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The Social Capital of Opinion Leaders

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Opinion "leaders" are more precisely opinion "brokers" who carry information across the social boundaries between groups. They are not people at the top of things so much as people at the edge of things, not leaders within groups so much as brokers between groups. The familiar two-step flow of communication is a compound of two very different network mechanisms; contagion by cohesion through opinion leaders gets information into a group, contagion by equivalence generates adoptions within the group. Opinion leaders as brokers bear a striking resemblance to network entrepreneurs in social capital research. The complementary content of diffusion and social capital research makes the analogy productive. Diffusion research describes how opinion leaders play their role of brokering information between groups, and social capital research describes the benefits that accrue to brokers.

Ronald S. Burt is the Hobart W. Williams Professor of Sociology and Strategy at the University of Chicago and the Shell Professor of Human Resources at INSEAD in Fontainebleau, France. His work describes the social structure of competitive advantage in careers, organizations, and markets.

Bernie Marcus caught it from Jack Welsh. It was during a game of golf, in Florida, in 1995. Marcus, co-founder and then CEO of Home Depot, was exchanging the usual golf-game tidbits with his friend Welsh, the legendary CEO of General Electric, about how things were going at Home Depot. Home Depot had been dramatically successful; shares in the company had increased in value by 28,000% since it went public in 1981, and the company was continuing by a large margin to be the most admired retail company in America.[2] But age

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[1]Portions of this material were presented at a 1997 colloquium at the University of Pennsylvania's Annenberg School of Communication. The text has been improved in response to comments from Mary Durfee, Jonathan Frenzen, Dawn Iacobucci, Peter Lopes, Peter Reingen, and Holly Raider. This paper is about a thousand words longer than the paper that will be published in the Annals.

[2]For example, Home Depot led competitors in Fortune's 1997 annual popularity poll of "most admired companies" with a score of 8.0 (ahead of Circuit City Stores and Office Depot both with scores of 6.6, Toys "R"

was catching up with Marcus, and Home Depot's growth had slowed appreciably. The next generation of leadership was an issue. Welsh responded that one of the most effective tools for developing senior executives at General Electric had been the use of 360-degree reviews (multi-source evaluations in which the usual evaluation of a manager by the boss is extended to include evaluations from peers, subordinates, and even customers). Marcus took the idea home and Home Depot soon developed its own program.

The new program put Home Depot on the bandwagon of firms adopting multi-source evaluations. Rare in the 1970s, multi-source evaluation swept through corporate America during the 1980s and 1990s to help managers adapt to the ambiguity of flatter organizations in which bureaucratic chains of command were replaced by networks of negotiated influence. Estimates today have as many as 90% of the Fortune 1000 using some form of multi-source evaluations (Atwater and Waldman 1998).

This paper is about the many interpersonal moments, illustrated by Marcus and Welsh, that drove the diffusion. More specifically, it is about people like Welsh who play the role of an opinion leader in the diffusion of innovations, a role brought to public attention long ago at the Bureau of Applied Social Research. One of the Bureau's early projects was a study of the 1940 presidential election, later published as The People's Choice. As so often quoted thereafter (Lazarsfeld, Berelson and Gaudet 1944, 151), the researchers were surprised to find almost no direct media effect on voters, instead finding ". . . that ideas often flow from radio and print to opinion leaders and from these to the less active sections of the population." The role of opinion leaders in innovation diffusion was elaborated with Merton's (1949) contrast between cosmopolitan versus local leaders, and studied in subsequent Bureau projects, most notably Katz and Lazarsfeld's (1955) study of opinion leaders in consumer purchases (Rogers 1997, 285-315). The "two-step flow" of communication — a process of information moving from the media to opinion leaders, and influence moving from opinion leaders to their followers — became a guiding theme for diffusion and marketing research (Katz and Lazarsfeld 1955, 309ff; Rogers 1995, 285; 1997, 308).

I bring together in this paper two lines of work — research on the network structure of interpersonal contagion and research on the network structure of social capital — to offer a new perspective on opinion leaders. Opinion "leaders" like Welsh in the exchange with

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US at 6.5, and Lowe's at 6.4). The exchange between Marcus and Welsh is taken from Sellers (1996).

Marcus are more precisely opinion “brokers” who bear a striking resemblance to the network entrepreneurs studied in social capital research. I begin with the contagion side of the story, then move to social capital.

THE NETWORK STRUCTURE OF CONTAGION[3]

Consider the concrete setting in which something about the social network around two people makes the belief or behavior of one contagious for the other. The receiving person I’ll call ego; the source person alter. Cohesion and structural equivalence are the network conditions responsible for contagion (I hereafter refer to structural equivalence simply as equivalence).

