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The Structure of Ignorance[1]

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Why Ignorance?

As we begin a conference that will expand our knowledge, you may be wondering "Why ignorance?" Ignorance is important. Twenty years ago Harrison White, Ron Breiger, and Scott Boorman (1976) convinced us that the gaps in social structures are the most important parts of them. Gaps in knowledge are just as important as gaps in social structures. Moreover, the two kinds of gaps are strongly related, which is part of the reason that I am talking about the *structure* of ignorance. I will emphasize ways in which lack of connection generates lack of knowledge. I will talk about ways that structural location affects both the ignorance that "just happens" and the ignorance that powerful actors can shape.

The simple contrast between ignorance and some knowledge is not only important. It is also convenient from the point of view of our current modelling capacities. Many of our models of social structure concern a binary dichotomy: people agree on an issue or they do not, they adopt an innovation like the poison pill or they do not, they hear the news or they do not. We are moving toward fancier models, and we must hustle along with this job, but meanwhile the simpler models can still be turned to some powerful purposes.

Finally, a focus on ignorance is in part political. Ignorance is usually (though not always) the problem of the powerless, for very good structural reasons. Knowledge (including all sorts of partial but useful knowledge) is usually the privilege and power resource of the already powerful. If we focus on ignorance, we focus on the powerless and their problems as well.

Instrumental Help: The Role of Tie Strength

I begin with one of our favourite network areas, social support, where structured ignorance has clear and direct costs for people. I will not tackle the many variations in kinds of help and their roots in different kinds of relationships, leaving that to Barry Wellman and Scot Wortley (1990) and others. I will focus on instrumental help, or the practical assistance that people may or may not get in looking for a job, locating services, and so on. Such help often depends crucially on two kinds of knowledge. The first kind is the potentially useful knowledge that some potential helper has, such as knowledge of a good job opening or knowledge of carpentry. Much of the job search literature concerns this kind of knowledge, and argues that

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this knowledge is greater among weak ties than among strong ones because weak ties link us to people who are not like ourselves and know things that we ourselves do not know. Mark Granovetter (1995), Nan Lin (1982, 1990), and others have convinced us that weak ties can be useful in getting good jobs, at least in some kinds of labour markets. And Bev Wellman (1995) reports that people find alternative health care practitioners mainly through weak ties.

So weak ties seem to be important; but we do not study them very much. We know that weak ties are more diversified than strong ones, but we do not know whether diversity keeps growing as ties get weaker. We know that a lot of help comes through weak ties, but we do not know whether the help comes mostly from the weakest of weak ties, or from moderately weak ties, or what.

I tried to start filling this knowledge gap by looking at ties among people in a voluntary association, a group of several hundred duplicate bridge players in Ottawa. Few of the ties in this group are strong in the usual sense of being among peoples' few dozen most intimate ties. Instead the ties in this group range from moderately strong down to extremely weak; so we can explore the unknown details of weak tie territory here. I found that weak ties keep getting more and more diversified as they get weaker, so the variety of potentially useful information grows. But the help people get does not grow as ties weaken -- just the opposite, in fact. I found that people got substantial amounts of help with job searches and access to services, and most of it came through stronger ties even though weaker ties were twenty times more numerous. Among the stronger ties, the stronger the better: the more multiplex the tie the more often it produced help.

Why? Because of the second kind of knowledge necessary for help to occur, that is, knowledge that useful knowledge is available, or needed. The weaker ties get, the less often people talk and the less they talk about, so many potentials for help are wasted. As ties get weaker, the variety of potentially useful knowledge does grow but ignorance of this potential also grows. Thus the most useful ties are moderately strong, which gives the best mix of wider knowledge combined with communication of that knowledge. If we just contrast very strong ties to all weak ties, as is usual, weaker seem stronger.

Instrumental Help: The Role of Network Density

But we cannot fully understand help just by looking at individual ties. Ties deliver help at different rates in different contexts, in part precisely because third parties can increase the flow of information. Edwina Uehara (1990) contrasts denser and less dense personal networks. In dense networks, communication is not just dyadic: third parties spread the word about who has help, who needs help, who has been helpful in the past, and who has been a free loader. In such networks help can take the form of generalized exchange. People help as and when they can, expecting no specific return, just expecting that someone will help them somehow when they need it. This works out fairly in the long run because the entire network knows what is going on. But in sparser personal networks, the people that ego knows often do not know each other, so knowledge of helping history is limited to separate dyads. Calculation of what is fair is also limited to separate dyads. People expect a prompt and exact return of every favour from the particular person helped, a pattern know as restricted exchange. Thus gaps

in the structure generate gaps in knowledge that support a restricted calculative helping culture. The human cost is that people get less help.

