

**SIMMEL IN THE LABORATORY: AN EXPERIMENTAL INVESTIGATION  
INTO THE RELATIONSHIP BETWEEN SECRECY AND COHESION**

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## ABSTRACT

This paper investigates whether there is a positive relationship between secrecy and cohesion – a proposition first made by Georg Simmel. More precisely, the study used the experimental method to investigate whether having members of a dyad share a secret with each other, increased cohesion in the dyad compared to a control. A hierarchical linear model was used to analyze the data. An interaction effect was found between trust and secrecy, but the results are not conclusive. The paper reviews work on secrecy (paying particular attention to Simmel's perspective), cohesion, and the mechanisms linking the two. It ends by suggesting improvements to the experimental design and some theoretical extensions of the current study.

## BIOGRAPHICAL SKETCH

Michael Genkin received a Baccalaureate of Arts degree, summa cum laude, from the University at Albany, State University of New York, in sociology and philosophy. He has pursued his graduate education in sociology in the PhD program at Cornell University. Michael's research deals with questions fundamental to sociology and arguably to almost every social science discipline: what are the conditions and mechanisms that produce solidarity and conflict in human societies? His work on an agent-based model of radicalization has won the prestigious Outstanding Graduate Student Paper award from the Mathematical Section of the American Sociological Association.

*I dedicate this thesis to Thomas Klein, my teacher of Social Studies at Intermediate School 259 William McKinley of Brooklyn NY, who brought out and nurtured my interest toward human history, society, and culture. May scholars neither forget nor take for granted their first educators.*

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## TABLE OF CONTENTS

Biographical Sketch.....	iii
Dedication.....	iv
Acknowledgments .....	v
Table of Contents .....	vi
List of Figures.....	vii
List of Tables .....	viii
Preface .....	ix
What Secrecy Is and Isn't.....	1
Secrecy and Concealment: an Analytic Literature Review .....	4
Cohesion: Conceptualizations, Measurements, and Theoretical Insights .....	17
From Secrecy to Cohesion: Causal Mechanisms .....	22
Experimental Study .....	31
Results of the Study.....	41
Discussion of Results .....	47
Experimental Extensions .....	48
Theoretical Extensions and Practical Contributions.....	57
Conclusion .....	64
Appendices .....	65
References .....	81

## LIST OF FIGURES

Figure 1: The Experimental Setup .....	34
Figure 2: The Disordinal Interaction Effect Between Trust and Condition.....	44

## LIST OF TABLES

Table 1: Descriptive Statistics - Categorical Variables.....	32
Table 2: Descriptive Statistics of Key Continuous Variables.....	40
Table 3: Secrecy Effect on Overall Perceived Cohesion .....	41
Table 4: Testing the Trust Account Design .....	52
Table 5: Testing the Cognitive Busyness Account Design.....	53
Table 6: Testing the Self-Esteem Account Design .....	54

## PREFACE

Does a condition of secrecy, a situation where 1) members of a group share information known only to them and 2) those group members are aware of this fact and 3) deliberately conceal the information from non-group members - cause cohesion in the group to increase as a result, and if so, by what processes? The paper investigated this question using a controlled laboratory experiment.

The property of secrecy has been understudied and undertheorized. Yet secrecy forms a critical feature of the social structure that shapes human social behavior. The practice of concealing is as old as human civilization. It is carried out by individuals, groups, organizations, and states. And the process of holding a secret has certain effects on the structure all four. While the heart of the paper is the investigation of one such process – the impact of secrecy on cohesion; it will explore related issues in some depth. First, the paper will begin by reviewing how secrecy has been conceptualized and how it has been distinguished from close conceptual cousins such as privacy, anonymity, confidentiality, and deception. Second, the paper will review the literature on secrecy from diverse disciplines with a special focus on (a) the work of Georg Simmel and (b) how secrecy has been related to cohesion by various scholars. Third, the paper will review the literature on cohesion – how it has been conceptualized, measured, and what some of the relevant theoretical findings are. Fourth, it will discuss some mechanisms by which secrecy may increase cohesion. Fifth, the laboratory study will be presented discussing the set up, procedures, findings, and the meaning of the results. Sixth, the paper will discuss how the present study might be strengthened in respect to certain design elements such as stronger manipulation, better measurement; more confound checks, and sub-studies to test for specific mechanisms. Finally, it will conclude by identifying extensions and implications of

my study of secrecy for certain basic questions in social scientific theory and suggest applications to practical problems and policy.

The paper also includes an appendix that documents some of the scripts, instruments, and manipulation examples used in the study. Points deemed tangential to the main argument but important in other respects have been carefully footnoted.

