizes position in an network of social relations generally as identical to the capital and opportunity structure, replacing relations of production with relations generally and substituting basic cognitive and social processes, including exchange, for the specifically economic mechanisms offered by Marx, as the motors which drive the differentiation. In this way the theory builds the cluster/class/stand concept as an aggregate up from the microsocial level, rather than down from the macrosocial. Drawing on this core, the importance of significant and specific others, of local context, and of the network properties of cohesion/adjacency and equivalence are illustrated.

This kernel of theory, drawing together classic Marxian and Weberian models of social differentiation, expanding the core insight of Marx's relational explanation beyond the constraints of economic relations, integrating it with basic microsocial and psychological processes and welding it to the social network analytic methodology is probably the single most valuable contribution this dissertation makes. It offers a potential way of salvaging the Marxian class model, while keeping relationality at the

forefront. It puts an explicit theory underneath a network analytic concept that is often accused of theory deficiency. It bridges the micro- versus macro-social divide, and the structure versus agency false dichotomy, grounding the action in basic social processes where individuals draw on past experiences, make choices to pursue current goals in a world of social, symbolic, and physical constraints and opportunities.

The whole of the theory was not tested, but the expected power of equivalence, and to some extent adjacency, in explaining lifestyle dissimilarity and clustering was put to a test. Specifically it was expected that sets of persons who occupy highly equivalent positions in the local social network should exhibit highly similar lifestyles and tend to be part of the same lifestyle cluster, that this effect would be heightened where sets of highly equivalent persons also had cohesive relations, and that other factors such as occupation, education, and wealth impact lifestyle similarity and clusters only indirectly, mediated through patterns of social relations.

At the categorical and cluster level of analysis, a statistical association between equivalence sets and lifestyle clusters was demonstrated, and also associations between various demographic variables and lifestyle clusters. Of these variables, equivalence sets and occupation were modest predictors of lifestyle cluster membership and these two variables in combination explain over half the variation in cluster membership. This lends support to the argument that network position explains lifestyle similarity. However these findings may be artifactually enhanced by the number of number of categories each variable has, i.e. by increased degrees of specification.

At a dyadic level equivalence was shown to be a very significant predictor of lifestyle similarity, also supporting the expectation of the theory. Equivalence was a better predictor of lifestyle similarity than a combination of variables (e.g. high assets, debt, occupation, home ownership, etc) representing a traditional Marxian model of class, although somewhat less predictive than income. A number of demographic variables were also significant, even with equivalence in the equation showing that the effect of

these variables is not limited to an indirect effect through network position. Adjacency was a significant predictor of dyadic lifestyle similarity, but in the wrong direction, increasing rather than decreasing dissimilarity, and not in the categorical analysis. Given the methodological issues and the modest results, these finding tell us little definitively except that network equivalence can be a predictor of lifestyle similarity and clustering, depending on which analysis one focuses on equivalence it may be one of the strongest predictors, and that a number of other variables do have a direct impact. Although the fourth expectation of our theory is not supported, there is moderately strong support for the main expectation of our theory.

Future Directions

The theory offered here takes class analysis in a new direction, suggesting a conceptual reframing of several related issues and illustrating why social relations should be of fundamental importance. However it is only an outline of a theory, which needs further development in the future. The empirical results of the Tyboro study, such as they are, lend modest support to the main expectation of the theory, but also raise a number of questions to be answered. The method includes a number of elements that are potentially useful for future research, such as the concept of relation type equivalence, but is unwieldy, imperfectly matched to the theory, and subject to a number of serious limitations and flaws in its practical application as currently conceived. Future research would do well to find alternative methods. The current method should not be considered for future use without substantial amendment and address of its shortcomings, and major advances in available computing power. It is to be hoped that the theory is further developed and more effective ways are found to test it.

APPENDICES

APPENDIX A

Social Network Survey
of
[Tyboro]

Survey Booklet
&
Instructions

_____
_____
_____
_____
_____
_____

Purpose of Survey

Thank you for taking the time to complete this survey. This survey is part of a social science project studying how the pattern of relations each of us has with other people -- our social network -- is related to our lifestyle. Please have each adult living at this mailing address fill out a separate survey.

Confidentiality

All your answers are strictly confidential. Study results will report only group statistics. Information that might allow someone to identify persons in this study will not be published and will be destroyed at the end of the study. Answers you provide will only be used for social science research. No business, salespeople, or government bureaucracy, or other organizations will receive any information about you from this study.

Skipping Questions

If you find any question which you do not wish to answer, you may skip it. If you wish to skip a question, please print the word "SKIP" on the answer form where you would write your answer and go on to the next question. Surveys that skip many questions or parts of the social network list (Questions 20 and 21) will not be eligible for cash prize awards.

Help

If you would like help reading this survey, have questions about the survey, or would like to know more about the research project, you can get help or answers by telephone. Also if you would prefer for a staff member to go over the survey with you in person, we are happy to arrange to have someone visit you to do so at your convenience. For any of these reasons, you can contact the researchers directly at: **[Phone Number]**

How long is this Survey?

The time needed varies for each person, but this survey is typically completed in about 40-45 minutes.

BEGIN SURVEY HERE

1. Daily Schedule : Please write letters on the time lines to show when you usually...

  W = wake up **B** = breakfast **G** = go to work **L** = lunch **H** = home from work **D** = dinner **S** = go to sleep
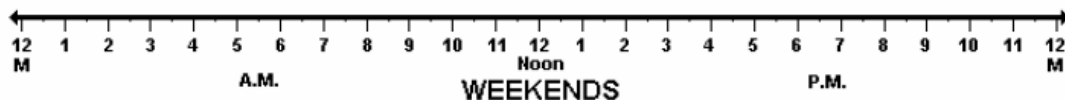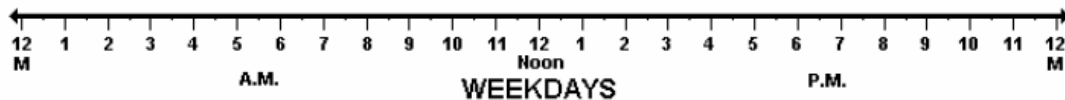
2. Work Status : Which of these describe your work status: *(check all that apply)*

☐ Student   ☐ Employed Part-Time

☐ Homemaker   ☐ Employed Full-Time   ☐ Unemployed

☐ Retired   ☐ Self-Employed   ☐ Other: _____

My job title or occupation is: _____

I usually work _____ days each week.

My place of employment is: _____ It has _____ employees.

and is located in the city / village / town of: _____

3. Work Activities : How often do you do each of these <u>as part of your work</u>?

D = daily/almost daily   R = regularly or often   O = on occasion

If the activity is something you rarely or never do as part of your work, do not circle anything.

D R O	sell products or services	D R O	supervise other workers
D R O	answer telephone	D R O	drive/operate car, light truck, or van
D R O	work outdoors	D R O	work all day without seeing other people
D R O	travel by airplane	D R O	read newspaper, book, or journal
D R O	handle cash / use cash register	D R O	do work that makes you dirty
D R O	use computer	D R O	operate industrial machinery
D R O	physical labor or lifting	D R O	assemble products or parts
D R O	work with animals	D R O	other: _____

4. Household & Health Activities : How often do you do each of these?

D = daily/almost daily   R = regularly or often   O = on occasion

If the activity is something you rarely or never do, do not circle anything.

D R O	vacuum, sweep, or mop	D R O	wash, dry, or fold laundry
D R O	mow lawn / rake leaves / shovel snow	D R O	iron or press laundry
D R O	work in garden	D R O	make beds before dinner time
D R O	take out trash	D R O	wash dishes
D R O	heat already prepared food	D R O	pick up items lying around house
D R O	cook a meal from scratch	D R O	spend an hour or more with kids
D R O	wear bed clothes or robe all day	D R O	relax on recliner or sofa
D R O	nap for 30 minutes or more	D R O	write a letter to someone
D R O	transport kids or adults somewhere	D R O	clean bathtub or shower
D R O	have flower arrangement in home	D R O	have dinner guests
D R O	bake bread, cake, or cookies	D R O	have overnight guests
D R O	preserve or pickle fruits or vegetables	D R O	clip coupons / shop with coupons
D R O	pay bills in cash	D R O	read or listen to business news
D R O	write checks to pay bills	D R O	use an ATM
D R O	use a credit card	D R O	purchase items priced over $500
D R O	buy or sell stocks, options, or futures	D R O	buy U.S. government savings bonds
D R O	buy lottery tickets, or play lotto or bingo	D R O	put money in IRA, 401(k), or mutual fund
D R O	put money in savings account	D R O	use aromatherapy
D R O	have blood pressure checked	D R O	diet to control weight
D R O	take vitamin supplements	D R O	read or listen to health news
D R O	use prescription drugs or medicines	D R O	go to chiropractor / get a massage
D R O	other: _____	D R O	other: _____

5. Religious Activities : Which religious activities do you often do?

D = daily /almost daily   R = regularly or often   O = on occasion
If the activity is something that you never or very rarely do, do not circle anything.

D R O	preach, teach, or evangelize	D R O pray or meditate
D R O	say grace at meals	D R O fast or observe dietary restrictions
D R O	listen to religious music	D R O read holy books or religious texts
R O	observe sabbath & holy days	D R O build religious fellowship
R O	tithe or donate money to church	D R O other: _____

5a. Religion : Do you attend religious services or meetings someplace?

☐ No   ☐ Yes, at: _____   regularly / on occasion

5b. Religion : Do you identify yourself with a particular religion, creed, or philosophy?

☐ No   ☐ Yes, religiously I am: _____

6. Political Activities : How often do you do these political activities?

D = daily /almost daily   R = regularly or often   O = on occasion
If the activity is something that you never or very rarely do, do not circle anything.

D R O	discuss politics with other people	D R O display U.S. flag at home
D R O	watch or listen to political talk show	D R O watch, read, or listen to political news
R O	attend town or village meetings	R O write letter to Congressman
R O	write opinion letter to newspaper	R O protest or do civil disobedience
R O	work on a political campaign	R O give money to political candidate
R O	vote in Presidential elections	R O vote in local elections

6a. Politics : Are you a member of any political party or political groups?

☐ No   ☐ Yes: _____

6b. Politics : Do you identify yourself with a political position or philosophy?

☐ No   ☐ Yes, politically I am: _____

7. Clubs & Associations : What clubs, service groups, unions, fraternal groups or auxiliaries, or other associations are you involved in? Please list groups you are active in below.

Groups you are a member of or active in: _____
_____

Groups you are an officer of or leader in: _____

Examples: American Legion, [....................], Chamber of Commerce, [....................], Elks, Eastern Star, [....................], Fire Departments, [....................], Kiwanis, Knights of Columbus, Labor Unions, Lions, Masons, Moose, Motorcycle Clubs, Promisekeepers, Racing Clubs, Red Cross, Rotary, Rod & Gun Clubs, [....................], VFW, [....................], etc.