Cohesion refers to the strength of the relationship between ego and alter. For example, cohesion would be high between two friends. Contagion by cohesion occurs because of socializing communication. The more frequent and empathic the communication between ego and alter, the more likely that alter's adoption of a new idea or behavior will trigger ego's adoption. Discussing the innovation with others, ego comes to a normative understanding of adoption's costs and benefits, a social understanding charged with the interests of the people with whom the innovation is discussed.

Equivalence refers to ego and alter having similar relationships with other people. Examples would be two graduate students publishing the same kind of work and trained by the same professors, or two physicians in the same specialty trying to keep up with the rush of medical developments to live up to their image of a good physician and maintain their position in the hierarchy of medical advice and discussion. Contagion by equivalence occurs because of competition. This includes the extreme of people fighting one another for survival, but extends more generally to the competition of people merely using one another to evaluate their relative adequacy. The more similar ego's and alter's relations with other persons — i.e., the more that alter could substitute for ego in ego's role relations, and so the more intense ego's feelings of competition with alter — the more likely that ego will quickly adopt any innovation perceived to make alter more attractive as the object or source of relations. Discussing the innovation with others, ego comes to a normative understanding of adoption's

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[3]This is an introduction to the two core network mechanisms for contagion, cohesion and equivalence. Detailed discussion is available elsewhere (e.g., Burt 1982, 1987; Valente 1995; Friedkin 1998), and there is a growing literature on the mechanisms with respect to interpersonal contagion across organizational boundaries (Mizruchi 1992; Greve 1995; Chaves, 1997; Davis and Greve 1997; Westphal, Gulati and Shortell 1997; Shah 1998; Strang and Soule 1998).

costs and benefits to a person fulfilling his relationships, a social understanding shared by others in similar relationships and charged by ego's interest in advantage accruing to anyone performing his relationships.

EQUIVALENCE VERSUS COHESION

To illustrate, Figure 1 is a schematic of a hypothetical network in sociogram and density table. The dots refer to people; consumers, employees, individuals in the target audience, but I'll just refer to them as people. Solid (dashed) lines connect pairs of people who have a strong (weak) relationship. The conventional meaning of a strong relationship is that the connected people are some mixture of emotionally close, long-time, or frequent contacts. Cells in the density table at the bottom of Figure 1 describe the strength of the average relationships within and between groups (e.g., the 1.0 in the table shows that each person in Group A is connected by a strong relationship with everyone else in Group A).

Equivalence Equals Cohesion

The three significant points of comparison between cohesion and equivalence are all illustrated in Figure 1. First, there are situations in which cohesion and equivalence make identical contagion predictions. Equivalence and cohesion both (if for different reasons) predict contagion between people who are strongly tied to one another (cohesion) and similarly tied to persons beyond themselves (equivalence). This is illustrated by Groups A and C in Figure 1. People in these groups are connected by strong relationships, so contagion within each group is predicted by cohesion.

——— Figure 1 About Here ———

At the same time, people in Groups A and B have similar relations within and beyond their group so contagion within each group is also predicted by equivalence. There are three people in Group A with relations outside the group, but all five people are similar in their lack of relations with the many other people outside their group, which explains the high level of equivalence within the group (91.9% equivalence reported in the density table).[4] Other than the one relationship with Robert, all five people in Group C are similar in their weak relations

[4]Aggregate equivalence is measured with an eigenvector measure (e.g., Burt 1982; Knoke and Kuklinski 1982).

with the white-dot people attached to their position, and their lack of relations with the many other people outside their group (91.7% equivalence).

Equivalence Corrects Cohesion

Second, there are situations in which cohesion predicts contagion and equivalence does not. Among the strong relationships through which cohesion predicts contagion, equivalence does not predict contagion through relationships between non-equivalent people. In Figure 1, for example, Robert in Group B has strong relationships with a person in Group A and with another person in Group C. Cohesion predicts that new beliefs and behaviors will be contagious between Robert and his contacts because of their strong relationships with one another. Equivalence, however, predicts that Robert is a Group B person socially distinct from his contacts in Groups A and C so they are not expected to use one another as a frame of reference. Professor and graduate student can discuss new research projects with one another but a new methodology productive for the student need not be productive for the professor. Doctor and technician can discuss a new prescription drug, but enthusiastic evaluation by the technician need not mean that the time is right for the doctor to begin prescribing the drug.

Equivalence Extends Cohesion

Third, there are situations in which equivalence predicts contagion and cohesion does not. An example is people who share the same constituencies (strong equivalence) but have no direct connection with one another (no cohesion), as illustrated in Figure 1 by the three white dots who together form Group D in the density table. The three white-dot people all have weak ties with people in Group C, no relationships with one another, and no relations with anyone beyond Group C so they are equivalent even though they have no direct relations with one another (95.6% equivalent). The three white dots hold a hanger-on, or satellite, position with respect to Group C. They are the advisory or staff people who have in common their ties to line officers, their lack of ties with one another, and their invisibility to other groups. They are the people who claim close relations with popular people, but are not themselves the object of attention. Cohesion does not predict contagion between hangers-on except as it results indirectly from their simultaneously imitating the people with whom they have strong relations. By equivalence, however, hangers-on compete with one another to be attractive to the people with whom they have strong relations so contagion is expected between the hangers-on and we see them develop their own standards of belief and behavior that are

distinct from the standards among the prominent people to whom they are attached (e.g., Burt 1982, 245ff.).