## WHAT SECRECY IS AND ISN'T

### *Dimensions and Types of Secrecy and its Close Cousins*

Secrecy involves the deliberate concealment of attitudes, beliefs, goals, information, emotions, behaviors/practices, objects, or identities from social actors who are believed to value such information. Let us unpack the definition. 1) The concealment has to be deliberate. If the concealment is accidental – such that something is kept from someone else, because “they never asked” it does not constitute secrecy. 2) At the heart of the concept is *concealment*, some information is obscured or hidden from view or (easy) access. 3) The information has to be perceived to be valued by other social actors such that its revelation is believed to result in non-trivial consequences. This relationality makes the process social. We often don't go around telling others what we had for breakfast, but such information will be of no consequence (in most cases) if it was revealed, even if we go out of our way to conceal it.

Concealment can be limited to an individual secret holder, who alone guards the secret or to group secrecy where the secret is socially shared within a group. As we shall see some scholars argue that these levels of analysis are governed by qualitatively different dynamics.

Furthermore, the objects of concealment (the attitudes, goals, beliefs, information, emotions, behaviors, or identities) create a variety of permutations of secrecy. For example one can have a society that is known to exist, but whose membership/identities are unknown (e.g. Ku Klux Klan,) or a society whose membership and identities are known but whose practices are unknown (e.g. Cornell's Quill & Dagger and Sphinx Head secret societies<sup>1</sup>), or a society whose existence,

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<sup>1</sup> Quill & Dagger and Sphinx Head are two of the oldest secret societies at Cornell University. Members are inducted annually and the list is published in the Cornell Daily Sun, a student-run newspaper. The societies existed at Cornell for 118 and 115 years respectively.

membership, and practices are unknown. There is no theoretical intuition whether concealment operates differently on the different levels and with different objects. Maybe the concealment of identity is qualitatively different than the concealment of emotions.

Concealment is not unique to the human species. Monkeys, chimpanzees and even lower order animals have been observed hiding food from one another (see Vander Wall 1990 for a nice review of concealment dynamics by non-human animals). However, such concealment is motivated by instrumental concerns – a squirrel might hide a nut from another squirrel so it can enjoy it at a future date. An ape might hide a fruit so it can exchange the fruit for a mating opportunity at a later time. What is unique to humans is the concealment of symbols for *non-instrumental goals*<sup>2</sup>. But secrecy is often confused with analogous concepts such as deception, anonymity, privacy and confidentiality and it is important to distinguish and relate it to such concepts.

*Deception* involves deliberate/willful misrepresentation. Secrecy is passive, no falsity is stated – information is simply not revealed. In fact one may not even know the secret exists. Deception also has an explicit negative moral connotation since the other party is tricked and in some way actively harmed.

*Anonymity* is the concealment of specific kind of information – one's identity. One may conceive of it as a sub-type of secrecy. It is the performance of an action without attaching one's identity to the action by hiding one's identifying information by wearing a mask or withholding a name.

*Privacy and Confidentiality*: Privacy is a close cousin of secrecy. Following the distinction drawn by Shils "Privacy is the voluntary withholding of information reinforced by a willing indifference. Secrecy is the compulsory withholding of

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<sup>2</sup> The social sharing of secrets may also be unique to humans.

knowledge, reinforced by the prospect of sanctions for disclosure”( Shils 1956:26). Privacy is information restricted to individuals, whereas secrecy may or may not be restricted to individuals. An alternative distinction based on the perceived morality of the information that is being concealed was proposed by Warren and Laslett (1977). Privacy is about information that is morally neutral or positive and secrecy is about information that is “negatively valued by the excluded audience” (Warren and Laslett 1977:44). They erroneously claim to base this distinction on Simmel’s essay<sup>3</sup>. This will not be the distinction used here as no analytic traction is gained by bringing moral perception into the analysis. Instead I will follow Simmel’s point that “Secrecy is a universal sociological form, which, as such, has, nothing to do with the moral valuations of its contents.” (Simmel 1906:463). Confidentiality is roughly<sup>4</sup> the same as privacy.

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<sup>3</sup> In an astonishing display of poor scholarship Warren and Laslett (1977) misquote Simmel by improperly using and omitting ellipsis. They cite on p.44 Simmel to say “As Simmel states ‘The secret .... is the sociological expression of moral badness.’ [1950,p.331]”. Upon checking the source, the full quote reads as follows “*Among other things* [italics added], the secret is *also*[italics added] the sociological expression of moral badness, although the facts contradict the classical phrase that nobody is bad enough to want in addition to *appear* bad.” The “among other things” refers to the preceding sentences. “On the other hand, although the secret has no immediate connection with evil, evil has an immediate connection with secrecy: the immoral hides itself for obvious reasons even where its contents meets with no social stigma as , for instance, in the case of certain sexual delinquencies. The intrinsically isolating effect of immorality as such, irrespective of all direction social repulsion, is real and important beyond the many alleged entanglements of an ethical and social kind.” With the proper context added it is hard to misinterpret what Simmel actually said, secrecy is not inherently about good or evil, though secrecy is often associated with the ethically negative.