8. In your Opinion : What are the biggest problems that [Tyboro] faces?

_____
_____

9. Athletic & Leisure Activities : Which of these activities do you regularly do?

R = regularly or often   O = on occasion   No Circle = rarely/never

Athletic & Sports Activities:

R O	Aerobics	R O	Hiking	R O	Skiing (X-Country)
R O	Basketball	R O	Horseback Riding	R O	Softball/Baseball
R O	Bicycling	R O	Hunting	R O	Swimming/Diving
R O	Boating / Waterskiing	R O	Ice Skating	R O	Target Shooting
R O	Bowling	R O	Racquetball / Squash	R O	Tennis
R O	Camping	R O	Rollerblading	R O	Walking for Fitness
R O	Canoeing/Kayaking	R O	Running/Jogging	R O	Weightlifting
R O	Fishing (Angling)	R O	Sailing	R O	Yoga
R O	Flyfishing	R O	Scubadiving	R O	Exercise: _____
R O	Golf	R O	Skiing (Downhill)	R O	Other: _____

Leisure, Recreation & Hobby Activities:

R O	Antiques	R O	Electronics	R O	Pets
R O	*Art:* Painting	R O	Farm (part-time)	R O	Photography
R O	*Art:* Pottery	R O	Gambling	R O	Piloting Airplanes
R O	*Art:* _____	R O	Go to Garage Sales	R O	Quilting
R O	Astronomy	R O	Gardening	R O	R.C. Model Aircraft
R O	Go to Auctions	R O	Genealogy	R O	Reenact Historic Events
R O	work on Automobiles	R O	Go to Horse Races	R O	Manage Real-Estate
R O	Birdwatching	R O	Go to Horse Shows	R O	Repair Appliances
R O	Boardgames	R O	Home Improvement	R O	Role-Playing Games
R O	Cardgames	R O	Houseplants	R O	Sewing projects
R O	Go to Car Shows	R O	Use Internet	R O	go Shopping
R O	Chess	R O	Investing	R O	Shortwave Radio
R O	*Collect:* Coins	R O	Make Jewelry	R O	Go to Sports Events
R O	*Collect:* Stamps	R O	Knitting / Crocheting	R O	Theatre / Acting
R O	*Collect:* _____	R O	Model Railroads	R O	Travel
R O	Play Computer Games	R O	Models / Miniatures	R O	Woodworking
R O	Cooking	R O	Motorcycling	R O	Writing Fiction
R O	Crafts	R O	*Music:* Instrument	R O	Writing Poetry
R O	Dance	R O	*Music:* Sing Vocals	R O	Other: _____
R O	Dining Out	R O	*Music:* _____	R O	Other: _____

IF you are a FAN of sports or sports teams, please list your favorite sports and teams:

    sports: _____

    sports teams: _____

IF you GO TO SPORTS EVENTS, please list the types of sports events you usually attend:

    sports events: _____

IF you DANCE often, please list the styles of dancing that you do:

    styles of dance: _____

IF you play an INSTRUMENT or SING, list the styles of music you sing or play and instruments you play:

    styles of music: _____

    musical instruments: _____

IF you have PETS, please list the types of pets you have (e.g. goldfish, irish setter) :

    pets: _____

The next few questions ask about products you may use, your food, clothing, and furniture. Your answers will be used only for academic research. No business will have access to them.

10. Products : How often do you consume each of these products?

3 = 3 or more times daily   D = daily /almost daily   R = regularly or often
If the product is something you do not use or use only once in a great while, do not circle anything.

3 D R	cup of coffee	3 D R	bottled water
3 D R	cup of tea	3 D R	soft drink / soda / pop
3 D R	cigarette	3 D R	bottle of beer
3 D R	pipe tobacco	3 D R	glass of wine / champagne
3 D R	cigar	3 D R	mixed drink / cocktail
3 D R	chewing tobacco	3 D R	shot of liquor
3 D R	gum / candy / candybar	3 D R	other: _____

IF you use these products, please list the names of the brands you use most often:

cigarettes: _____

beer: _____

soft drinks: _____

11. Eating : What kinds of food & drink do you typically eat at each meal?

typical breakfast: _____

typical lunch: _____

typical dinner: _____

What are your favorite foods? *(include snacks, desserts, and drinks)*

favorite foods: _____

12. Clothing : Where do you get the clothing that you wear? *(check all that apply)*

☐ mail order catalogs ☐ local stores in or near [Tyboro]
☐ second-hand or thrift shops ☐ stores in [Nearby Places] or at a mall
☐ made them yourself ☐ from a tailor
☐ factory outlet stores ☐ rummage sales / garage sales
☐ other: _____ ☐ other: _____

IF you get clothing from catalogs or stores, please list the ones you use most often:

mail order catalogs: _____

local stores: _____

other stores: _____

12a. Clothing : What do you typically wear at work? *(include clothes, footwear, jewelry, etc.)*

work clothes: _____

12b. Clothing : What do you usually wear around town? *(include clothes, footwear, jewelry, etc.)*

everyday clothes: _____

13. Furniture : Where do you get furniture for your home? *(check all that apply)*

Please write the word MOST next to the place where you get most of your furniture.

☐ mail order catalogs		☐ furniture stores	
☐ second-hand or thrift shop s		☐ antiques stores / estate auctions	
☐ made it yourself		☐ department stores	
☐ custom-made by craftsman		☐ rummage sales / garage sales	
☐ inherited / received as gift		☐ other: _____	

IF you get furniture by mail or from stores, please list the catalogs and stores you use:

mail order catalogs: _____

furniture stores: _____

department stores: _____

14. Furniture & Technology: Which items do you have at your house? *(check all that apply)*

☐ bookshelves	☐ file cabinet	☐ hot tub
☐ formal dining table	☐ piano	☐ answering machine
☐ computer	☐ cellular telephone	☐ dishwasher
☐ camera	☐ videogames	☐ rifle / shotgun / pistol
☐ woodstove	☐ CD player	☐ VCR / videodisc player
☐ CB radio / scanner	☐ videocamera	☐ microwave oven

15. Vehicles : Do you have a car, truck, motorcycle, or RV camper that you drive?

IF YES, please list the make, model, and year of the vehicles you have that you usually drive:

_____

_____

**The next questions ask about places you may visit and stores which you may go to often.
Your answers will be used only for academic research.   No business will have access to them.**

16. Travel Destinations : How often do you travel to each of these places?

R = regularly or often   O = on occasion   No Circle = never go to

R O	[Nearby Urban Area #1]		R O	[Nearby Urban Area #1]
R O	[State Capital]		R O	New York City
R O	Toronto		R O	North Carolina / South Carolina
R O	Washington, DC		R O	Florida

What other U.S. and foreign places do you travel to?

Places I have been to many times: _____

Places I have been to on occasion: _____

_____

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17. Banks, Stores, and Restaurants : How often do you go to each of these places?

    D = daily/almost daily   R = regularly or often   O = on occasion

    If the place is somewhere you never or very rarely go, do not circle anything.

Banks:

D R O	[Tyboro National] Bank	D R O [County] Trust
D R O	[Chain] Bank	D R O [...] Credit Union [#2]
D R O	[...] Credit Union [#1]	D R O Other: _____

Grocery and Drugstores:

D R O	[Discount Grocery]	D R O [Chain Grocery #2]
D R O	[Chain Grocery #1]	D R O [Lake Convenience]
D R O	[Downtown Convenience]	D R O any other convenience mart
D R O	[Next Town Grocery Chain]	D R O [Next Town Discount Grocery]
D R O	[Drug Chain #1]	D R O [Drug Chain #3]
D R O	[Drug Chain #2]	D R O Other: _____

Restaurants and Taverns:

D R O	any fast food restaurant	D R O [Chain Steak] Restaurant
D R O	[Italian] Restaurant	D R O [Downtown Diner]
D R O	[...] Mexican Restaurant	D R O [...] Chinese Restaurant
D R O	[Upscale Local Restaurant]	D R O [B&B Village Inn]
D R O	[Next Town Upscale Restaurants]	D R O [...] Family Restaurant [#2]
D R O	[Family] Restaurant [#1]	D R O [Rural Country Inn]
D R O	[Burger Stand]	D R O [Short Order: Soup & Salad]
D R O	[...] Coffee House	D R O [Donut Chain]
D R O	[...] Bakery	D R O [...] Truckstop
D R O	[Lakeside Dining Restaurants]	D R O [Hotel Italian] Restaurant
D R O	[Downtown Sportsbar]	D R O [Roadside Sportsbar]
D R O	[Downtown Tavern]	D R O [Rustic Bar]
D R O	[Out of Town] Saloon	D R O [Seedy Bar #2]
D R O	[Seedy Bar #1]	D R O Other: _____

Other Stores & Services:

D R O	[Feed Co-op]	D R O [Feed Store]
D R O	[Hardware & Lumber #1]	D R O [Tyboro] Plumbing & Hardware
D R O	[Hardware & Lumber #2]	D R O [Chain Hardware]
D R O	Kmart	D R O [Regional] Mall
D R O	Walmart[Next Town]	D R O [Out of Town Regional Chain Dept. Store]
D R O	shops [in Downtown Tyboro]	D R O shops in [Nearby Town #1]
D R O	shops [in Nearby Town #2]	D R O any drycleaner
D R O	any florist	D R O any laudrymat
D R O	[Rent to Own]	D R O [Gun & Sporting Goods]
D R O	[Downtown] Bowling	D R O [Out of Town] Bowling
D R O	[In Town Cinema]	D R O [Out of Town Cinema]
D R O	Other: _____	D R O Other: _____

18. In your Opinion : Is it a good idea to build a recreation center in [Tyboro]?

_____

_____

If yearly memberships for a recreation center cost $300-$350, would you be a member?

_____

_____

19. Local Places : How often do you usually go to each of these places?

D = daily/almost daily   R = regularly or often   O = on occasion

If the place is somewhere you never or very rarely go, do not circle anything.

D R O [Downtown Tyboro]	D R O County Office Bldg.
D R O [Tyboro] Post Office	D R O [Tyboro Nature] Park
D R O [Tyboro] Library	D R O […]
D R O [Senior] Apartments	D R O [Tyboro High School]
D R O [Tyboro] County Fair (seasonal)	D R O [Tyboro] Country Club Golf Course
D R O any benefit or fundraiser dinner	D R O [Next Town] Skating Rink (seasonal)
D R O YMCA [Next Town]	D R O [Nearby Town #1]
D R O [Nearby Town #3]	D R O [Nearby Town #2]

20: Social Network : Have you ever thought about how your life is linked to the lives of other people in the [Tyboro] area and around the world? One goal of this survey is to better understand what the pattern of these links look like for a town, [Tyboro]. To see that, we need to ask you to list the names of people in your life – your social network. Then we will combine your network with those of other area residents by matching the names of people you list with those listed by others. To allow us to do this, we ask you to please list FULL NAMES. Once we have a "picture" of the social network, the names will be erased and the original paper surveys will be destroyed to ensure confidentiality. Like the rest of the survey, the names you list are strictly confidential and will be used only for this research. No business or salesperson will have access to these names.