Instrumental Self-help (or, Exploitation)

People do not just get help; sometimes they help themselves at the expense of other people. Exploitation is possible for some because of social gaps and mutual ignorance among others. Ron Burt (1992) shows that a person benefits from knowing people who are themselves unconnected, so that the person who links them can play them off against each other. Note that control of information is a critical part of Burt's argument: the disconnected alters are exploitable because of the gaps between them and because of their ignorance of each other. Karen Cook and others working on exchange (e.g. Cook 1987) also think about ways in which gaps in networks generate unequal knowledge of exchange opportunities, and how unequal location and knowledge lead to unequal returns. There is a lot of interesting work on markets, and how market processes vary with social structures and the resulting limits to knowledge.

We have seen that networks create various kinds of ignorance that affect help and self-help. Weak ties reach more information potentially, but more often leave people ignorant of that potential, so moderately weak ties help most. Network density increases information, not just in separate relationships but among third parties as well, which supports more generalized helping and greater levels of help. Structural gaps between people render them vulnerable to the exploitation of others who help themselves. I turn now to a new topic, cultural resources. Again I will start at a lower structural level, talking about personal networks, and the move up to a more global network view, looking at center-periphery structures.

Network Variety and Cultural Variety

I begin by noting that ignorance is a convenient entry point into the study of structure and culture. We can simplify this complex topic, at least to start with, by thinking of ignorance as a simple void of knowledge, so we have a simple variable: knowing nothing versus knowing something. Clearly that is making life TOO simple, and I will slip into talking about some of the complex variations in knowing something. But just as any link between two social locations is dramatically different from no link at all, much more different than just adding a few more links, having even a little knowledge of a topic is dramatically different from having none. Alexander Pope was wrong: a little learning is *not* a dangerous thing, it is a very useful thing. People who know even a bit about a topic know enough to know that there is something to know, and if necessary they can try to find out more. People with a little learning can fake a lot more than they have, especially if they are socially and culturally sophisticated people, which is the same as saying they have moved in many social circles. People can turn the limits of their knowledge to advantage, ingratiating themselves with their cultural superiors by asking to learn. This trick works so well that people even pretend to know less than they do sometimes. Many, many tricks can multiply the social value of a little knowledge; but all the tricks in the world, times zero knowledge, make zero.

So where do people get a little learning about a lot of things? From networks full of a lot of different kinds of people, who themselves know many different cultural genres. Paul DiMaggio (1987) and others have anticipated this, but I think I am the first to show it, and show it very strongly, in results from my recent study of the Toronto security industry (Erickson forthcoming). I asked people whether they knew anyone at all in each of 19 different kinds of occupations, occupations so different that they go with different structural locations and hence different cultural mixes. I also quizzed people about their familiarity with some quite different kinds of culture: high culture (books and art), popular culture (sports), and business culture (business magazines and restaurants suitable for business entertaining). Whatever the kind of culture, people with more network diversity knew more about it, and network diversity was more important overall than any other source of culture. As all good networkers would expect, merely categorical matters like class matter little in themselves; they matter because they are correlated with people's chances to build wider networks, meet many kinds of people, and hence pick up at least a smattering of knowledge of many different cultural genres. Their knowledge is not always deep, but as I argued earlier, it does not have to be. They can use their bits of learning to navigate comfortably and effectively in many different social settings, to quickly build new ties to strangers, to be a success in leisure life and in the better kinds of jobs that call for extensive interpersonal relationships (Erickson 1996).

People with very limited networks are not only ignorant of many things, they often do not know what they know nor how to express it. Rose Coser (1975) argued persuasively that seeing the same kinds of people over and over encourages tacit knowledge and concrete language, which is quite sufficient in a group with extensive shared experiences. One serious consequence is political, that is, the problem which powerless people typically have in expressing their lives or claims or grievances. In contrast, it is people with widely varied contacts who must become selfconscious about what they know (because they cannot assume that other people already understand it), and who must learn abstract general language (to convey information to outsiders). More recently, Harrison White (1995) points out that people in complex networks actually speak many languages and "zap" from one to another as they switch social settings, as easily as people browse 57 TV channels. But people in limited networks have small screens, basic TV service, and no remote control; they shift with difficulty between few options.