<sup>4</sup> One difference between privacy and confidentiality, particularly favored in the context of Institutional Review Boards, is that privacy is a right of a subject to control his/her information. Confidentiality may refer to an after the fact process. If private data was collected, keeping it confidential means that a third party keeps it secure.

## SECRECY AND CONCEALMENT: AN ANALYTIC LITERATURE REVIEW

### *Secrecy: The Problem Discovered*

The idea that secrecy may form a distinct social structural relation is a fairly old one in sociology. It was first recognized by Georg Simmel in his seminal 1906 essay in the *American Journal of Sociology*<sup>5</sup> (Simmel 1906). In addition to this article Simmel's work on secrecy is contained in a subsequent book *Soziologie, Untersuchungen über die Formen der Vergesellschaftung*<sup>6</sup> (1908), large portions of which have been translated into English by Kurt Wolff (1964). (However, most of the secrecy section of the book<sup>7</sup> is coterminous with the AJS article). Recent scholarship has uncovered the possibility that Simmel's interest in secrecy may have been related to the heavy burden of bearing his own personal secret<sup>8</sup>.

The "discovery of society" and the emergence of disciplines such as sociology has closely corresponded with the development of the key institutions of the modern industrial age (Collins and Makowsky 1998). The task of early sociologists has been to theorize the massive changes that were occurring in their own lifetimes. It is in this context that secrecy was "discovered" as a focus of attention. Simmel notes that modernity brought the following paradox in the availability of information. In the preindustrial, agrarian society, secrets were harder to maintain on the community level, since such *gemeinschaft* societies were structured in such a way that everyone was in constant contact with everyone else. Modern industrial societies with their massive populations, anonymous dwellings in cities, and poor monitoring, have made

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<sup>5</sup> *American Journal of Sociology* was then in its 11<sup>th</sup> year of publication, having been founded in 1896. Simmel's article was translated from German by Albion Small, editor-in-chief of AJS at the time and the founder of America's first Department of Sociology at the University of Chicago.

<sup>6</sup> Translated approximately as *Sociology: Investigations of the Forms of Sociation*.

<sup>7</sup> Of particular interest are part IV, chapters 3-4.

<sup>8</sup> While being married, Simmel had an out of wedlock child with a lover. The existence of the child (a daughter) was something he was deeply ashamed of and kept secret. (Swedberg & Reich 2009 - see footnote 5 for primary and secondary sources)

secret keeping easier. On the other hand, governments are making far more information open and accessible to the public than ever before. Simmel notes how information on taxation, various regulations, and statistics on spending were very difficult to obtain until recently (Simmel 1906:468-469). Therein lays the paradox of the modern age in respect to secrecy: more secrecy by individuals and less secrecy from formal institutions. Max Weber was more leery of the openness of modern institutions. He claims that “The concept of the ‘official secret’ is the specific invention of the bureaucracy, and nothing is so fanatically defended by the bureaucracy as this attitude...” (Weber et al 1991:233). As if responding to Simmel, he claims that “the official statistics of Prussia, in general, make public, only what cannot do any harm to the intentions of the power-wielding bureaucracy” (ibid). For Weber, secrecy is a key tool that bureaucracies use to maintain power; the modern increasingly bureaucratized age will be an increasingly secretive one.

While both Weber and Simmel wrote on the macro and meso aspects of secrecy, it was Simmel (1906) that most thoroughly explored the micro dynamics of secrecy.

### ***Simmel and Secrecy***

Simmel begins with some basic facts about social relationships. Human relations, he notes, are predicated on knowing information about people with whom we interact and form various kinds of relationships. There is a desire/motivation to know accurate information about the other person. Even two previously unacquainted individuals, who may not expect to see each other again, form some mental image of one another. Relations involving trust with resources amplify this *desire to know the other*. Simmel points out that there is another dimension to human relations besides *mutual knowledge* via the desire to know the other, which paradoxically is *mutual*

*concealment*. While people have a desire to know about others, they also have an apprehension of letting everything be known about themselves. Thus emerges a kind of tug of war between trying to know and conceal, which is done with various degrees of subtlety in various human relations. This dynamic has many social psychological consequences.