On Answer Form I, please list the NAMES of persons IF they either:

A) are someone you see, talk with, or interact with daily or every few days,

OR…   **B) are a significant person in your life, even if you interact with them less often.**

You should only list living persons age 18 or older.
No person should be listed more than once.
Please list FULL NAMES so we can match names listed by more than one person.
At this point please just list names, Question 21 will cover the rest of Answer Form I.

These steps may help you think of the names of people you should list:

1. List **your name** in the first row
2. List **family** and **people who live in your home**. *Examples: spouse, son, daughter, mother, father*
3. List other **family** members and **relatives** who should be listed. *Example: sister, brother*
4. List people **at work** or **school** who should be listed. *Examples: boss, coworker, secretary*
5. List people with whom you have **personal business** who should be listed.
      Examples: tenant, landlord, business associates, maid, handyman, merchant, physician
6. List people **at church**, **clubs**, and other **groups** who should be listed.
7. List **friends** and **neighbors** who should be listed.
8. Review the list for **anyone** who should be listed that you may have **missed**, and list them.

When you are done listing persons, please also list **groups** of people **IF** they are important in your life as a group even if no member of the group is important enough to list individually, **OR** you interact with the group members regularly even if you do not interact with any one member often enough to list individually. *Examples: customers, clients, patients, audiences.*

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Names (See Question #20)	Where they Live (See Q #21)	Sex	Contact	Relationship (See Q #21)	Interactions (See Q #21)
S		M F		Me	
1		M F	D R O		
2		M F	D R O		
3		M F	D R O		
4		M F	D R O		
5		M F	D R O		
6		M F	D R O		
7		M F	D R O		
8		M F	D R O		
9		M F	D R O		
10		M F	D R O		
11		M F	D R O		
12		M F	D R O		
13		M F	D R O		
14		M F	D R O		
15		M F	D R O		
16		M F	D R O		
17		M F	D R O		
18		M F	D R O		
19		M F	D R O		
20		M F	D R O		
21		M F	D R O		
22		M F	D R O		
23		M F	D R O		
24		M F	D R O		
25		M F	D R O		
26		M F	D R O		
27		M F	D R O		
28		M F	D R O		
29		M F	D R O		
30		M F	D R O		

If you need to list more than 30 persons or groups, please list on separate sheet of paper or obtain an extra form by calling [phone number].

21: Relationships : Now please go down the names you listed on Answer Form I, and for each person please write a bit about them and your relation with them in the columns:

In the column...	Please...
WHERE THEY LIVE	write the name of the town or city where they reside
SEX	circle **M** if the person is male or **F** if the person is female.
CONTACT	circle a letter showing how often you see or talk with the person. (**D** = daily, **R** = regularly/often, **O** = on occasion)
RELATIONSHIP	describe in a word or two how the person relates to you. *Examples: Wife, Parent, Son, Boss, Neighbor, Friend, Landlord*
INTERACTIONS	write the numbers of phrases listed below that apply to your relationship with this person. **Include all that apply.**

1. I love
2. loves me
3. close friend
4. I dislike
5. dislikes me
6. we discuss things
7. Other: _____
8. Other: _____

9. helps me do projects
10. I help do projects
11. I spend free time with
12. I work with
13. (gives/pays) money to me
14. I (give/pay) money to
15. inspires me
16. Other: _____

17. (gives/sells) (goods/services) to me
18. I (give/sell) (goods/services) to
19. (gives/sells) (advice/news) to me
20. I (give/sell) (advice/news) to
21. has higher rank at work than I do
22. has lower rank at work than I do
23. I (often/sometimes) eat with
24. Other: _____

22: Demographic Questions : Please provide this demographic information about yourself...

year of birth: _____   race / ethnicity: _____
languages you know: _____

education: ☐ High School Graduate
            ☐ College Graduate: degree _____ from _____
            ☐ Law/Med/Grad School: degree _____ from _____

marital status: ☐ Married   ☐ Widowed   ☐ Divorced   ☐ Separated   ☐ Single

I have ___ children age 12 or younger.
I have ___ teenage children age 13 to 17.
I have ___ adult children age 18 or older.

annual income: *(Please use your personal income, **not** total income for family or household)*
☐ under $ 12,000   ☐ $ 12,000-$ 23,999   ☐ $ 24,000-$ 35,999   ☐ $ 36,000-$ 47,999
☐ $ 48,000-$ 59,999   ☐ $ 60,000-$ 99,999   ☐ $100,000-$199,999   ☐ $200,000 or more

value of personal assets minus debts, **not** including the value of your home:
☐ debts exceed assets   ☐ $ 0-$499,999   ☐ $500,000-$3 Million   ☐ over $3 Million

householder status:
☐ I am a homeowner   ☐ I rent my home   ☐ Other: _____

23. Art & Media Activities : How often do you do each of these activities?

D = daily /almost daily   R = regularly or often   O = on occasion

If the activity is something that you never or very rarely do, do not circle anything.

D R O	listen to radio	D R O	listen to music: CDs, tapes, etc.
D R O	read newspaper	D R O	watch television
D R O	read a magazine	D R O	send e-mail / browse the internet
D R O	read a book	D R O	talk on the telephone
D R O	go to live music performance	D R O	watch movie at theatre or rent video
R O	go to play or theatre	R O	view art in a museum, gallery
R O	visit [regional cultural attractions]	R O	visit state or national historic site

IF you listen to RADIO, please list the stations and your typical types of program:

     radio stations: _____

     types of program: _____

IF you read NEWSPAPERS or MAGAZINES, please list the ones you usually read:

     newspapers: _____

     magazines: _____

IF you read BOOKS, please list the types of books you read and your favorite authors:

     types of books: _____

     favorite authors: _____

IF you listen to MUSIC or go to LIVE MUSIC shows, please list the types of music (e.g. rock, jazz, country, gospel, classical) you prefer and your favorite musicians, performers, or groups:

     types of music: _____

     types of live music: _____

     favorite musical artists: _____

IF you WATCH TV, please list the types of TV shows you watch and your favorite shows.

     types of TV programs: _____

     favorite shows: _____

IF you WATCH MOVIES, list the types of movie you watch and favorite movies & actors.

     types of movie: _____

     favorite movies: _____

     favorite actors & actresses: _____

PLEASE list some of your favorite works of art (e.g. painting, sculpture, photos) and artists:

     favorite works of art: _____

     favorite artists: _____

Thank you for completing this survey.

If there is anything you would like to tell us, please write your comments on the lines on the front cover.

Please return this survey to: Social Network Survey, PO Box [X], [Tyboro]

APPENDIX B

2-Digit Standard Occupational Codes (SOC)

11	Management Occupations
13	Business and Financial Operations Occupations
15	Computer and Mathematical Occupations
17	Architecture and Engineering Occupations
19	Life, Physical, and Social Science Occupations
21	Community and Social Services Occupations
23	Legal Occupations
25	Education, Training, and Library Occupations
27	Arts, Design, Entertainment, Sports, and Media Occupations
29	Healthcare Practitioners and Technical Occupations
31	Healthcare Support Occupations
33	Protective Service Occupations
35	Food Preparation and Serving Related Occupations
37	Building and Grounds Cleaning and Maintenance Occupations
39	Personal Care and Service Occupations
41	Sales and Related Occupations
43	Office and Administrative Support Occupations
45	Farming, Fishing, and Forestry Occupations
47	Construction and Extraction Occupations
49	Installation, Maintenance, and Repair Occupations
51	Production Occupations
53	Transportation and Material Moving Occupations
55	Military Specific Occupations

APPENDIX C1

Access Tables used to Calculate Relation Type Equivalence Scores

Net	Each record is an existing relation in the network. Fields include the MasterID of the ego and alter as MastEgo and MastAltr respectively, frequency of contact, relation type, whether relation is to group, has underage alter, is imputed, whether both persons were survey respondents, and whether both residents of Tyboro. Indexed on ID.
Nukey	Listing the MasterID of each person in the dataset, gender, geographic location and indicating whether they completed the network portion of the survey and the survey generally. Was input for creating many other tables. Indexed on ID1 and MasterID1.
Respondents	Version of Nukey that includes only survey respondents.
RelTypes	A very short key to the relationship types, used in one or more modules. Indexed on RelNo and RelType.
AAA BBB	Reduced versions of Nukey that simply list each person in the dataset as a MasterID. Used to calculate equivalence. Indexed on MasterId.
NuNetRel NuNetRel2	Augmented version of Net, with Access ID numbers added for MastEgo and MastAltr from AAA, and relations categorized by numerical code. Created using queries NuNetRelUpdat1 and NuNetRelUpdat2. Query NuNetErrFalse is run to set the error field in each record of NuNetRel to 0 and query NuNetErrTrue1 is run to set the error field in each record of NuNetRel to -1 where there are underage, group, or imputed relations. Has four indexes: (1) ID1, (2) NetRelID, (3) AltGrp (combining ID2, RelNo, and Err) and (3) AltEgo (combining ID1, RelNo, and Err).
Inx	List of all the incoming relationship <u>types</u> for each person, used in computing Equivalence Scores for EQS. N^1=13725 N^2=19604 No index.
Out	List of all the outgoing relationship <u>types</u> for each person, used in computing Equivalence Scores for EQS. N^1=5318 N^2=12703 No index.
BothIn	List of dyads in which both persons had incoming relations of the same type, or in other words all the incoming relation <u>types</u> for which both persons had relations of that type. N^1=12,275,000 N^2=22,488,931 (half-matrix) Indexed on Bothid, a multi-field index of ID1, ID2, and RelNo.