ILLUSTRATIVE EVIDENCE

In fact, observed contagion between people is an interesting, systematic, blend of the two network mechanisms. Figure 2 contains illustrative evidence from three study populations (Burt and Janicik 1996, describe network structure and contagion in the three populations). The data for Figure 2A come from Coleman, Katz and Menzel's (1966) classic diffusion study, Medical Innovation (reanalyzed by several people for cohesion versus equivalence effects; Burt 1987; Burt and Uchiyama 1989; Marsden and Podolny 1990; Strang and Tuma 1993; Valente, 1995). The study population is doctors in four Illinois cities in the mid 1950s, deciding when to begin prescribing a new antibiotic. The data are ancient history in terms of contemporary medicine, however, the innovative analysis and high-quality data on doctor networks and behavioral adoption (prescription records) combine to give these data a special place in the history of diffusion research across academic disciplines and practitioners (e.g., Sawai 1994), and a continuing impact on medical decision-making (e.g., Carrin 1987; Hisashige 1991; Chow 1998). The diffusion variable is the month in which a doctor began writing prescriptions for the new drug, and the vertical axis in Figure 2A is the number of months that separate the dates at which two doctors began prescribing the new drug. Some doctors began prescribing the new drug in the same month, which would be a zero on the vertical axis. The largest time interval was a year and a half. On average, six months separated one doctor's adoption from another's. The network of professional relations in each city was measured by asking doctors to name the doctors with whom they discussed cases, and the doctors they sought out for advice on cases. Pairs of doctors are sorted into four levels of cohesion on the horizontal axis — from pairs of doctors to the left in Figure 2A who each cite the other as an advisor or discussion partner (mutual), to pairs of doctors in which only one cites the other (asymmetric), to pairs of doctors who do not cite one another but are connected indirectly through one or more intermediary advisors or discussion partners (indirect), up to the extreme of doctors who neither cite one another nor have any chain of intermediaries through whom they might communicate (no contact). The three lines in the graph describe similarity between doctors in three equivalence categories; strongly equivalent doctors who discussed cases with, sought advice from, and were sought out by, mostly the same colleagues, weakly equivalent doctors who had similar relations with some colleagues

but also each had advisors and discussion partners that the other did not, and nonequivalent doctors whose advisors and discussion partners were completely different.[5]

Evidence of Equivalence Contagion

Equivalent physicians followed one another in their adoptions of the new drug. The thin line at the bottom of Figure 2A shows an average of 4.7 months between adoptions by strongly equivalent doctors. The dashed line at the top of the graph shows a longer 6.2 months on average between adoptions by nonequivalent doctors. The increase from 4.7 to 6.2 months cannot be attributed to random chance (3.5 t-test, $P < .001$).

Cohesion Irrelevant at Equivalence Extremes

More, cohesion is irrelevant where equivalence makes its strongest predictions. The dashed line at the top of Figure 2A for nonequivalent doctors is high and flat (statistically negligible 0.4 t-test for the effect of stronger relationships), showing that the times between nonequivalent doctors beginning to prescribe the new drug were consistently long regardless of strong or weak relations between doctors. Socializing communication did not span the wide distances between nonequivalent doctors.

——— Figure 2 About Here ———

Cohesion is superfluous between strongly equivalent doctors. The thin line at the bottom of Figure 2A for strongly equivalent doctors is low and flat (negligible 0.9 t-test for the effect of stronger relationships), showing that equivalent doctors began prescribing at about the same time whether they had a strong or a weak relationship with one another. Competition between strongly equivalent people can be expected to make them so aware of

[5]Equivalence is usually measured as a continuous variable (e.g., Burt 1982; Wasserman and Faust 1994), but I use for the purposes of this paper the three broad categories defined conjointly by equivalence and cohesion. Measurement is as follows for all three populations in Figure 2 (see Burt and Uchiyama 1989, for further details): Equivalence scores are computed that vary from zero to one with the extent to which person j is a structurally equivalent peer to person i. The nonequivalence category contains pairs of people for whom the equivalence weight is within rounding error of zero (< .0005). Nonequivalent people have networks as different as any in their community. The strong equivalence category contains pairs of people for whom the equivalence weight is three or more standard deviations greater than zero (a level of equivalence at which contagion is by equivalence regardless of cohesion). Each person has a small number of these most influential peers. Other pairs of people, somewhere between strongly equivalent and nonequivalent, comprise the weak equivalence category.

one another's behavior that socializing communication is superfluous to contagion between them.[6]

Cohesion Essential between Weakly Equivalent

Nevertheless, cohesion has a role to play; it is essential to contagion where equivalence is ambiguous as between weakly equivalent people. Weakly equivalent doctors had some contacts in common, but more that were different. The doctors were nearly, but not really, structurally equivalent peers. Weakly equivalent people need not be aware of one another as near-peers until conversations between them reveal the partial equivalence of their positions with respect to people within the broader social structure. For example, sociologists and economists move in very different academic circles but conversations between a sociologist and economist at the same university can reveal to each the many people they both know, admire, or disdain.