Most people have an aversion to secrecy, particularly when it comes to secrecy maintained *from them*. Part of the genius of Simmel's essay was to "naturalize" secrecy, as neither inherently good nor bad, but as another social process that is necessary for the conduct of human affairs, that thoroughly pervades modern institutions, but that is sometimes taken for granted. His 1906 paper is rich in numerous observations on secrecy, not always logically coherent and sometimes filled with tangential digressions. I will review some of the points most relevant in the context of this paper – the social psychological dynamics of secrecy, its consequences, and the mechanisms that produce these consequences.

Simmel observes that in the interpersonal realm, there is a natural inclination to pour one's soul to one's partner, but he notes full transparency is bad for personal relationships because some mystery and surprise is the fuel that keeps a relationship lasting (Simmel 1906:460). But more interesting is his rationale for the observation. Simmel claims that when we don't know something about the other, it makes that person so much more alluring, we begin to fill in by imagination and this act of "filling in the mysterious" is more important for the relationship than knowing the actual truth. The process is further generalized apart from the realm of intimate partners and friends to other social relationships.

Furthermore, Simmel argues that secret-keeping or concealment is a *social* process on two levels of organization. First it involves other persons from whom the secret is kept. The possibility that a secret may be revealed or betrayed creates anxiety

for the secret-keeper. Simmel claims that “secrecy is sustained by the consciousness that it might be exploited” (ibid:466). Second, the secret need not be restricted to one person but may indeed be shared by multiple persons. When secret-keeping or concealment is done by groups rather than individuals, the dynamics become more powerful. Indeed, the practice of concealment underpins (to a lesser or greater extent) the behavior of many social institutions from small secret societies to nation states. Simmel goes on to suggest (or speculate) on how secrecy emerges, what function it plays, and appeals to numerous historical examples to illustrate his points. Given this paper’s theme, I will focus on the consequences that Simmel claims the property of secrecy has for small groups.

He notes several social psychological processes that occur as a result of small groups engaging in concealment: greater tendency to agree with each other, greater obedience to the leaders, diffusion of responsibility in one’s actions, and cohesion among members.

Simmel argues that having an aura of secrecy in a group makes members more susceptible to reach a consensus. He notes, in the context of political Cabinet discussions, that “... a small collection of people may be brought to agreement much more readily if their transactions are secret. (ibid:492)”. He attributes part of this to the fact that members are more isolated from countervailing influences. Though it is not clear from his discussion of whether it is isolation or secrecy (or their combination) that bring about the consensus. Presumably groups that are isolated but not secretive (e.g. a group of convicted sex offenders) will not reach consensus quicker. It appears that Simmel is arguing that isolation adds to the effect.

For Simmel, members of the secret society are also more likely to obey their own leaders and rules. He argues that, paradoxically, the more such a society is based on breaking outside laws (e.g. a criminal secret society) the more stringently they will

follow their own laws because there is a natural need for balance between freedom to do as one pleases and to following rules. Hence if you break laws in one domain, you will have an inclination to be submissive in another domain. “The excess of freedom, which such societies possessed with reference to all otherwise valid norms, had to be offset, for the sake of the equilibrium of interests, by a similar excess of submissiveness and resigning of the individual will.” (ibid).

Perhaps more intuitively, secrecy also allows for the abrogation of responsibility, letting people commit acts they would otherwise not be inclined to commit due to expected normative sanctions. For example one may never participate in sexual orgies or be part of a society that is known for engaging in sexual orgies, but belonging to a *secret* society that engages in sexual orgies and whose membership and activities are hence unknown to the public may make participation more likely. This extends to other activities such as murder. The wearing of masks or other disguises further loosens the constraint that one may otherwise feel. Simmel extends the idea to semi-public political groups that conduct their affairs in secret, citing the US House of Representatives as an example. “In the American House of Representatives the real conclusions are reached in the standing committees, and they are almost always ratified by the House. The transactions of these committees, however, are secret, and the most important portion of legislative activity is thus concealed from public view. This being the case, the political responsibility of the representatives seems to be largely wiped out, since no one can be made responsible for proceedings that cannot be observed” (ibid:496).

Simmel also suggests that secretive groups will tend to become centralized and develop strong authoritarian leaders. This is largely a function of survival. “Secret societies which, for whatever reasons, fail to develop a tightly solidifying authority are, therefore, typically exposed to very grave dangers” (Simmel 1964:371). This appears to be a functional, accidental property of secrecy. Secretive groups have very

high costs of defection, since very few defectors, can destroy the group. Simmel assumes that strong leadership is the best mechanism to prevent and control defection. This of course is a strong (though not unreasonable) assumption.