BothOut	List of dyads in which both persons had incoming relations of the same type, or in other words all the incoming relation <u>types</u> for which both persons had relations of that type. N^1=991,191 N^2=12,349,410 (half-matrix) Indexed on Bothid, a multi-field index of ID1, ID2, and RelNo.
SharAlt	Count of incoming relation <u>types</u> which both persons share, it is the count version of Table: BOTHIN, from which it derives. N^1=11,997,556 N^2=18,549,113 (half-matrix) Indexed on BothIds, an index of ID1, ID2.
SharEgo	Count of outgoing relation <u>types</u> which both persons share, it is the count version of Table: Table: BOTHOUT, from which it derives. N^1=991,191 N^2=9,853,112 (half-matrix) Indexed on BothIds, an index of ID1, ID2.
CountIn	Count of the incoming relation types for each person. Count version of Inx from which it derives. Used to calculate Relation Type Equivalences. Indexed on ID1.
CountOut	Count of the outgoing relation types for each person. Count version of Out from which it derives. Used to calculate Relation Type Equivalences. Indexed on ID1
EQS	Primary output table. Relation Type Equivalence scores for each pair of persons in the data set, iterations 1 thru 4. Respond field subsequently added to indicate whether both were survey respondents. This table was moved to JustEQS and linked back to the main dbf because it was too big to keep this file and still run the module. N=63,343,141 (half-matrix)
EQ100TTT	Extract of EQS with only those dyads that are both survey respondents. N=724,206 (half-matrix)

APPENDIX C2

Access Queries used to Calculate Relation Type Equivalence Scores

NuNetRelUpdate	Query used to suck Access ID numbers for alters into NuNetRel.
NuNetErrFalse	Initializes all the error values of Table: NuNet as zero, i.e. false.
NuNetErrTrue NuNetErrTrue2	Marks the error values of NuNet as one, i.e. true, wherever involves underage, group, or imputed relations. These are not true errors, but used to distinguish from relations with legitimate adult persons. NuNetErrTrue2 is modified version used for with-imputed run.
EithRelTypAlt EithRelTypEgo	Counted the marginal total of relation <u>types</u> had by each person for incoming and outgoing relations, stored in Inx and Out respectively.
BothRelTypeAlt BothRelTypeEgo	Used Inx and Out (respectively) joined with itself to create lists of all dyads (half matrix ID1≤ID2) in which both had incoming or both had outgoing (respectively) relations, for each relation type. Data was output to BothIn and BothOut (respectively).
AsEgoEQInitialize AsAltEQInitialize	Short SQL Queries used to set the AsEgoEQ field of BothOut and the AsAltEQ field of BothIn to 100 (i.e. unity).
CntTypeAltShare CntTypeEgoShare	Count the shared relation types of dyads from BothIn and BothOut to ShareAlt and ShareEgo respectively. The two queries cover the "both have" quadrant of the 2x2 table.
InCount OwtCount	Count number of relation types for which there were incoming or outgoing relations, respectively to CountIn and CountOut, covering the "Ego has" and "Alter has" marginal totals of the 2x2 table.
UpBIn# UpBOut#	Numbered 2-4 by iteration. Subordinate queries called from within VBA module to update scores in BothIn and BothOut using the results from a prior iteration to initialize the next iteration.
EQSInitialize	Short SQL select query creates initial framework for EQS from the AAA and BBB Respond T/F field is added later by ReduceEQS.
EQSOnes	Initializes EQS with 100 to start, and zeros the fields in which equivalence score calculations from each iteration are later stored.
EQS Query	Select just respond = .true. records from EQS into EQ100TTT

APPENDIX C3

Sequence of Steps to Calculate Relation Type Equivalence Scores

Begin with Tables: Net, NuKey, and RelType

Tables: AAA and BBB are copies of NuKey, stripped down to just be ID and MasterID.

Table: NuNetRel is a copy of Net, with Access ID1 and ID2 added for MastEgo and MastAltr from Table: AAA using Queries: NuNetRelUpdat1 and NuNetRelUpdat2.

Table: NuNetRel2 is a copy of NuNetRel.

Query: NuNetErrFalse is run to set the error field in each record of NuNetRel to 0 (false).
Query: NuNetErrTrue1 is run to set the error field in each record of NuNetRel to -1
(True), where underage, group relation, or imputed* relations are involved.
[Subsequent calculation where imputed relations are included use NuNetErrTrue2]

Query: qryEithRelTypAlt is run to select distinct ID number & relation type combos into
Table: Inx for legitimate relations where each record is an alter with a given relation type.
Query: qryEithRelTypEgo is run to select distinct ID number & relation type combos into
Table: Out for legitimate relations where each record is an ego with a given relation type.

Query: qryBothRelTypeAlt is run to identify pairs of alters for the same relation types
(i.e. dyads who both have a particular relation type incoming). Create Table: BothIn.
Query: qryBothRelTypeEgo is run to identify pairs of egos for the same relation types
(i.e. dyads who both have a particular relation type outgoing). Create Table: BothOut.

AsEgoEQ field was added to BothOut and AsAltEQ field was added to BothIn. These are
used in the relation type equivalence scores (EQS).

Index Bothids, a multi-field index on ID1, ID2, and Relno, was created for Table:BothIn
and TableBothOut

Query: AsEgoEQInitialize and Query: AsAltEQInitialize were run to set the AsEgo field
of Table:BothOut and the AsAltEQ field of Table:BothIn to 100 (i.e. unity).

Query: qryCntTypeAltShare and Query: qryCntTypeEgoShare were run to create
Table:SharAlt and Table:SharEgo, which represent the count of relation types in the
"Both Have" cell of the 2x2 table, used in calculating relation type equivalence.

Index BothIds, a multi-field index on ID1, ID2 was created for Table:SharAlt and
Table:SharEgo.

Query:InCount and Query:OwtCount were run to get counts of incoming and outgoing relations for each alter and ego in Table:CountIn and Table:CountOut.

Query: EQSInitialize was run to create the Table:EQS framework.

Table:EQS was moved to a separate database, File:JustEQS, to allow enough memory for computation when the cellcount module is run, and a link was established to the EQS table from within File:TyMostStuff.

Query: EQSOnes was run to put 100 (i.e. 1 unity) in the initial EQS field and zeros in the fields for subsequent iterations.

The EQS calculating module was run. This took multiple days on a PC.

The module for marking and extracting respondent dyads was run.