Global Network Structure and Cultural Resources

Let me now shift from a personal network view to a global network view. For simplicity I will just talk about center-periphery structures. There are plenty of other structures, but I have time for only one kind, and center-periphery structures are an interesting kind. They are quite common, popping in places as different as the world system and scientific specialties. And they include large differences in different kinds of ignorance.

People in the center of a center-periphery structure are densely related to each other, so they quite easily reach consensus on what kinds of knowledge are important. We see this routinely in our own sociological worlds, in which important people pay attention to much the same books and important books are those that important people pay attention to. One of the most useful consequences of such consensus is that central people know what they can afford

not to know. It is only peripheral people who look up every book or article on a topic and try to read them all, thus leaving no time to write any books of their own. Central people also have a sophisticated level of knowledge of the things worth knowing; they know the details and debates, they know suitable sophisticated languages. And their knowledge is all the easier for them to use because it is well organized into coherent belief systems (Erickson 1982). Peripheral people know less, understand less, can express less, and routinely make poor judgements.

At the same time, central people can be ignorant in important ways because they are encapsulated by their own position and their own confident expertise. Janis (1972) discussed this sort of thing in his book *Victims of Groupthink*, in which he asks how it is that smart, powerful people with superb resources, like the Kennedy administration, can do really dumb things, like approving the Bay of Pigs invasion. He argues that the powerful sometimes become tight ingroups, generating a special view of some situation, reinforcing each other's confidence in this view, and subtly but effectively discouraging the poor subordinates who try to wake them from their folly. These patterns of elite advantage and disadvantage show up in many settings, including boardrooms as well as war rooms.

I would like to give you some specific examples of cultural advantage and disadvantage in one specific network that I know well. This is the voluntary association of Ottawa bridge players, mentioned earlier. This group has a very nice center-periphery structure that Peter Carrington helped me identify (Carrington and Erickson 1986). Players in the center almost all know each other, players in the semiperiphery know each other less often, and players in the periphery rarely know each other. Peripheral players know central ones more often than central ones know them.

This structure helps give more central players a tremendous advantage in knowledge of anything to do with the bridge world itself. For example, I and David Tindall (1989) found that more central players have a much clearer idea of their own position within the competitive world of bridge. Players rated themselves in bridge ability, from well below average to outstanding. Central players really knew how to rate themselves: their self-evaluations were highly predictable from relevant things. Central players rated themselves better players if they had better playing records, if other players thought they were good, and if they wanted to consult better players about playing problems. Semiperipheral people were a bit more at sea. Their self-ratings were less predictable. Further, they made little use of knowledge flowing through networks, that is, their ratings did not depend on what other people thought of them nor on the expertise of the players they consulted. Instead, they rated themselves on their own records and gave themselves a bit extra if they were men. Finally, the unfortunates on the periphery seemed ignorant of any way to judge their own bridge quality: their self-evaluations were unrelated to everything. Thus peripheral people can be ignorant even of themselves and their places in social hierarchies.

But the central players gain deep knowledge of bridge matters by neglecting everything else. Central players are the ones who do *not* talk much with their partners about trifles like family, personal problems, jobs, or politics. They have a passionate fixation on bridge itself, a focus supported by the tightness of their elite ingroup. And this focus cuts them off from potential flow of information about, for example, politics and helping opportunities. Thus participation in this association has a mild politicizing effect, as is true for many associations,

but only for peripheral players, not for central players (Erickson and Nosanchuk 1990). Also, central players are very densely tied and thus have the same structure that Uehara found to generate high rates of help. Help was high, in her findings, in part because third parties gave information and encouragement. But in the bridge world, the densely tied central players get no more help than peripheral ones do from ties of the same strength. The problem is that the center is packed with third parties, but they are not interested in news about irrelevant trifles like helping needs, so each dyad is alone in the midst of a crowd.