For communication between such people to result in contagion, however, it must occur through strong relationships (see Brown and Reingen 1987, for similar evidence; cf. Granovetter's 1973, 1366, provocative argument about contagion through weak ties between groups). The bold line in Figure 2A shows that strong relations between weakly equivalent doctors significantly decreased the time interval between adoptions. The bold line begins in the upper-right of the graph with an average of more than seven months between adoptions by weakly equivalent doctors who had no contact with one another, and decreases to an average of less than four months between adoptions by weakly equivalent doctors who cited one another. Weakly equivalent people connected by weak ties (upper-right of bold line) show as little contagion as structurally nonequivalent people. If the four cohesion categories in Figure 2 are given numeric values of 1 to 4, increasing to the next level of cohesion between weakly equivalent doctors on average removes one and a half months from the time interval between their adoptions (-1.46 regression coefficient, -11.6 t-test).

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[6]One can see the future in early Bureau conclusions about evidence recognized thirty years later to be evidence of contagion by equivalence. Merton (1949, 465-466) concludes that "One gains the impression that although a relatively few people — the top influentials — exert influence upon people on all levels of the influence-structure, there occurs a secondary tendency for people to be otherwise most influenced by their peers in that structure. . . . people in each influence stratum are more likely to be influenced by their peers in this structure than are people in the other strata." Katz and Lazarsfeld (1955, 331) conclude that "The flow of influence in this arena tends — as it does in every arena — to remain within the boundaries of each status level, but when it does cross status lines, there is no indication that the direction of flow is any more from high to low than it is from low to high."

Corroborating Evidence in Business

Figures 2B and 2C show the same pattern of contagion effects in other study populations. Figure 2B contains corporate officers in Minneapolis and St. Paul around 1980 responsible for their firm's charitable donations. Galaskiewicz (1985) describes the community network among officers and firms (with a follow-up survey in Galaskiewicz 1997). Galaskiewicz and Burt (1991) analyze the relative importance of cohesion and equivalence for contagion among the officers. The vertical axis in Figure 2B is the difference between pairs of officers in their evaluations of local non-profit organizations as potential recipients of corporate philanthropy (1 unknown, 2 recognized, 3 recognized for outstanding work). The 10 organizations used as criteria are ones on which officers disagreed (Burt and Janicik 1996). Differences between evaluations by two officers are averaged across non-profits for the vertical axis in Figure 2B and could vary from the zero (if the officers made the same evaluations of each non-profit) to a maximum of three (one officer not recognizing each of the non-profits that the other officer evaluated as outstanding). On the basis of sociometric citations for personal acquaintance across firms, pairs of officers are sorted like the doctors into the four cohesion categories and three equivalence categories.

The evidence of contagion by equivalence is the more similar evaluations by strongly equivalent officers relative to nonequivalent officers (19.6 t-test). Equivalence dominates cohesion in that strongly equivalent officers make similar evaluations regardless of the strength of their relationship with one another (statistically negligible -0.7 t-test for the effect of stronger relationships), and nonequivalent officers make dissimilar evaluations regardless of their relationship (statistically negligible 0.9 t-test for the effect of stronger relationships). Again, stronger relationships trigger contagion between weakly equivalent people (-8.8 t-test for the less different evaluations by more strongly connected officers, summarized by the bold line in Figure 2B).

Corroborating Evidence in Politics

Heinz, Laumann, Nelson and Salisbury (1993) describe the social system of elite lobbyists active in U.S. Government policy in agriculture, energy, health and labor during the early 1980s. Among the elite lobbyists are a few that Heinz et al. (1993, Chap. 10) label "notables" because of their exceptional prominence, and the notables are the study population in Figure 2C. Each lobbyist's economic ideology is summarized by a factor score (taken from Heinz et

al. 1993) that positions the lobbyist on a continuum that varies from liberal to conservative. The vertical axis in Figure 2C is the difference in economic ideology between two lobbyists, which could vary from zero (e.g., both liberals or both conservatives) to a maximum of five (if one is an extreme conservative and the other is an extreme liberal). On average, lobbyists were one response category apart (average difference is .9). On the basis of sociometric citations in which lobbyists named one another as sources of support, pairs of lobbyists are sorted like the doctors and officers into the four cohesion categories and the three equivalence categories.