APPENDIX C4

Access Visual Basic Algorithm for Calculating Equivalence Scores

```
Public Sub AltCalcEQ()
    ' June 11 2002 - Blyden tries again to combine a select method that is fast by overly memory intensive
    ' with an algorithm method (now written in this visual basic module) that is memory-friendly but
    ' unbearably slow to find something that works in a timely fashion within current HD constraints.
    ' June 13 - prior program works and is fast BUT runs into database size limit updating EQS
    ' so Blyden now tries to edit it so that the everything but the EQS file is in a separate location.

    Dim dbTyboro As DAO.Database
    Dim dbOther As DAO.Database
    Dim rcdEQS As DAO.Recordset
    Dim rcdNuNetRel As DAO.Recordset
    Dim rcdRelNuNet As DAO.Recordset
    Dim rcdBothIn As DAO.Recordset
    Dim rcdBothOut As DAO.Recordset
    Dim rcdCountIn As DAO.Recordset
    Dim rcdCountOut As DAO.Recordset
    Dim rcdInx As DAO.Recordset
    Dim rcdOut As DAO.Recordset
    ' dimension the tables - EQS will come out of the JustEQS database, others from TyMostStuff

    Dim bytIteration As Byte
    Dim bytRelation As Byte
    Dim intID1 As Integer
    Dim intID2 As Integer
    Dim intRNNID1 As Integer
    Dim intNNRID1 As Integer
    Dim intRNNID2 As Integer
    Dim intNNRID2 As Integer
    Dim sglTmpEQ(25) As Single
    Dim sglTmpEQ1 As Single
    Dim sglTmpEQ2 As Single
    Dim sglSumEQ As Single
    Dim bytCnt1 As Byte
    Dim bytCnt2 As Byte
    Dim bytCnt3 As Byte
    Dim sglMover As Single
    Dim strSQL1 As String
    Dim strSQL2 As String
    ' dimension the variables used in the program

    Set dbOther = DBEngine(0).OpenDatabase("JustEQS.mdb")
    Set rcdEQS = dbOther.OpenRecordset("EQS", dbOpenTable, dbInconsistent, dbPessimistic)
    ' open JustEQS as dbOther and open the giant EQS table from that database

    Set dbTyboro = DBEngine(0).OpenDatabase("C:\Documents and Settings\Blyden Potts\My
Documents\TyMostStuff.mdb")
    Set rcdInx = dbTyboro.OpenRecordset("Inx", dbOpenTable, dbInconsistent, dbPessimistic)
    Set rcdOut = dbTyboro.OpenRecordset("Out", dbOpenTable, dbInconsistent, dbPessimistic)
    Set rcdSharAlt = dbTyboro.OpenRecordset("SharAlt", dbOpenTable, dbConsistent, dbPessimistic)
    Set rcdSharEgo = dbTyboro.OpenRecordset("SharEgo", dbOpenTable, dbConsistent, dbPessimistic)
```

```
Set rcdBothIn = dbTyboro.OpenRecordset("BothIn", dbOpenTable, dbInconsistent, dbPessimistic)
Set rcdBothOut = dbTyboro.OpenRecordset("BothOut", dbOpenTable, dbInconsistent, dbPessimistic)
Set rcdCountIn = dbTyboro.OpenRecordset("CountIn", dbOpenTable, dbInconsistent, dbPessimistic)
Set rcdCountOut = dbTyboro.OpenRecordset("CountOut", dbOpenTable, dbInconsistent, dbPessimistic)
Set rcdNuNetRel = dbTyboro.OpenRecordset("NuNetRel", dbOpenTable, dbConsistent, dbPessimistic)
Set rcdRelNuNet = dbTyboro.OpenRecordset("NuNetRel", dbOpenTable, dbConsistent, dbPessimistic)
'open TyMostStuff as dbTyboro and open the various tables need from that database

For bytIteration = 1 To 4
' we are going to do four iterations, EQ numbers 2 thru 5
    rcdEQS.MoveFirst
    ' start at the first record of EQS and then go through every record until we reach EOF
    Do
        ' Go thru each record (dyad) in the EQS recordset
        intID1 = rcdEQS![ID1]
        intID2 = rcdEQS![ID2]
        ' set these two variables equal to the IDs of the EQS record (i.e. a dyad)
        sglTmpEQ1 = 0
        bytCnt1 = 0
        ' set the temporary EQ calculation for OUT and count of weighted shared relationship
        ' types for OUT to zero
        rcdSharEgo.Index = "BothIDs"
        rcdSharEgo.Seek "=", intID1, intID2
        If (rcdSharEgo.EOF = True Or rcdSharEgo.NoMatch = True) Then
            bytCnt1 = 0
            ' if they do not have any shared types set this part of score to zero
        Else
            For bytRelation = 1 To 25
                sglTmpEQ(bytRelation) = 0
            Next bytRelation
            ' if they have shared relation types set temp EQ array for each type to zero prior to calculating
            rcdBothOut.Index = "BothIDs"
            rcdBothOut.Seek "=", intID1, intID2
            ' find types they both share OUT
            Do
                ' determine MaxEQ of any pair of alters for each type egos share and score type by MaxEQ
                bytRelation = rcdBothOut![Relno]
                rcdNuNetRel.Index = "EgoGrp"
                rcdNuNetRel.Seek "=", intID1, bytRelation, 0
                Do
                    rcdRelNuNet.Index = "EgoGrp"
                    rcdRelNuNet.Seek "=", intID2, bytRelation, 0
                    Do
                        intRNNID2 = rcdRelNuNet![ID2]
                        intNNRID2 = rcdNuNetRel![ID2]
                        Select Case intNNRID2
                            ' use higher-to-lower alter ids to look for AsAltEQ
                            Case Is <= intRNNID2
                                rcdBothIn.Index = "BothIDs"
                                rcdBothIn.Seek "=", intRNNID2, intNNRID2, bytRelation
                                sglMover = rcdBothIn![ASALTEQ] / 100
                                If sglTmpEQ(bytRelation) < sglMover And Not rcdBothIn.EOF Then
                                    sglTmpEQ(bytRelation) = sglMover
                                End If
                            Case Is > intRNNID2
                                rcdBothIn.Index = "BothIDs"
```

```
                rcdBothIn.Seek "=", intNNRID2, intRNNID2, bytRelation
                sglMover = rcdBothIn![ASALTEQ] / 100
                If sglTmpEQ(bytRelation) < sglMover And Not rcdBothIn.EOF Then
                    sglTmpEQ(bytRelation) = sglMover
                End If
            End Select
            rcdRelNuNet.MoveNext
            If rcdRelNuNet.EOF = True Then
                Exit Do
            End If
        Loop Until (Not (rcdRelNuNet![ID1] = intID2) Or Not (rcdRelNuNet![Relno] =
bytRelation))
            rcdNuNetRel.MoveNext
            If rcdNuNetRel.EOF = True Then
                Exit Do
            End If
        Loop Until (Not (rcdNuNetRel![ID1] = intID1) Or Not (rcdNuNetRel![Relno] = bytRelation))
        rcdBothOut.MoveNext
        If rcdBothOut.EOF = True Then
            Exit Do
        End If
    Loop Until (Not (rcdBothOut![ID1] = intID1) Or Not (rcdBothOut![ID2] = intID2))
    sglTmpEQ1 = 0
    For bytRelation = 1 To 25
        sglTmpEQ1 = sglTmpEQ1 + sglTmpEQ(bytRelation)
    Next bytRelation
    ' add up the max weights of each relationship type for a total weighted score
    ' for the shared types quadrant of the original dyad
    bytCnt1 = Int(sglTmpEQ1)
End If
bytCnt2 = 0
rcdCountOut.Index = "ID1"
rcdCountOut.Seek "=", intID1
If (rcdCountOut.EOF = True Or rcdCountOut.NoMatch = True) Then
    bytCnt2 = 0
Else
    bytCnt2 = rcdCountOut![SumOutTypes]
End If
' read the total number of OUT types for first person, then second person
bytCnt3 = 0
rcdCountOut.Index = "ID1"
rcdCountOut.Seek "=", intID2
If (rcdCountOut.EOF = True Or rcdCountOut.NoMatch = True) Then
    bytCnt3 = 0
Else
    bytCnt3 = rcdCountOut![SumOutTypes]
End If
sglTmpEQ1 = (25 - bytCnt2 - bytCnt3 + (2 * bytCnt1))
' OUT EQ score is sum of types they both don't have plus weighting of types they both have

sglTmpEQ2 = 0
bytCnt1 = 0
' set the temporary EQ calculation for IN and count of weighted shared relation types to zero
rcdSharAlt.Index = "BothIDs"
rcdSharAlt.Seek "=", intID1, intID2
If (rcdSharAlt.EOF = True Or rcdSharAlt.NoMatch = True) Then
```

```
            bytCnt1 = 0
        Else
          For bytRelation = 1 To 25
             sglTmpEQ(bytRelation) = 0
          Next bytRelation
          rcdBothIn.Index = "BothIDs"
          rcdBothIn.Seek "=", intID1, intID2
          Do
             ' determine MaxEQ of any pair of egos for each type alter share and score type by that MaxEQ
             bytRelation = rcdBothIn![Relno]
             rcdNuNetRel.Index = "AltGrp"
             rcdNuNetRel.Seek "=", intID1, bytRelation, 0
             Do
                rcdRelNuNet.Index = "AltGrp"
                rcdRelNuNet.Seek "=", intID2, bytRelation, 0
                Do
                   intRNNID1 = rcdRelNuNet![ID1]
                   intNNRID1 = rcdNuNetRel![ID1]
                   Select Case intNNRID1
                      ' use higher-to-lower alter ids to look for AsAltEQ
                      Case Is <= intRNNID1
                         rcdBothOut.Index = "BothIDs"
                         rcdBothOut.Seek "=", intRNNID1, intNNRID1, bytRelation
                         sglMover = rcdBothOut![ASEGOEQ] / 100
                         If sglTmpEQ(bytRelation) < sglMover And Not rcdBothOut.EOF Then
                            sglTmpEQ(bytRelation) = sglMover
                         End If
                      Case Is > intRNNID1
                         rcdBothOut.Index = "BothIDs"
                         rcdBothOut.Seek "=", intNNRID1, intRNNID1, bytRelation
                         sglMover = rcdBothOut![ASEGOEQ] / 100
                         If sglTmpEQ(bytRelation) < sglMover And Not rcdBothOut.EOF Then
                            sglTmpEQ(bytRelation) = sglMover
                         End If
                   End Select
                   rcdRelNuNet.MoveNext
                   If rcdRelNuNet.EOF = True Then
                      Exit Do
                   End If
                Loop Until (Not (rcdRelNuNet![ID2] = intID2) Or Not (rcdRelNuNet![Relno] =
bytRelation))
                rcdNuNetRel.MoveNext
                If rcdNuNetRel.EOF = True Then
                   Exit Do
                End If
             Loop Until (Not (rcdNuNetRel![ID2] = intID1) Or Not (rcdNuNetRel![Relno] = bytRelation))
             rcdBothIn.MoveNext
             If rcdBothIn.EOF = True Then
                Exit Do
             End If
          Loop Until (Not (rcdBothIn![ID1] = intID1) Or Not (rcdBothIn![ID2] = intID2))
          sglTmpEQ2 = 0
          For bytRelation = 1 To 25
             sglTmpEQ2 = sglTmpEQ2 + sglTmpEQ(bytRelation)
          Next bytRelation
          bytCnt1 = Int(sglTmpEQ2)
```

```
      End If
      bytCnt2 = 0
      rcdCountIn.Index = "ID1"
      rcdCountIn.Seek "=", intID1
      If (rcdCountIn.EOF = True Or rcdCountIn.NoMatch = True) Then
         bytCnt2 = 0
      Else
         bytCnt2 = rcdCountIn![SumInTypes]
      End If
      ' read the total number of IN types for first person, then second person
      bytCnt3 = 0
      rcdCountIn.Index = "ID1"
      rcdCountIn.Seek "=", intID2
      If (rcdCountIn.EOF = True Or rcdCountIn.NoMatch = True) Then
         bytCnt3 = 0
      Else
         bytCnt3 = rcdCountIn![SumInTypes]
      End If
      sglTmpEQ2 = (25 - bytCnt2 - bytCnt3 + (2 * bytCnt1))
      ' IN EQ score is sum of types they both don't have plus weighting of types they' both have
      sglSumEQ = sglTmpEQ1 + sglTmpEQ2
      ' sum the IN and OUT, and update the EQ score for the pair
      rcdEQS.Edit
      Select Case bytIteration
         Case 1
            rcdEQS![EQ2] = Int(sglSumEQ * 2)
         Case 2
            rcdEQS![EQ3] = Int(sglSumEQ * 2)
         Case 3
            rcdEQS![EQ4] = Int(sglSumEQ * 2)
         Case 4
            rcdEQS![EQ5] = Int(sglSumEQ * 2)
      End Select
      rcdEQS.Update
      ' then on to the next EQS record
      rcdEQS.MoveNext
   Loop Until rcdEQS.EOF
   ' having done all EQS records for a given iteration we update BothIn and BothOut
   ' EQ scores, use queries to reset the AsEgoEQ and AsAltEQ and and then go on to next iteration
   DoCmd.SetWarnings (False)
   Select Case bytIteration
      Case 1
         DoCmd.OpenQuery "qryUpBIn2"
         DoCmd.OpenQuery "qryUpBOut2"
      Case 2
         DoCmd.OpenQuery "qryUpBIn3"
         DoCmd.OpenQuery "qryUpBOut3"
      Case 3
         DoCmd.OpenQuery "qryUpBIn4"
         DoCmd.OpenQuery "qryUpBOut4"
   End Select
   DoCmd.SetWarnings (True)
  Next bytIteration

End Sub
```

APPENDIX C5

Access Visual Basic Algorithm for Marking Respondent Dyads

```
Public Sub ReduceUsedEQ()
    ' July 1 2002 - Blyden writes routine to designate just those EQS records that refer to
    ' pairs of survey respondents

    Dim dbTyboro As DAO.Database
    Dim dbOther As DAO.Database
    Dim rcdEQS As DAO.Recordset
    Dim rcdResp1 As DAO.Recordset
    Dim rcdResp2 As DAO.Recordset
    Dim intID1 As Integer
    Dim intID2 As Integer
    Dim blnResp As Boolean

    Set dbOther = DBEngine(0).OpenDatabase("C:\Documents and Settings\Blyden Potts\My
Documents\JustEQSnoimputed.mdb")
    Set rcdEQS = dbOther.OpenRecordset("EQS", dbOpenTable, dbInconsistent, dbPessimistic)
    Set dbTyboro = DBEngine(0).OpenDatabase("TyMostStuff.mdb")
    Set rcdResp1 = dbTyboro.OpenRecordset("Respondents", dbOpenTable, dbInconsistent, dbPessimistic)
    Set rcdResp2 = dbTyboro.OpenRecordset("Respondents", dbOpenTable, dbInconsistent, dbPessimistic)

    rcdEQS.MoveFirst
    Do
        ' Go thru each record (dyad) in the EQS recordset
        intID1 = rcdEQS![ID1]
        intID2 = rcdEQS![ID2]
        rcdResp1.Index = "PrimaryKey"
        rcdResp1.Seek "=", intID1
        If (rcdResp1.EOF = True Or rcdResp1.NoMatch = True) Then
            ' if person 1 is not a respondent, mark EQS![respond] as false
            blnResp = CBool(0)
        Else
            rcdResp2.Index = "PrimaryKey"
            rcdResp2.Seek "=", intID2
            If (rcdResp2.EOF = True Or rcdResp2.NoMatch = True) Then
                ' if person 2 is not a respondent, mark EQS![respond] as false
                blnResp = CBool(0)
            Else
                ' if both persons are respondents, mark EQS![respond] as true
                blnResp = CBool(1)
            End If
        End If
        ' effect the change in mark EQS![respond] with edit and update
        rcdEQS.Edit
        rcdEQS![Respond] = blnResp
        rcdEQS.Update
        ' then on to the next EQS record
        rcdEQS.MoveNext
    Loop Until rcdEQS.EOF

End Sub
```

BIBLIOGRAPHY

BIBLIOGRAPHY

Abelson, Robert P.. 1979. "Social Clusters and Opinion Clusters", Chapter 13 in Paul W. Holland and Samuel Leinhardt, editors, *Perspectives on Social Network Research*, p.239-256. London: Academic Press.