I have noted that central people can become encapsulated, can focus too tightly on the things they define as important, and hence cut themselves off from useful information. But overall, elites are highly advantaged in gaining information. They have good ties to each other and good ties to the periphery as well, hence access to useful information from all over the network

I turn now to some impacts of structure on information about something we all find fascinating -- structure itself.

Ignorance of Structure

If structures are big and hard to see, ignorance is widespread. Charles Kadushin has studied a number of networks of elite people, who are generally pretty smart and pretty fond of observing themselves, yet he finds they routinely do not know what their own networks look like (e.g. Kadushin 1974). We humble folk do not even know how many people there are in our networks. It takes the sustained efforts of Peter Killworth, Gene Johnson, Russ Bernard, and a bunch of other people just to give us a rough idea (e.g. Killworth et al. 1990).

But our cognitive friends tell us that ignorance decreases when people have structural locations that give them a better view. For example, David Krackhardt (1987) reports that people see a network more accurately if they are more central in it, which makes sense in light of their greater powers to gather information. Structure affects not only the information people encounter, but their ability to absorb it. In an intriguing little experiment, Greg Janicik (1995) found that people could learn a complex structure more quickly if they had more prior experience with complex structures. There is a lot of fun work to be done in this area.

Deliberately Created Ignorance

So far I have been talking mostly about ignorance that seems to "just happen". People with restricted networks do not plan to get less help, learn about fewer cultural genres, learn fewer languages, and misperceive their own networks. And often those in the centres of networks do not plan to be better informed nor do they conspire to define what is worth being informed about. Indeed this is one of the most maddening things about well-placed people: since they do not consciously try to take advantage of other people, they think that all the good things flowing their way come fairly, and they are genuinely puzzled by the inarticulate mutters of complaint from below.

But sometimes, people quite deliberately keep others in the dark. Yanjie Bian (forthcoming) tells us that officials in China assigned jobs as favours to people they were connected to. This was against the rules and could get people into trouble, so people kept things quiet by using strong ties to people they could trust to keep secrets. I found that secret societies work in a similar way (Erickson 1981). If there is real risk involved, as in political or criminal undergrounds, people build links in the secret society through stronger ties. One result is that secret societies rarely have the lovely cell structure that people think is best for overall organizational secrecy and survival. Most underground networks just grow along the messy lines of pre-existing strong ties, unless some people have enough resources to control this growth and force it into a more hierarchical outcome.

Turning to the less exotic world of the workplace, we find a mixture of unintended and intended restrictions on what people can learn. In the Toronto security industry, as in much of the private sector, the people who run companies want their employees to stick to business (Erickson forthcoming, 1991). They encourage talk that gets the job done, not talk about widely varying cultural genres. This is one reason why class and work history have so little impact on cultural resources, as I noted above.

Employers also restrict access to culture indirectly by restricting the networks that teach people culture, as I argued earlier. Employers restrict networks more for lower-level employees, thus perpetuating the interrelated inequalities of position, network diversity, and cultural diversity. In part, this restriction of networks is an unintended consequence of standard North American job definitions, definitions which most employers take for granted. Low level jobs are supposed to have limited scope, including limited relationships. As one employer said of his alarm installers, "they contact the customer, but they don't deal with them in terms of sales or that sort of basis. They go, they meet them, they go to the job and do the work." So employers neither look for people with contacts to do low-level jobs, nor do they give people in low-level jobs a chance to develop useful contacts from the people they meet on the job (Erickson 1996).

Further, some employers restrict employee ties deliberately. One reason is security, for example, undercover operatives need to keep their real identities secret to get their jobs done and to get them done safely. But employers also restrict employee ties to keep them from learning the business, developing ties to clients and so on, and then setting up competing businesses of their own. As one owner said, "one of the biggest problems in this business is taking two years to train someone and having them start a small company out of their trucks." (Erickson 1996).

Thus the powerful in the work world use a mixture of strategies, both implicit and explicit, that result in restricting what people know and who they know, especially for people who know few things and few people already.

Cultural Duals

To this point I have been arguing like the true network fanatic that I must admit I am. I have been stressing ways in which structure affects other things, not the ways other things

affect structure. But for every structural effect on culture I have noted, there is a cultural dual in which culture shapes networks or how they operate.

The strength of a tie is related to information and thus to helpfulness. But in addition, cultural expectations shape the amount and type of help that a particular type of tie produces.