The evidence of contagion by equivalence is the more similar evaluations by strongly equivalent lobbyists relative to nonequivalent lobbyists (-17.2 t-test). Equivalence dominates cohesion in that strongly equivalent lobbyists make similar evaluations regardless of the strength of their relationship with one another (statistically negligible 1.1 t-test for the effect of stronger relationships), and nonequivalent lobbyists make dissimilar evaluations regardless of their relationship (statistically negligible 0.3 t-test for the effect of stronger relationships). Again, stronger relationships trigger contagion between weakly equivalent people (-4.2 t-test for the less different ideologies expressed by more strongly connected lobbyists, summarized by the bold line in Figure 2C).

In Sum

Aggregate across the doctors, officers, and lobbyists to get the summary graph in Figure 2D. The vertical axis is the z-score difference between people within their study population (time intervals between adoptions by pairs of doctors were standardized within each of the four Medical Innovation cities). A positive score indicates a pair of people more different than the average pair in their population. A negative score indicates a pair of people less different than the average, and a zero indicates a pair no more or less different than the average pair of people in their population. The summary graph more clearly shows the Z-pattern created by the simultaneous contagion effects of equivalence and cohesion; a lack of contagion between nonequivalent people (top of the Z), contagion by cohesion between weakly equivalent people (stem of the Z), and contagion regardless of cohesion between strongly equivalent people (floor of the Z).

OPINION LEADERS VERSUS OPINION BROKERS

The results highlight the brokerage role of opinion leaders. To know where opinion leaders exercise influence, look at Figure 2 to see where contagion flows through interpersonal connections. Opinion leaders are people whose conversations make innovations contagious for the people with whom they speak. Their conversations do not trigger contagion across the social differences between nonequivalent people (top of the Z-pattern), and they are superfluous to contagion between strongly equivalent people (bottom of the Z). The structural location in which stronger relationships trigger contagion is between weakly equivalent people (stem of the Z).

In other words, opinion leadership consists of influence exercised through strong relationships between weakly equivalent people, which means that opinion leaders are brokers twice over. First, opinion leaders are brokers in the sense that their influence is between, rather than within, groups. Within groups, contagion is by equivalence, not cohesion. Cohesion matters across groups. Opinion leaders are the people whose conversations trigger contagion across the social boundaries between groups.[7] Second, opinion leaders are brokers in the sense that they are a transition between the two network mechanisms responsible for contagion. The familiar two-step flow of communication is a compound of two very different network mechanisms; contagion by cohesion through opinion leaders gets information into a group, then contagion by equivalence triggers adoptions within the group.[8]

Figure 1 is again useful illustration. Look at the figure as if it were a spatial map of structural equivalence distances; people closer together in the figure are more equivalent. Apply the three equivalence categories in Figure 2 to the people in Group A. Each person in the group is strongly equivalent to the others in the group. The nonequivalence category contains James and those of his contacts on the far east side of the map. Everyone else is weakly equivalent to Group A, which includes Robert and his contacts, and the people in Groups C and D. Most of these weakly equivalent people have no direct connection with

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[7]It is important to be clear about group boundaries because what is perceived to be a single group by one observer can be seen as multiple groups by another observer. Groups here refer to status groups distinguished by structural equivalence. A social scientist sees multiple groups within an organization, where the general public often sees the company as one large group.

[8]In other words, a strategic opinion leader knows when to disappear. The first adoption within a group comes from converting a close contact, after which a strategic opinion leader should fade into the background to allow contagion by equivalence to have its effect. Peers adopt not because of the opinion leader, but because of the advantages adoption gave to the person converted by the opinion leader.

Group A, so they are unlikely sources of contagion for Group A (they would be in the upper-right of the Z-pattern in Figure 2). Four of the weakly equivalent people have direct connections to Group A and so are the people through whom contagion would occur; Robert, person 1, person 2, and the dot at the top of Group B in Figure 1. These four people are most likely to be the opinion leaders through whom innovation comes to Group A, and their three contacts in Group A are the most likely early adopters.

Apply the three equivalence categories to Group C for a similar result. People within Group C are strongly equivalent to one another. Of the people weakly equivalent to Group C, the ones who have direct communication to the group are the hangers-on (white dots) and Robert. The hangers-on have no new information for the group, which leaves Robert most likely to be the opinion leader through whom innovation comes to Group C and his contact, person 6, is the most likely early adopter.

These opinion leaders are not leaders with superior authority, nor leaders in the sense of being more attractive such that they are individuals that others want to imitate. Opinion leaders defined by function (people whose conversations make innovations contagious) and structural location (people communicating with, and weakly equivalent to, the individuals they influence) removes the vertical distinction implicit in the contrast between opinion leaders and followers (and sometimes explicit, e.g., Rogers 1962, 212; 1995, 291). In fact, the contagion associated with strong relations between weakly equivalent people in Figure 2 is no greater if alter is socially prominent.[9] As King and Summers (1970, 44) summarize for a marketing audience, "In most contexts, the notion of an opinion leader dominating attitudes or behavior in his social network overstates the power of interpersonal communication."