Finally, Simmel posits the relationship between secrecy and cohesion of the group, claiming that secrecy makes groups more solidary. He says that "... the intensified seclusion against the outside is associated with the intensification of cohesion internally..." (ibid:371). Simmel points out that unlike legitimate societies, discord may sacrifice the group since an unhappy member can simply choose to betray everyone else's identities and the group's secret(s). This precariousness puts pressure to maintain good relations. In what may appear as the strongest claim of the essay he says:

"Among all the bonds of an individual, the bonds of the secret sociation<sup>9</sup> always has an exceptional position. In comparison with it, the official [non-secret] bonds – familial, civic, religious, economic, through rank, and friendship – no matter how varied their contents, touch contact surfaces on a very different kind and measure. Only the contrast with the secret societies makes it clear that their claims criss-cross one another, because they lie (so to speak) in the same plane. Since these claims openly compete for the individual's strength and interests, individuals collide with any one of these circles: each individual is simultaneously claimed by the interests of other groups. The sociological isolation of the secret society greatly limits such collisions" (ibid:369).

In effect, one interpretation<sup>10</sup> of this passage is that secret relations triumph over all others, such that role conflicts (e.g. mother on the one hand, employee on the other) are easily resolved in favor of the secret organization, if that is one of the

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<sup>9</sup> Sociation (Vergesellschaftung) is a critical concept in Simmel's work. It denotes something akin to a social relationship through a particular kind of interaction that forms society. For example economic sociations form the economy. Familial sociations form the family. Managers and worker sociations form hierarchical organizations.

<sup>10</sup> One can also interpret the passage to mean that secret societies make people sever ties such that other competing obligations disappear. However the context of the essay makes it clear that Simmel is talking about simultaneous membership in secret societies and ordinary society. One could be a Free Mason and be a husband, father, employee with competing obligations. For Simmel the Freemasonry obligation will triumph the other three, should they come to conflict.

competing obligations. The individual looks at his/her membership in the secret society as a qualitatively different kind of obligation.

But why? What is it about the *secret relation*, irrespective of content, that elevates it above all others? Surely this is an extraordinary claim. Why is belonging to the Freemasons any different than belonging to the Rotary Club? What is the mechanism that makes secret societies so unique? For Simmel a critical mechanism is the so-called “aristocratizing motive” (ibid:365). He points to the basic process of forming any (non-instrumental) group where members seek to distinguish themselves from one another. The mere separation itself often has the effect of signaling value to the members and the non-members. “Even in school classes, it can be observed how small, closely integrated cliques of classmates think of themselves as the elite over against the others who are not organized – merely because of the formal fact of constituting a special group; and the others, through their hostility and envy, involuntarily acknowledge this higher value” (ibid). Secrecy and mystification magnify this effect several-fold, giving it importance beyond other ordinary or non-secret groups.

Such an analysis raises the question of whether secrecy is just a less general status process. For reasons, explained later in the paper, it will be argued it is not. Now we will turn to some work on secrecy done in spite and despite of Simmel’s famous essay.

### ***Post-Simmelian Secretology***

After the publication of Simmel’s 1906 paper, studies of secrecy diverged in several directions. A number of sociologists have tried to build directly on his work and to clearly articulate the empirical propositions found in his AJS article and attempted to test them. Others have gestured at Simmel in the cursory manner that is

common when citing the sociological classics, when they tangentially bear on what one has to say. This later trend is, not surprisingly, more common and is evident even in non-sociological articles on secrecy such as those written by psychologists, anthropologists, and political scientists.

The literature may be further subdivided on methodological grounds. There is a large tradition of archival studies of secret societies, of field studies especially by anthropologists, and a smaller tradition by experimentalists<sup>11</sup>.

The sort of evidence Simmel presented for his sweeping claims was often illustrative rather than confirmatory. Simmel drew upon historical cases of various secret societies (often without citing a single source<sup>12</sup>). While he ignores negative cases that may disconfirm his empirical generalizations, Simmel manages to impressively span both history and geography in culling evidence to buttress his argument: the Illuminati (p.472); the German Communal associations (p.472), the natives of Molucca Islands (p.474); the Gallic Druids (p.475), and the ancient Pythagorians (p.475) are just some of the cases he cites. But it would be a mistake to dismiss his analysis and theoretical insights because the evidence is “shabby”. Instead a more promising route is to try to systematically and empirically assess his claims.

This is a route undertaken by several sociologists (I will mention some of the key studies without going into details, unless the study has a bearing on the secrecy-cohesion relationship, given the space limitations of the paper). The first to try to do so was Hawthorn (1956) applying Simmel’s ideas to a small Canadian religious community, called the Doukhobors and a secretive sect within this group, called the

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<sup>11</sup> There is also some work that discusses secrecy that can be categorized as post-modern theorizing, but this body of literature will not be reviewed here.