Dense networks rich in third parties have rich flows of information. But they also have definitions of the kind of information that is interesting enough and relevant enough to flow, and shared culture helps such networks to become dense.

Structural position helps determine how much we will profit from our resources, but culture helps define what the resources and profits are worth. Viviana Zelizer (1989) shows that even money, which economists like to think is just money, has many different meanings and values.

People with more diversified networks build up richer cultural repertoires. And people with diversified culture build up more diversified networks, because they easily find things in common with people they encounter (DiMaggio 1987).

People in the centers of center-periphery structures know more and can express what they know better. But people who know the kinds of things central people know can work their way into the center.

Structural location affects how accurately people perceive structure. But it is also true that our perceptions are coloured by our cultural expectations. For example, Lin and Sue Freeman and Alaina Michaelson report that people tidy up the mess in real networks. They see more triad transitivity than there is, and they see groups as more perfect cliques than they really are (Freeman, Freeman, and Michaelson 1988, 1989; Freeman 1992).

If people's perceptions of structure are biased by their expectations, it is important for us networkers to remember that we are people. We too can see things that are in our heads, not in the network. Being students of structure, we have a particularly strong bias toward finding structure. Yet sometimes networks are too new or too constantly disrupted to have much structure. For example, at the London network conference Pat Doreian (Doreian et al. 1995) presented an analysis of a certain famous fraternity, showing that transitivity developed slowly over time rather than being full-blown from the beginning. Meanwhile Bill Richards tells me (personal communication) that some users of his programme NEGOPY are determined to find cliques whether or not there are cliques in the data. Bill has also seen people make very persuasive sense out of cliques that were definitely not there, because the clique analysis input was random numbers.

Given that we are only human, we owe a lot to people who help us to test whether the trends we think we see are really more than random numbers or things in our heads. In particular we owe a lot to Stan Wasserman and Katie Faust (1994) for their wonderful book *Social Network Analysis*. Not only is this the first comprehensive book on data analysis for networks, but it is also a sustained editorial on the importance of using statistical tests whenever we can, instead of just saying "look at that!" as we so often do. Having co-authored

a statistics text myself (Erickson and Nosanchuk 1992), I know how much work Stan and Katie did for us, and I know they will get little reward for it beyond our thanks.

Things To Do

If networks shape knowledge and ignorance, and culture shapes networks, then we need more complex models of the ways that culture and structure affect each other. These models may be mathematical in style or not. One interesting example from the more mathematical end of things is Kathleen Carley's (1991) "constructural" model of the co-evolution of networks and distributions of knowledge. In Kathleen's computer simulated social worlds, people prefer to interact with other people to the extent that the others know the same things as themselves. And in turn, the more people interact, the more they share pieces of information. Examples from the less mathematical end of things include a mountain of work by Charles Tilly. One recent example is a paper (Tilly 1996) based on his address to the Tillyfest organized by the Wellmans. He argues that people act, within their existing structural and cultural frameworks. They try hard to get what they want, but over and over again things do not turn out as planned. They try to correct their errors, still working in their structural and cultural frameworks, and at the same time modifying them. This rather messy process, full of unintended consequences and mistakes, gradually lays down the foundations of enduring structures and cultural repertoires.

And if both structure and culture matter, then we also need a lot more work in varied societies and varied social settings. We have made a start on this, with one fine example being work on social resources and social mobility. People have looked at social resources and jobs in places as varied as West Germany (Wegener 1991), the Netherlands (DeGraaf and Flap 1988), the United Kingdom (Grieco 1987), Canada (Calzavara 1983, Erickson 1996), Japan (Watanabe 1987), China (Lin and Bian 1991), Taiwan (Hsung 1995), and Singapore (Bian and Ang 1995), as well as the United States. Nine countries on three continents is a start, but is only a start. Of course people in many other substantive areas are making interesting cross-cultural comparisons. For example, Shinji Nozawa is studying personal networks in Japan and making some comparisons to Wellman's Toronto data. Shinji and many others will report to us over the next few days on results from Western and Eastern Europe, Canada, the United States, Latin America, Asia, Africa, and Australia.

We have a wonderful conference ahead of us, thanks to the hard work of John Skvoretz and Katie Faust and their helpers. It is time to get started on filling in our missing links, strengthening our existing ties, and reducing our ignorance.

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