Opinion leaders in the network structure of contagion are more precisely opinion brokers who transmit information across the social boundaries between status groups. They are not people at the top so much as the edge, not leaders within groups so much as brokers between groups. Small wonder then, that the social differentiation separating brokers from

[9]The summary bold line in Figure 2D corresponds to a regression model predicting a criterion difference between ego and alter (vertical axis) from the strength of their relationship (horizontal axis). Adding covariates reveals no change in the bold line for stronger contagion from more prominent alters. For example, and keeping in mind the inflation of routine t-tests in dyad data, there is no interaction with a binary variable distinguishing alters cited by three or more people (-1.5 t-test, three citations was the cut-off for prominence in Coleman, Katz and Menzel 1966), and no interaction with a three-category prominence variable further distinguishing un-cited alters as the least prominent (1.8 t-test, though it is positive, which would show stronger contagion from more prominent alters).

people within groups is a factor by which opinion leaders can be identified (Chan and Misra 1990, 54, observe that opinion leaders can be identified by their public individuation; ". . . a state in which people feel differentiated, to some degree, from other people and choose to act differently from them"), or that opinion leadership is difficult to measure on a single dimension combining influence and activity (e.g., Flynn, Goldsmith and Eastman 1994). The opinion leaders more precisely identified in Figure 2 as opinion brokers are active in their own group, but their adoption-eliciting influence is in adjacent groups. They are in some ways structurally similar to the people they influence, but in one important way distinct; they have strong connections to other groups. They are, to return to the Bureau, what Merton (1949) described as "cosmopolitans" (see Rogers 1995, 294, for a similar conclusion, and his p. 336ff discussion of change agents as linkers).[10]

THE NETWORK STRUCTURE OF SOCIAL CAPITAL[11]

A quite separate line of research has revealed career and income advantages associated with playing the role of opinion broker, advantages described as social capital. Social capital is the complement to human capital in explaining inequality. Some people enjoy higher incomes. Some more quickly reach higher positions. Some lead more important projects. The human capital explanation is that the people who do better are better people (smarter, more attractive, more skilled, et cetera). The social capital explanation is that the people who do better are better connected.

STRUCTURAL HOLES

In particular, the "structural hole" definition of social capital is useful here because it traces competitive advantage to the role that people play in information diffusion. The argument begins with the presumption common in sociology that information circulates more within than between groups (e.g., within a work group more than between groups, within a division

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[10]The distinction illustrated by Robert and James in Figure 1 is analogous to the distinction between cosmopolitan and local leaders in Merton's (1949) early Bureau study, crisply summarized as follows on a dimension relevant to social capital (p. 457): "The cosmopolitan influential has a following because he knows; the local influential because, because he understands. The one is sought out for his specialized skills and experience; the other, for his intimate appreciation of intangible but affectively significant details."

[11]This is an introduction to the network structure of social capital. Detailed review is available elsewhere (Burt 1998b).

more than between divisions, within an industry more than between industries). For example, the sociogram in Figure 1 and the density table at the bottom of the figure show three groups (A, B, C) with the often-observed pattern of relations within the groups stronger than relations between groups.

The weaker connections between groups in Figure 1 are holes in the social structure of the groups. These holes in the structure, or structural holes, create a competitive advantage for an individual whose relationships span the holes. The structural hole between two groups does not mean that people in the groups are unaware of one another. It means simply that the people are focused on their own activities such that they have little time to attend to the activities of people in the other group. Holes are buffers, like an insulator in an electric circuit. People on either side of a structural hole circulate in different flows of information. Structural holes are thus an opportunity to broker the flow of information between people and control the form of projects that bring together people from opposite sides of the hole.

INFORMATION BENEFITS OF BRIDGING STRUCTURAL HOLES

With respect to information, structural holes are gaps between nonredundant contacts, and such contacts offer information that is more additive than overlapping (see Burt 1992, 25-30, on weak ties across structural holes). There are two network indicators of redundancy. Cohesive contacts — contacts strongly connected to each other — are likely to have similar information and therefore provide redundant information benefits. Structurally equivalent contacts — contacts tied to the same third parties — have the same sources of information and therefore provide redundant information benefits.

With respect to structural holes, Robert in Figure 1 has a competitive advantage over James. The two men have the same volume of connections, six strong ties and one weak tie, but Robert has the broader reach. James is tied to people within group B, and through them to friends of friends all within group B, so James is well informed about cluster B activities. Robert is also tied through friends of friends to everyone within group B, but in addition, his strong relationship with person "7" is a conduit for information on group A, and his strong relationship with "6" is a conduit for information on group C. Information benefits are enhanced in several ways. The volume of information to which Robert is connected is higher because he reaches more people indirectly. The diversity of his contacts across the three separate groups means that the quality of his information is also higher. Further, Robert is positioned at the crossroads of social organization so he is early to learn about activities in the

three groups. He has the option of bringing together otherwise disconnected individuals in the network where it would be rewarding. Further still, Robert's more diverse contacts means that he is more likely to be a candidate discussed for inclusion in new opportunities. These benefits are compounded by the fact that having a network that yields such benefits makes Robert more attractive to other people as a contact in their own networks.