<sup>12</sup> In Simmel’s defense this was the practice at the time, where academic articles resembled journalistic articles. The academic culture of citation and documentation has not become universal and codified by scientific journals until the later half of the 20<sup>th</sup> century (Bazerman 1988). Indeed one can browse the early issues of AJS to see that virtually none of the articles have bibliographies and few systematically cite and document their sources.

Sons of Freedom. Hawthorne was involved in a study of the Doukhobors commissioned by the Canadian Government. He used some of the ethnographic data he and his colleagues collected to explore Simmel's propositions in a detailed case study. Hawthorne concludes that some of the propositions are supported, some need to be qualified, while others may have to be rejected. None concern the relationship between secrecy and cohesion. Hazelrigg (1969) criticized Hawthorne's interpretation of Simmel and postulated his own nine propositions that could be empirically tested (though he does not do so himself). Again none concern the relationship between secrecy and cohesion, which is not contested. Erickson (1981) considered some propositions in respect to the structure of secret societies claimed by Simmel, using a detailed comparative study of six secret societies that are *under risk* (as they are engaged in illicit activities), arguing that risk is a critical property when considering secrecy as it adds to new pressures in organizing group activities.

Other studies by ethnographers and anthropologists examined issues such as how concealment practices develop, how secretive knowledge is revealed, the practice of esotericism among pre-literate societies, as well as the various nuances in the "discourse of secrecy" (George 1993; Tefft 1980; Ulin 1986). It is worth noting that these studies raise questions regarding just how much secrecy is characteristic of *modern* societies. The folk view of pre-modern societies is that of harmony, egalitarianism, and openness. This view has been increasingly modified by anthropologists, uncovering both formal and informal status hierarchies among pre-literate peoples. A substantial number of pre-modern societies practice the guarding of certain kinds of knowledge within their tribal community such that only the elite few get to know the "truth"; and while there are secrets within a sub-section of a tribe, there are also secrets that the tribe maintains from other tribes ((George 1993; George 1993; Murphy 1980; Piot 1993). These studies suggest that secrecy is not a feature of

the industrial age, of the need to manage large populations, or of the coming age of bureaucracy; instead it has been practiced since the dawn of humanity. A lot of this ethnographic literature is heavily descriptive and few articles bear on the question of secret-keeping and cohesion. The one exception is by sociologists Gary Fine and Lori Holyfield (1996) who examine the role of secrecy in the context of a recreational mushroom picking society in Minnesota.

Fine and Holyfield argue that trust and secrecy can be critical conditions in creating cohesion for members of non-instrumental, voluntary organizations. Mushroom picking groups depend on a large level of trust for accurate information since members often eat the collected mushrooms and consult with senior experts about the mushroom's edibility. Some of the mushrooms collected are poisonous and occasionally cause death when consumed, so there is a degree of danger and risk in the activity as well as considerable stakes in accurate information. On the other hand there is a norm of secrecy about casually revealing the locations of the mushroom spots. However secrets are revealed in various forms, to various members, to various extents, and almost everyone participates. "The telling of secrets on certain occasions builds community among members: when enough members privately communicate secrets, everyone eventually becomes a holder, a giver, and a recipient of secrets" Fine & Holyfield 1996:30. Of course this is an ethnographic study, none of the variables are measured, there are no controls, and the study does not rule out other alternative explanations. Perhaps secrecy is epiphenomenal to trust or maybe it is the exchange of information rather than secrecy per se, or even some other factor that contributes to cohesion. Furthermore how can we know for sure that there is an increase in cohesion? Fine and Holyfield observe a qualitative "belongingness" or "we-ness" and label it cohesion among their participants, but is this really cohesion they are observing? Even if there is a relationship between secrecy and cohesion, how do we know that the

causal arrow is not reversed – maybe cohesive groups are more likely to trust one another and hence to share secrets? Both authors come from the ethnographic tradition of sociology and despite the shortcomings; the study has a great deal of face validity and proposes many interesting ideas.

However, there have been efforts to examine the relationship between cohesion and secrecy more scientifically, under controlled conditions to rule out alternative explanations and by operationalizing the variables involved. Interestingly, Simmel's 1906 essay was favorably reviewed in *Psychological Bulletin* (Hornstein 1906) (a top journal in psychology at the time) of that year. The first study on secrecy and cohesion<sup>13</sup> in experimental psychology was by Wegner, Lane, Dimitri (1994). Technically the dependent variable was not strictly cohesion, but interpersonal attraction, though it is suggestive for cohesion.