_____. 1981. "Psychological status of the script concept". *American Psychologist*, 36(7): 715-729.

Aldenderfer, Mark S., and Roger K. Blashfield. 1984. *Cluster Analysis*. Sage University Paper series on Quantitative Applications in the Social Sciences, No. 44. Newbury Park and London, UK: Sage Publications.

Anderson, Benedict. 1983. *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. London: Verso.

Axelrod, Robert M. 1994. "Modeling the Emergence of Culture: A Complex Adaptive Systems Approach". ICOS Seminar Series, September 23, 1994. Ann Arbor, Michigan: University of Michigan, Interdisciplinary Committee on Organizational Studies.

_____. 1997. "The Dissemination of Culture". *Journal of Conflict Resolution*, 41(2):203-226.

Baker, Wayne E.. 2000. *Achieving Success Through Social Capital: Tapping the Hidden Resources in Your Personal and Business Networks*. San Francisco: Jossey-Bass.

Bandura, Albert. 1974. *Social Learning Theory*. Englewood Cliffs, NJ: Prentice-Hall.

Barabási, Albert-László. 2002. *Linked: The New Science of Networks*. Cambridge, MA: Perseus Publishing.

Barnes, John A.. 1954. "Class and Committees in a Norwegian Island Parish". *Human Relations* 7(1):39-58.

_____. 1969. "Networks and Political Process", Chapter Two in J. Clyde Mitchell, editor, *Social Networks in Urban Situations*. Manchester University Press.

_____. 1972. *Social Networks*. Reading, Massachusetts: Addison-Wesley.

Becker, Gary S.. 1964. *Human Capital*: *A Theoretical and Empirical Analysis, with Special Reference to Education*. New York: National Bureau of Economic Research.

Bell, Colin, and Howard Newby. 1971. *Community Studies*. London, UK: George Allen & Unwin.

Bennett, Tony, Michael Emmison, and John Frow. 1999. *Accounting For Tastes: Australian Everyday Cultures*. Cambridge University Press.

Berger, Peter L., and Thomas Luckmann. 1990. *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. [Originally published 1966]. New York: Anchor Books.

Bernard, H. Russell, Eugene C. Johnsen, Peter D. Killworth, and Scott Robinson. 1991. "Estimating the Size of an Average Personal Network and of an Event Subpopulation: Some Empirical Results". *Social Science Research*, 20(2): 109-121.

Berscheid, Ellen, Mark Snyder, and Allen M. Omoto. 1989. "The Relationship Closeness Inventory". *Journal of Personality and Social Psychology*. 57(5):792-807.

Blau, Peter M., and Otis Dudley Duncan. 1967. *The American Occupational Structure.* New York: The Free Press.

Bochner, Stephen, Eloise A. Buker, and Beverly M. McLeod. 1976. "Communication Patterns in an International Student Dormitory: A Modification of the Small World Method". *Journal of Applied Social Psychology*, 6(3):275-290.

Boorman, Scott A., and Harrison C. White. 1976. "Social Structure from Multiple Networks. II. Role Structures." *American Journal of Sociology*, volume 81:6. p. 1384-1446.

Borgatti, Steve P., and Martin G. Everett. 1993. "Two Algorithms for Computing Regular Equivalence". *Social Networks*, 15:361-376.

Borgatti, Steve P., Martin G. Everett, and Lin C. Freeman. 1999. *UCINET V for Windows: Software for Social Network Analysis*. Natick, MA: Analytic Technologies.

_____. 2002. *Ucinet 6 for Windows: Software for Social Network Analysis*. Harvard, MA: Analytic Technologies.

Bott, Elizabeth. 1955. "Urban families: Conjugal Roles and Social Networks". *Human Relations*, 8:345-384.

_____. 1957. *Family and Social Network*. London: Tavistock.

Bourdieu, Pierre. 1983. "Forms of Capital", (pp. 241-258) in *Handbook of Theory and Research for the Sociology of Education*, edited by John G. Richardson. New York: Greenwood Press.

_____. 1984. *Distinction: A Social Critique of the Judgement of Taste.* Translated by Richard Nice. Cambridge, MA: Harvard University Press. [Originally *La Distinction: Critique sociale du jugement*. 1979. Paris: Les Éditions de Minuit.]

_____. 1990. "Structures, Habitus, Practices". Chapter 3 (pp. 52-65) in The Logic of Practice, translated by Richard Nice. Stanford University Press.

_____. 1991. "Social Space and the Genesis of 'Classes'", Chapter 11 (pp. 229-251) in *Language and Symbolic Power*, edited by John B. Thompson and translated by Gino Raymond and Matthew Adamson. Harvard University Press. [Originally "Espace social et genèse des 'classes'" in *Actes de la recherche en sciences sociales*, volume 52-53, pp. 3-12. June 1984.]

Braverman, Harry. 1974. *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century*. New York: Monthly Review Press.

Bridge Ratings LLC. 2007. "The Mobile Phone Consumer: Implications for Terrestrial Radio". http://www.bridgeratings.com/press_05.09.2007-Mobilphone.htm

Burt, Ronald S. 1977. "Positions in Multiple Network Systems, Part One: A General Conception of Stratification and Prestige in a System of Actors Cast as a Social Topology". *Social Forces,* 56(1):106-131.

_____. 1978. "Cohesion Versus Structural Equivalence as a Basis for Network Subgroups". *Sociological Methods & Research,* 7(2):189.

_____. 1984. "Network Items and the General Social Survey". *Social Networks*, 6:293-339.

_____. 1987. "Social Contagion and Innovation: Cohesion versus Structural Equivalence". *American Journal of Sociology*, 92(6):1287-1335.

_____. 1992. *Structural Holes: The Social Structure of Competition*. Harvard University Press.

_____. 2001. "Structural Holes Versus Network Closure as Social Capital", Chapter Two in Nan Lin, editor, *Social Capital : A Theory of Social Structure and Action*. Cambridge University Press.

_____. Undated. Name generator from the questionnaire used in Burt's Network Survey of "Digital" Corporation.

Burt, Ronald S.,and Gregory A. Janicik, 1996. "Social Contagion and Social Structure" in Dawn Iacobucci, editor, *Networks and Marketing*. Thousand Oaks, CA: Sage Publications.

Buyer's Choice. 1996. *Buyer's Choice: Survey of America*. November. Denver.

Cardon, Dominique, and Fabien Granjon. 2005. "Social networks and Cultural Practices: A Case Study of Young Avid Screen Users in France". *Social Networks*, 27:301-315.

Cartwright, Dorwin, and Frank Harary. "Structural Balance: A Generalization of Heider's Theory". *Psychological Review*, 63:277-293.

Castelfranchi, Christiano. 2001. "Towards a Cognitive Memetics: Socio-Cognitive Mechanisms for Memes Selection and Spreading". *Journal of Memetics* 5(1) http://cfpm.org/jom-emit/2001/vol5/castelfranchi_c.html

Clark, Terry Nichols and Seymour Martin Lipset. "Are Social Classes Dying?" *International Sociology*, volume 6, number 4, pp. 397-410. December 1991.

Claritas, Inc. http://www.claritas.com Accessed from 1997 on.
"You Are Where You Live"
http://www.claritas.com/MyBestSegments/Default.jsp?ID=20
"66 PRIZM Marketing Segments"
http://www.claritas.com/claritas/Default.jsp?ci=3&si=4&pn=prizmne_segments
"Segment Lookup"
http://www.claritas.com/MyBestSegments/Default.jsp?ID=30&SubID=&pageName=Segment%2BLook-up

Cochran, Moncrieff, and David Riley. 1988. "Mother Reports of Children's Personal Networks: Antecedents, Concomitants, and Consequences", Chapter 6 in Suzanne Salzinger, John Antrobus, and Muriel Hammer, editors, *Social Networks of Children, Adolescents, and College Students*, p.113-147

Coleman, James S.. 1990. *Foundations of Social Theory*. Cambridge, Massachusetts: Belknap Press of Harvard University.

Collins, Randall. 1975. *Conflict sociology: toward an explanatory science*. New York: Academic Press.

Dahrendorf, Ralf. 1959. *Class and Class Conflict in Industrial Society*. London: Routledge & Kegan Paul.

Davis, Allison, Burleigh B. Gardner, and Mary R. Gardner. 1988. *Deep South*. [Originally published 1941 by University of Chicago Press.] Los Angeles: Center for Afro-American Studies, University of California.

Davis, Kingsley, and Wilbert Moore. 1945. "Some Principles of Stratification." *American Sociological Review*, 10(2):242-249.

Dawkins, Richard. 1976. "Memes: The New Replicators", Chapter 11 in *The Selfish Gene*. Oxford University Press.

de Saussure, Ferdinand. 1986. Course in General Linguistics. Edited by Charles Baly and Albert Sechehaye. Translated from French by Roy Harris from a revised version of *Cours de Linguistique Générale*. [Original published 1916]. Chicago: Open Court Publishing.

de Sola Pool, Ithiel, and Manfred Kochen. 2006. "Contacts and Influence" [Original published 1978 in *Social Networks*, 1:5-51]. Reprinted in Mark Newman, Albert-László arabási, and Duncan J. Watts, editors, *The Structure and Dynamics of Networks*, p. 83-129.

Dillman, Don A. 1978. *Mail and Telephone Surveys: The Total Design Method.* New York: Wiley & Sons.

_____. 1991. "The Design and Administration of Mail Surveys" *Annual Review of Sociology*, 17:225-249.

DiMaggio, Paul J.. 1997. "Culture and Cognition". *American Review of Sociology*, 23(1):263-287.

DiMaggio, Paul J., and Walter W. Powell. 1983. "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields". *American Sociological Review*, 48:147-160.

Doherty, Edmund G.. 1971. "Social Attraction and Choice Among Psychiatric Patients and Staff: A Review". *Journal of Health and Social Behavior*, 12:279-290.

Doreian, Patrick. 1988. "Equivalence in a Social Network". *Journal of Mathematical Sociology*, 13(3):243-282.

Duncan, Otis Dudley. 1961. "A socioeconomic index for all occupations" in *Occupations and Social Status*, A. Reiss, editor. New York: Free Press.

Durkheim, Émile. 1984. *The Division of Labor in Society*. Translated by W.D. Halls. [Originally published 1893]. New York: Free Press.

Emirbayer, Mustafa, and Jeff Goodwin. 1994. "Network Analysis, Culture, and the Problem of Agency". *American Journal of Sociology*, 99(6): 1411-1454.

Erickson, Bonnie H.. 1988. "The Relational Basis of Attitudes", Chapter 5 in Barry Wellman and Stephen D. Berkowitz, editors, *Social Structures: A Network Approach*, p.19-61. Cambridge, UK: Cambridge University Press.