CONTROL BENEFITS OF BRIDGING STRUCTURAL HOLES

The individual like Robert, in a position to create a bridge between otherwise disconnected contacts, has a disproportionate say in whose interests are served by the bridge. The disconnected contacts communicate through Robert, giving him an opportunity to adjust his image with each contact. Simmel (1922) and Merton (1957) would call a person like Robert the *tertius gaudens* (literally, "the third who benefits"), a person who benefits from brokering the connection between others (see Burt 1992, 30-32, for review). Robert in Figure 1 is an entrepreneur in the literal sense of the word — a person who adds value by brokering the connection between others (Burt 1992, 34-36). There is a tension here, but not the hostility of combatants. It is merely uncertainty. In the swirling mix of preferences characteristic of social networks, where no demands have absolute authority, the *tertius* negotiates for favorable terms. Structural holes are the setting for *tertius* strategies, and information is the substance. Accurate, ambiguous, or distorted information is strategically moved between contacts by the *tertius*.

COMPETITIVE ADVANTAGE

Thus, individuals with contact networks rich in structural holes are the individuals who know about, have a hand in, and exercise control over, more rewarding opportunities. In terms of the hole argument, networks rich in the entrepreneurial opportunities of structural holes are entrepreneurial networks, and network entrepreneurs are people skilled in building the interpersonal bridges that span structural holes. But with respect to network structure, these are precisely the people identified as opinion leaders in diffusion research.

In other words, social capital research brings to diffusion research an incentive for opinion leadership; such leadership has been shown to be a competitive advantage in labor markets. The opinion leaders, or more precisely opinion brokers, now identified as network entrepreneurs rich in social capital monitor information more effectively than bureaucratic control. They move information faster, and to more people, than memos. They are highly

mobile relative to bureaucracy, easily shifting network time and energy from one solution to another. More in control of their immediate surroundings, hole-spanning individuals like Robert in Figure 1 can tailor solutions to the specific individuals being coordinated, replacing the boiler-plate solutions of formal bureaucracy. To these benefits of faster, better solutions, add cost reductions; entrepreneurial managers offer inexpensive coordination relative to the bureaucratic alternative. Robert in Figure 1 operates somewhere between the force of corporate authority and the dexterity of markets, building bridges between disconnected parts of an organization or market where it is valuable to do so. In comparisons between otherwise similar people like James and Robert in Figure 1, it is the people like Robert who are expected to be more successful.

And they are. Among senior managers, it is the ones like Robert, with stronger network connections across structural holes, who enjoy more positive job evaluations, faster promotions, and higher compensation (see Burt 1998b, for research review). Corroboration for the analogy to opinion leaders comes from research showing that opinion leaders tend to have the expected correlates of social capital, namely, higher levels of education, higher incomes, and greater mobility (Gatignon and Robertson 1985; Rogers 1995, 293-299, 335-370).[12]

CONCLUSION

Opinion "leaders," like Welsh in the exchange with Marcus, turn out to be more precisely opinion "brokers" who bear a striking resemblance to the network entrepreneurs in social capital research. They are brokers twice over. First, opinion leaders are brokers in the sense that their influence is between, rather than within, groups. Within groups, contagion is by equivalence, not cohesion (as illustrated in Figure 2). Cohesion matters across groups. Opinion leaders are the people whose conversations trigger contagion across the social boundaries between status groups. Second, opinion leaders are brokers in the sense that they are a transition between the two network mechanisms responsible for contagion. The familiar two-step flow of communication is a compound of two distinct network mechanisms;

[12]Both of these widely cited reviews, Gatignon and Robertson (1985) and Rogers (1995), caution that the socioeconomic characteristics of opinion leaders vary across products, but one has to wonder how much of the variation is due to the value of social capital varying in predictable ways with the context and manner in which social capital is used (Burt 1997, 1998a, 1998b).

contagion by cohesion through opinion leaders gets information into a group, then contagion by equivalence triggers adoptions within the group. Thus, opinion leaders are not people at the top of things so much as people at the edge of things, not leaders within groups so much as brokers between groups.

Social capital is a phenomenon ostensibly unrelated to contagion; unrelated in the sense that there are few citations between publications on the two phenomena, ostensibly in the sense that there is an intimate and productive connection between the two phenomena.

As brokers, however, the opinion leaders brought to our attention so long ago by the Bureau of Applied Social Research are the network entrepreneurs studied in social capital research, which describes how the brokers in a network enjoy information and control advantages that lead to more positive job evaluations, faster promotions, and higher compensation.