To simplify the design for summary purposes, the experiment involved the following. Subjects who were previously unacquainted were assembled in groups of four, further subdivided along mixed-sex couples. They were then seated at a table and instructed to play a card game. In the experimental portion of the study, one pair of the subjects was instructed to play footsie under the table without the other couple knowing<sup>14</sup>. In the control condition the other pair was aware of the other couple's footsie game. The experiment was a between-group design. The couple was then given a scale on interpersonal attraction. The secret condition group had sizable effects on interpersonal attraction (regardless of sex).

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<sup>13</sup> This was not the first study on secrecy per se as there are a number of research programs involved in the study of concealment, stigma, self-revelation and hiding. See (Collins and Miller 1994; Cozby 1973).

<sup>14</sup> I am oversimplifying the study for exposition purposes. Wegner and colleagues administered initial scales of liking (before the introduction), conducted manipulation checks, and had other controls. Interested readers are urged to consult the original protocol of the study.

Foster and Campbell (2005) questioned the Wegner et al (1994) findings, arguing that while secrecy may make strangers appear attractive to one another; it interferes with actual ongoing relationships over the long-run, by putting various stressors on them (e.g. worrying about being discovered, not being able to visit certain meeting places, not being able to confide to friends and gain social support). Furthermore, they argued that while the *appearance* of attractiveness that Wegner et al (1994) demonstrated was real; the effect would be only temporary and would disappear in long-term relationships. Over three studies they administered secrecy and attractiveness vignettes to persons involved in either secret or open relationships for at least two months and found secret relationships to be less satisfying, more likely to be associated with breakup, and to be viewed as more burdensome.

There is another experimental study by a sociological social psychologist that purportedly examined secrecy and cohesion that is worth mentioning. However, a closer examination reveals that secrecy was not really the independent variable manipulated. Bonacich (1976) considered whether groups engaged in a Prisoners Dilemma<sup>15</sup> game are more likely to sanction non-cooperators if the non-cooperator is unknown to the rest of the group. It was suspected that when there is a severe conflict between group interests and individual interests (as in a PD), groups will be more likely to develop stronger solidarity norms and appeal to normative sanctions to deter greed. However, while Bonacich uses the term secrecy, this is not strictly speaking a Simmelian type of secrecy. The experimental design is such that groups either know the defector or don't. It can be more accurately described (not as secrecy but) as general anonymity or presence vs absence of information. The non-contributor is either known *by everyone* or not known *by everyone*. If the experiment was set up such that there was a group of non-contributors who were known only to themselves,

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<sup>15</sup> The game was not strictly a Prisoners Dilemma.

one can argue that this would be an instance of secrecy. If party A is interacting (loosely defined) with party B; secrecy requires that A know the secret (which B would like to have revealed) and/or that B know that A knows the secret and is aware that B wants to have it revealed. The experimenter is not that party since s/he is part of the situational set up.

Finally, there is a number of research programs that have relied on Simmel's secrecy essay that are worth pointing out. Studies of state secrecy (Shils 1956), security and classification systems (Lowry 1972; Rigney 1979) and organizational and business secrecy have drawn explicitly on Simmel (Andersen 1980:205-228; O'Connell 1979).

Gary Marx and Glenn Muschert (2008) have called for a "sociology of information" with a "particular emphasis on the structures, processes and consequences of several types of information control in various substantive contexts and structural settings" (p.2) There are studies of concealment and self-disclosure of particular pieces of information (Collins and Miller 1994; Cozby 1973) and personal identity (Suedfeld 2004). Studies of the role of anonymity in exchange (Andreoni and Petrie 2004; Haley and Fessler 2005) . Finally studies of secret societies of past and present have used some of Simmel's ideas on secrecy (Chen 2004; Clawson 1985; Ulin 1986)

## **COHESION: CONCEPTUALIZATIONS, MEASUREMENTS, AND THEORETICAL INSIGHTS**

The experimental study of cohesion is a lot more persistent and systematic than the study of secrecy. Indeed, the concept enjoys a kind of “embarrassment of riches”. There is so much work on cohesion from so many different research programs, that there is no consensus on what the concept entails (and does not entail). I will briefly review some of the directions in conceptualizing this construct with a special focus on the conceptualization that is used in this paper. There are a number of excellent reviews by sociologists, psychologists, and organizational scholars of this literature (Casey-Campbell and Martens 2009; Dion 2000; Friedkin 2004; Mudrack 1989; Siebold 1999).