_____. 1996. "Culture, Class, and Connections". *American Journal of Sociology*, 102(1):217-251.

Everett, Martin G., and Stephen P. Borgatti. 1994. "Regular Equivalence: General Theory". *Journal of Mathematical Sociology*, 19(1):29-52.

Everitt, Brian S., Sabine Landau, and Morven Leese. 2001. *Cluster Analysis*, Fourth Edition. London:Arnold Publishers

Family Values Survey. Undated. Nevada, Iowa.

Feiring, Candice, and Michael Lewis. 1989. "The Social Networks of Girls and Boys from Early Through Middle Childhood", Chapter 5 in Deborah Belle, editor, *Children's Social Networks and Social Supports*, p. 119-150.

Feld, Scott L., and Richard Elmore. 1982. "Patterns of Sociometric Choices: Transitivity Reconsidered" *Social Psychology Quarterly*, 45(2):77-85.

Fischer, Claude S.. 1982. *To Dwell Among Friends: Personal Networks in Town and City*. University of Chicago Press.

Fricke, Tom. 1998. "Changing Cultures of Family & Work: Background Document for the Center for Ethnography of Everyday Life". Center for Ethnography of Everyday Life (CEEL) Working Paper 001-98.

Friedkin, Noah E., and Karen S. Cook. 1990. "Peer Group Influence". *Sociological Methods and Research,* 19(1):122-143.

Friedkin, Noah E., and Eugene C. Johnsen. 1997. "Social Positions in Influence Networks". *Social Networks,* 19:209-222.

_____. 2003. "Attitude Change, Affect Control, and Expectation States in the Formation of Influence Networks". *Advances in Group Processes*, 20:1-29.

Fussell, Paul. 1992. *Class: A Guide Through The American Status System*. New York: Touchstone Press.

Galaskiewicz, Joseph. 1979. "The Structure of Community Organizational Networks". *Social Forces*, 57(4):1346-1364.

Galaskiewicz, Joseph, and Karl R. Krohn. 1984. "Positions, Roles, and Dependencies in a Community Interorganization System". *The Sociological Quarterly*, 25:527-550.

Gans, Herbert. 1962. *The Urban Villagers*. New York: The Free Press.

_____. 1967. *The Levittowners*. New York: Alfred A. Knopf.

Geisel, Theodor Seuss, a.k.a. Dr. Seuss. 1961. *The Sneetches and Other Stories*. New York: Random House.

General Social Survey. 1985. *Appendix A: General Social Survey Network Items*. National Opinion Research Center (NORC). University of Chicago.

Gerstle, Gary. 1989. *Working-Class Americanism*. New York: Cambridge University Press.

Giddens, Anthony. 1996. *Introduction to Sociology*, second edition. New York: W.W. Norton & Company.

_____. 1982. "Class Structuration and Class Consciousness", Chapter Eight in Anthony Giddens and David Held, editors, *Classes, Power, and Conflict*. Berkeley, CA: University of California Press.

Gilbert, Dennis and Joseph A. Kahl. 1993. *The American Class Structure: A New Synthesis*, fourth edition. Belmont, California: Wadsworth Publishing.

Goffman, Erving. 1959. *The Presentation of Self in Everyday Life*. Garden City, NY: Doubleday.

Grusky, David B., editor. 1994. *Social Stratification: Class, Race, & Gender in Sociological Perspective*. Boulder, Colorado: Westview Press.

Harary, Frank, Robert Norman, and Dorwin Cartwright. 1965. *Structural Models: An Introduction to the Theory of Directed Graphs*. New York: Wiley.

Harris, Marvin. 1974. *Cows, Pigs, Wars & Witches: The Riddles of Culture*. New York: Random House.

Heider, Fritz. 1946. "Attitudes and Cognitive Organization". *Journal of Psychology*, (21):107-112.

_____. 1958. *The Psychology of Interpersonal Relations.* New York: Wiley.

_____. 1979. "On Balance and Attribution", Chapter 2 in Paul W. Holland and Samuel Leinhardt, editors, *Perspectives on Social Network Research*, p.11-23. London: Academic Press.

Henslin, James M.. 1998. *Essentials of Sociology: A Down to Earth Approach*, second edition. Allyn & Bacon

Hill, R.A. and R.I.M. Dunbar. 2003. "Social Network Size in Humans". *Human Nature*, 14 (1): 53-72.

Historical Society of Tyboro. 1998. *History of Tyboro* [Pseudonymous].

Holland, Paul W., and Samuel Leinhardt. 1972. "Holland and Leinhardt Reply: Some Evidence on the Transitivity of Postitive Interpersonal Sentiment". *American Journal of Sociology*, 77(6):1205-1209.

Hout, Michael, Clem Brooks, and Jeff Manza. 1993. "The Persistence of Classes in Post-Industrial Societies." *International Sociology*, volume 8(3):259-277.

Huckfeldt, R. Robert. 1983. "Social Contexts, Social Networks, and Urban Neighborhoods: Environmental Constraints on Friendship Choice". *American Journal of Sociology*, 89(3): 651-669.

Johnson, Jeffrey C., James S. Boster, and Lawrence A. Palinkas. 2003. "Social Roles and the Evolution of Networks in Extreme and Isolated Environments". *Journal of Mathematical Sociology*, 27(2-3):89-121.

Kelman, Herbert C.. 1961. Processes of Opinion Change. *Public Opinon Quarterly*, 25:57-78.

Kerbo, Harold R. 2000. *Social Stratification and Inequality*. Boston: McGraw-Hill

Killworth, Peter D., Eugene C. Johnsen, H. Russell Bernard, and Gene Shelley. 1990. "Estimating the Size of Personal Networks". *Social Networks,* 12(4):289-312.

Kingston, Paul W.. 1994. "Are There Classes in the United States?" in Robert Althauser and Michael Wallace, editors, *Research in Social Stratification and Mobility*, volume 13. Greenwich, Connecticut: JAI Press.

Krackhardt, David. 1987. "QAP Partialling as a Test of Spuriousness". *Social Networks*, 9:171-186.

_____. 1988. "Predicting with Networks: A Multiple Regression Approach to Analyzing Dyadic Data". *Social Networks*, 10:359-381.

Krebs, Valdis. 1996. "Organizational Network Mapping" http://www.orgnet.com/orgnetmap.pdf

_____. 1998. "Knowledge Networks: Mapping and Measuring Knowledge Creation". http://www.knetmap.com/knowledge-networks-mapping.html

Ladd, Gary W., Craig H. Hart, Emily Wadsworth, and Beckie S. Golter. 1988. "Preschoolers Peer Networks in Nonschool Settings: Relationship to Family Characteristics and School Adjustment", Chapter 4 in Suzanne Salzinger, John Antrobus, and Muriel Hammer*,* editors, *Social Networks of Children, Adolescents, and College Students*, p.61-92.

Lametti, David. 2003. "The Concept of Property Relations *Through* Objects of Social Wealth". *University of Toronto Law Journal*, 53(4):325-378.

Laumann, Edward O., and Franz Pappi. 1973. "New Directions in the Study of Community Elites". *American Sociological Review*, 38(2):212-230.

Laumann, Edward O., Peter V. Marsden, and Joseph Galaskiewicz. 1977. "Community-Elite Influence Structures: Extension of a Network Approach". *American Journal of Sociology*, 83(3): 594-631.

Lifestyle Market Analyst: A Reference Guide for Consumer Market Analysis. 1997. Des Plaines, IL: SRDS

Lin, Nan. 2001. *Social Capital: A Theory of Social Structure and Action*. Cambridge University Press.

Lin, Nan, Karen S. Cook and Ronald S. Burt. 2001. *Social Capital: Theory and Research*. New York: Aldine de Gruyter.

Lorrain, François, and Harrison C. White. 1978. "Structural Equivalence of Individuals in Social Networks". *Journal of Mathematical Sociology*, 1(1):49-80.

Luke, Brian T.. *Clustering Binary Objects*. http://fconyx.ncifcrf.gov/~lukeb/binclus.html

Lynd, Robert S., and Helen M. Lynd. 1929. *Middletown: A Study in Modern American Culture*. Harcourt Brace & Company.

Macionis, John J.. 2001. *Sociology*, eighth edition. Upper Saddle River, New Jersey: Prentice-Hall, Inc.

Madison, James. 1961. "No. 10" and "No. 51" of the *Federalist Papers*, edited by Clinton Rossiter, pp.77-84, and 320-325. [Originally printed in the New York Packet, November 23, 1787.] New York: New American Library.

Mark, Noah. 1998a. "Beyond Individual Differences: Social Differentiation from First Principles". *American Sociological Review*, 63(3):309-330.

_____. 1998b. "Birds of a Feather Sing Together". *Social Forces*, 77(2):453-485.

Marx, Karl. 1969. "The Eighteenth Brumaire of Louis Bonaparte" in *Karl Marx and Frederick Engels: Selected Works*. [Originally published in 1852 in *Die Revolution* magazine, New York]. Moscow: Progress Publishers.

_____. 1978a. "The German Ideology", p. 146-200 in Robert C. Tucker, editor, *The Marx-Engles Reader, 2nd Edition*. Robert C. Tucker, editor. New York: W.W. Norton & Company.

_____. 1978b. "Capital" excerpts of Volume One and Volume Three, p. 294-442 in Robert C. Tucker, editor, *The Marx-Engles Reader*, *2nd Edition*. New York: W.W. Norton & Company.

_____. 1978c. "Wage Labour and Capital" p. 203-217 in Robert C. Tucker, editor, *The Marx-Engles Reader*, *2nd Edition*. New York: W.W. Norton & Company.

McFarland, David D. and Vivian Lew. 1992. "Social WHAT? Some Hypotheses and Evidence on the Salience of Social Class Membership in the Contemporary United States." Paper presented at the annual meeting of the American Sociological Association, Pittsburgh, PA. August, 1992.

McPherson, Miller, Lynn Smith-Lovin, and James M. Cook. 2001. "Birds of a Feather: Homophily in Social Networks". *Annual Review of Sociology*, 27: 415-444.

Mead, George Herbert. *Mind, Self, and Society*. Charles W. Morris, editor. Chicago. University of Chicago Press. 1962 [Written in 1934].

Mellencamp, John. 1985. "Small Town" (song). *Scarecrow* (CD). Polygram Records.

Merton, Robert K. 1957. "The Role Set". *British Journal of Sociology*, 8:106-120.

Mesoudi, Alex, Andrew Whiten, Kevin N. Laland, and R. Harrison. 2004. "Perspective: Is Human Cultural Evolution Darwinian? Evidence Reviewed from the Perspective of the Origin of Species". *Evolution*, 58(1):1-11

Milgram, Stanley. 1967. "The Small-World Problem". *Psychology Today*, May 1967: 60-67.

Mintz, Beth, and Michael Schwartz. 1985. *The Power Structure of American Business*. University of Chicago Press.

Mitchell, J. Clyde. 1969. "The Concept and Use of Social Networks", Chapter One in J. Clyde Mitchell, editor, *Social Networks in Urban Situations*. Manchester University Press.