Complementary content is what makes the analogy between diffusion and social capital research productive. Where diffusion research, in describing opinion leaders, describes the substantive details of people brokering the flow of information between groups, social capital research describes the competitive advantage that results.

There are practical and academic implications. We know that adoptions — or, on an even more practical note, sales — can be increased by embedding the seller-buyer relationship in personal relationships (e.g., Baggozzi 1975; Frenzen and Davis 1990; Grayson 1996), or using the social structure of a target market to identify people whose early adoption will trigger other adoptions (e.g., Krackhardt 1996). The social capital analogy means that social capital measurement can be used to more accurately identify the opinion leaders in a target market for embedding and early adoption, which, by anchoring marketing strategies on the people most able to trigger other adoptions, will yield more adoptions from whatever strategy is used to elicit opinion-leader adoptions. There are also implications for training sales people and other change agents to act as opinion leaders. For example, they have to know when to disappear. The first adoption within a group comes from converting a close contact, after which the opinion leader fades into the background to allow contagion by equivalence to have its effect; peers adopt not because of the opinion leader, but because of the advantages adoption gave to the person converted by an opinion leader.

The academic implication is explanation more precise and more general. Studying the role of social capital in innovation diffusion establishes a conceptual link between diffusion and the broader issue of inequality. The link adds to social capital research the substantive

details from diffusion research on processes by which opinion leaders broker information between groups. At the same time, the link adds to diffusion research a new perspective on classic concepts in which the two-step flow of ideas through opinion leaders is a by-product of network entrepreneurs searching for personal advantage in the broader social system.

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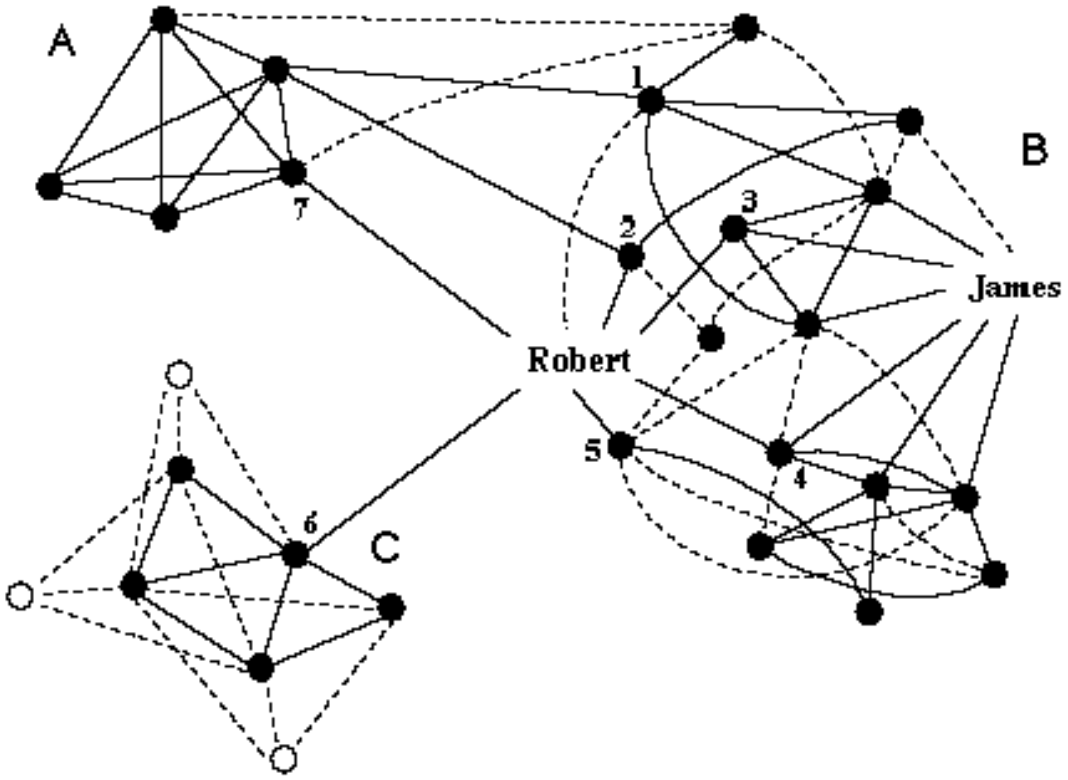
Figure 1.
Network Sociogram and Density Table



Density Table of Relations Within and Between Groups
(raw data: strong tie = 1, weak tie = .5, no tie = .0)

1.00				Group A (5 people, 91.9% equivalent)
.05	.25			Group B (17 people, 35.5% equivalent)
.00	.01	.80		Group C (5 people, 91.7% equivalent)
.00	.00	.30	.00	Group D (3 white dots, 95.6% equivalent)

Figure 2. Evidence of Contagion by Equivalence and Cohesion