Mizruchi, Mark S.. 1982. *The American Corporate Network, 1904-1974*. Beverly Hills, CA: Sage Publications.

_____. 1992. *The Structure of Corporate Political Action :Interfirm Relations and their Consequences*. Harvard University Press.

Moreno, Jacob L. 1953. *Who Shall Survive? Foundations of Sociometry, Group Psychotherapy and Sociodrama*. McLean, VA: American Society of Group Psychotherapy & Psychodrama.

Nadel, Siegfried F.. 1957. *The Theory of Social Structure*. London: Cohen and West.

Neter, John, William Wasserman, and Michael H. Kutner. 1989. *Applied Linear Regression Models*, second edition. Homewood, IL: Irwin publishing.

New York Times. 1933. "Emotions Mapped by New Geography", article describing work by Jacob Moreno. Monday, April 3 edition. L17:6

Nowak, Andrzej, Jacek Szamrej, and Bibb Latané. 1990. "From Private Attitude to Public Opinion: A Dynamic Theory of Social Impact". *Psychological Review*, 97(3): 362-376.

Nowak, Andrzej, Maciej Lewenstein, and Jacek Szamrej. Unpublished manuscript. "Bubbles – a Model of Social Transition".

Pakulski, Jan. 1993. "The Dying of Class or of Marxist Class Theory?" *International Sociology*, 8(3): 279-292.

Parkin, Frank. 1979. *Marxism and Class Theory: A Bourgeois Critique*. New York: Columbia University Press.

Perl, Harold I., and Edison J. Trickett. 1988. "Social Network Formation of College Freshmen: Personal and Environmental Determinants". *American Journal of Community Psychology*, 16(2): 207-224.

Perrucci, Robert and Bonnie Lewis. 1989. "Interorganizational Relations and Community Influence Structure: A Replication and Extension". *The Sociological Quarterly*, 30(2): 205-223.

Perrucci, Robert and Marc Pilisuk. 1970. "Leaders and Ruling Elites: The Interorganizational Bases of Community Power". *American Sociological Review,* 35: 1040-1057.

Portes, Alejandro. 1998. "Social Capital: Its Origins and Application in Modern Sociology". *Annual Review of Sociology* 24: 1-24.

Potts, Blyden B., and David W. Allison. 1999. "Title Wave: The Diffusion of the CEO Title Throughout the US Corporate Network". CRSO Working Paper #576. Ann Arbor, MI: University of Michigan, Center for Research on Social Organization.

Poulantzas, Nicos. 1982. "On Social Classes", Chapter Four in Anthony Giddens and David Held, editors, *Classes, Power, and Conflict*. Berkeley, CA: University of California Press. Abridged from original published 1973 in *New Left Review* 78:27-50.

Putnam, Robert D.. 2000. *Bowling Alone*. New York: Simon & Schuster.

Reitz, Karl P.. 1988. "Social Groups in a Monastery". *Social Networks*, 10(4): 343-357.

Rogers, Everett. 1983. *Diffusion of Innovations*. New York: Free Press.

Romo, Frank P., and Helmut K. Anheier. 1991. "The Omega Phenomenon: The Social Infrastructure, Interpersonal Choice, and the Social Periphery". Unpublished Manuscript, June 30, 1991

Rose, Stephen J.. 2000. *Social Stratification in the United States: The New American Profile Poster*. New York: The New Press.

Sailer, Lee Douglas. 1978. "Structural Equivalence: Meaning and Definition, Computation and Application". *Social Networks*, 1(1):73-90.

Salant, Priscilla and Don A. Dillman. 1994. *How to Conduct Your Own Survey*. New York: John Wiley & Sons.

Salzinger, Suzanne, and June Hampson. 1988. "Social networks of Mother and Child: An Examination of Their Function in Developing Speech", Chapter 2 in Suzanne Salzinger, John Antrobus, and Muriel Hammer, editors, *Social Networks of Children, Adolescents, and College Students*, p.19-35.

Schank, Roger C., and Robert P. Abelson. 1977. *Scripts, Plans, Goals, and Understanding: An Inquiry into Human Knowledge Structures*. Hillsdale, NJ: L. Erbaum Associates.

Schweizer, Thomas, Michael Schnegg, and Susanne Berzborn. 1998. "Personal Networks and Social Support in a Multiethnic Community of Southern California". *Social Networks*, 20(1):1-21.

Scott, John. 1991. *Social Network Analysis: A Handbook*. Thousand Oaks, CA: Sage Publications.

Screpanti, Ernesto. 2001. *The Fundamental Institutions of Capitalism*. London: Routledge.

Sherif, Muzafer, and Carolyn Sherif. 1956. "Intergroup Relations", Chapter 9 in *An Outline of Social Psychology*, p.280-332. New York: Harper.

Shopper's Voice. Undated. *Consumer Product Survey of America*. Buffalo, New York.

Simon, Herbert A.. 1957. *Models of Man*. New York: Wiley.

Smith, Adam. 1986. *The Wealth of Nations, Book II*, fourth edition, edited by Andrew Skinner. [Original published in 1776.] London, UK: Penguin Books.

Somers, Margaret R.. 1992a. "Narrativity, Narrative Identity, and Social Action: Rethinking English Working-Class Formation." *Social Science History*, 16(4):591-630.

_____. 1992b. "A People Without Social Relations is a People Without Property: Property, Relationality, and Social Networks in the Formation of Political Rights." CRSO Working Paper, No. 496. University of Michigan, Center for Research on Social Organization.

_____. 1994. "The Narrative Constitution of Identity: A Relational and Network Approach". *Theory and Society*, 23(5):605-649.

_____. 1998. "'We're no angels': Realism, rational choice, and relationality in social science". *American Journal of Sociology*, 104(3):722-784.

SPSS for Windows, v. 11.0.1. 2001.

Stack, Carol B.. 1974. *All Our Kin: Strategies for Survival in a Black Community*. New York: Harper & Row.

Swidler, Ann. 1986. "Culture in Action: Symbols and Strategies". *American Sociological Review*, 51:273-286.

Thompson, E. P.. 1968. *The Making of the English Working Class,* second edition. [Originally published 1963]. Harmondsworth: Penguin.

Travers, Jeffrey, and Stanley Milgram. 2006. "An Experimental Study of the Small World Problem" [Original published 1969 in *Sociometry*, 32:425-443]. Reprinted in Mark Newman, Albert-László arabási, and Duncan J. Watts, editors, *The Structure and Dynamics of Networks*, p. 130-148.

Tyboro County Board of Elections. 1999. *General Election Listing of Registered Voters (in Tyboro)*. [Pseudonymous]

Tyboro Weekly. 1999. Various Editions of the local newspaper. [Pseudonymous]

U.S. Census Data. 1990.

_____. 2000.

Vanneman, Reeve, and Lynn Weber Cannon. 1987. *The American Perception of Class*. Philadelphia: Temple University Press.

Vidich, Arthur J., and Joseph Bensman. 1960. *Small Town in Mass Society*. [Originally published in 1958 by Princeton University Press.] Garden City, NY: Doubleday & Company.

Von Neumann, John, and Oskar Morgenstern. 1953. *Theory of Games and Economic Behavior*. Princeton: Princeton University Press.

Warner, W. Lloyd, J.O. Low, Paul S. Lunt, and Leo Srole. 1963. *Yankee City*, abridged edition. New Haven: Yale University Press.

Warner, W. Lloyd and Paul S. Lunt. 1941. *The Social Life of a Modern Community*. New Haven: Yale University Press.

_____. 1942. *The Status System of a Modern Community*. New Haven: Yale University Press.

Warner, W. Lloyd, Marchia Meeker, and Kenneth Eells. 1960. *Social Class in America: The Evaluation of Status*. [originally published 1949]. New York: Harper & Row.

Wasserman, Stanley, and Katherine Faust. 1994. *Social Network Analysis: Methods and Applications.* Cambridge, UK: Cambridge University Press.

Watts, Duncan J.. 1999. *Small Worlds: The Dynamics of Networks between Order and Randomness*. Princeton University Press.

Weber, Max. 1946. "Class, Status, and Party" [translated from *Wirtschaft and Gesellschaft* and other writings] in H.H.Gerth and C. Wright Mills, editors, *From Max Weber: Essays in Sociology*. New York: Oxford University Press.

Webster's II New Riverside University Dictionary. 1988. Houghton Mifflin Company.

Weeden, Kim A. and David B. Grusky. 2001. "Class Structuration in the United States". Paper presented by David Grusky at Princeton Conference on Economic Sociology.

Weiss, Michael J.. 2000. *The Clustered World*. Boston: Little, Brown and Company.

Wellman, Barry. 1979. "The Community Question: The Intimate Networks of East Yorkers." *American Journal of Sociology*, 84(5): 1201-1231.

_____. 1983. "Network Analysis: Some Basic Principles" in *Sociological Theory*, 1:155-200.

_____. 1988a. "The Community Question Re-Evaluated" in Michael Peter Smith, editor*, Power, Community and the City*. Comparative Urban Research, Volume I. New Brunswick, NJ: Transaction.

_____. 1988b. "Structural Analysis: From Method and Metaphor to Theory and Substance", Chapter 2 in Barry Wellman and Stephen D. Berkowitz. *Social Structures: A Network Approach*, p.19-61. Cambridge University Press.

Wellman, Barry and Barry Leighton. 1979. "Networks, Neighborhoods, and Communities." *Urban Affairs Quarterly*, 14(3): 363-390.

Wellman, Barry and Stephen D. Berkowitz. 1988. *Social Structures: A Network Approach*. Cambridge University Press.

White, Harrison C., Scott A. Boorman, and Ronald L. Breiger. 1976. "Social Structure from Multiple Networks. I. Blockmodels of Roles and Positions." *American Journal of Sociology*, 81(4): 730-780.

Wilkie, William L.. 1990. "Market Segmentation", Chapter 4 of *Consumer Behavior,* second edition. New York: John Wiley & Sons

Williams, Raymond. 1983. "Class" in *Keywords: A vocabulary of Culture and Society*, revised edition, p.60-69. Oxford University Press.

Wilson, William Julius. 1987. *The Truly Disadvantaged*. University of Chicago Press.

Winship, Christopher, and Michael Mandel. 1983. "Roles and Positions: A Critique and Extension of the Blockmodeling Approach", Chapter 10 in Samuel Leinhardt, editor, *Sociological Methodology 1983-1984*. San Francisco: Jossey-Bass.

Wishart, David. 2006. *ClustanGraphics Primer: A Guide to Cluster Analysis*, fourth edition. Edinburgh, Scotland: Clustan Ltd.

Wright, Erik Olin. 1985. *Classes*. London: Verso.

Zablocki, Benjamin D. and Rosabeth Moss Kanter. 1976. "The Differentiation of Life-Styles". *Annual Review of Sociology*, 2: 269-298.