Cohesion (also referred to as cohesiveness and solidarity<sup>16</sup>) has aroused interest and contributions from sociologists, psychologists, anthropologists, and the specialized areas of military, organizational, and sports psychology. This is not surprising, as the question of why groups, organizations, and societies “stick together” seems fundamental to many research domains. Indeed on its face, most people have an intuitive understanding of roughly what cohesion refers to. However, a number of knotty problems arise once one thinks more carefully and deeply about what cohesion really means. Is cohesion: a property of individuals or of groups; is it a unitary concept or does it have multiple dimensions; is it a behavior or an attitude; is it an objective feature of a group or a subjective sense of its members; should it be measured by its causes or by its consequences; how does it relate to similar concepts like morale, interpersonal attraction, or liking.

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<sup>16</sup> While cohesion and solidarity are generally used interchangeably in the literature, some scholars, notably (Willer, Borch and Willer 2002) distinguish between the two terms; cohesion is defined as the extent to which group members stick together and solidarity is defined as the extent to which group members produce collective goods to their mutual advantage. Thus a group can have cohesion, according to their account, but not solidarity.

The first approximations of cohesion conceptualized it as “the total field of forces which act on members to remain in the group” (Festinger 1950:37). The “*total field of forces*” referred to the positive force acting to contribute to cohesion minus the negative forces unraveling it. The next shift occurred in the wake of the popularity of factor analytic methodology. Researcher began to uncover independent dimensions of items associated with cohesion. An important distinction between vertical and horizontal cohesion was introduced by military psychologists (Griffith 1988; Siebold 1999). While horizontal cohesion is very similar to interpersonal cohesion between status equals in a group, vertical cohesion refers to the perception by subordinates of the competence of the superior. This work provided the insight that in hierarchical groups, it is not enough to consider cohesion between status equals, as cohesion between formal or informal leaders is also critical. Another distinction was suggested by Brawley, Carron, and Widmeyer (1988) and separately by Zaccaro and Lowe (1988) distinguishing between task cohesion and social cohesion. Task cohesion refers to the instrumental task performance or the liking of belonging to the group because of the activity the group is engaged in and social cohesion refers to the more traditional interpersonal cohesion.

A long-standing debate is whether cohesion is the additive property of individuals – that is a group’s cohesion is nothing more than the sum (or mean) of the cognitive interpersonal attraction of its members to each other or whether cohesion is an emergent property of the relations between members that should be measured on the group level only and cannot be reduced to the constituent individuals (in any direct sense)<sup>17</sup>. Instead network characteristics such as transitivity, tie density or reachability

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<sup>17</sup> Moody and White (2003) distinguish between ideational (actor-centered cognitive) and relational components of cohesion. I don’t quite think this is the most precise way to carve this up since technically relational dimensions incorporate some aspects of ideational cohesion. I think the most precise way of formulating the distinction comes down to whether cohesion is an additive or an emergent property.

should be considered (for a review of this literature see Moody & White (2003) and Markovsky & Lawler (1994). Lawler and Yoon (1996) argued that frequent positive exchange between actors that produce positive affect for the two parties may cause the two parties to view the relational tie between them as an object in itself. Individuals therefore develop attitudes to the relationship itself as much as to the other individuals these relationships involve. This is, in my opinion, one of the most creative insights in cohesion theory.

The social identity approach introduced yet another wrinkle to the debate. The proposition made by SIT is that groups are perceived by individuals not as the sum elements of their parts but as objects in themselves, such that it is possible that a person may not feel much interpersonal attraction to the members of the group but feel interpersonal attraction to the group itself. Social identity theorists argued that cohesion was a function of group prototypicality –one felt cohesive with the group to the extent that one shared salient traits with members of the group. One of the early findings was that besides socially/culturally salient traits (e.g. race, gender, religion), nominal traits like sharing some arbitrary group name would be sufficient (Hogg 1992).

Another direction in conceptualizing cohesion is whether it should be measured by examining some objective measure of the group such as mean cohesion scores, a sociometric index, the number and intensity of network ties, or the *perceived* attitudinal cohesion of each member. This is the direction that two sociological social psychologists, Kenneth Bollen and Rick Hoyle (1990) have taken. After reviewing the debates in the cohesion literature they proposed that an emphasis on the perception of cohesion has not been adequately considered. “Perceived cohesion encompasses an individual's sense of belonging to a particular group and his or her feelings of morale associated with membership in the group. Perceived cohesion is an attribute of

individuals in a group that reflects an appraisal of their own relationship to the group.” (ibid: p.482.) This appraisal is constituted by both cognitive and affective elements. The cognitive level includes memories of experiences with the group and individual members. This is manifested in a *sense of belonging*. The affective component includes the feelings that a person experiences toward the group and the individual members. This is manifested in a *feeling of morale*. The cognitive element provides information such as “I *consider* myself a member of this group” and the affective element provides the motivation to positively evaluate one’s membership in the group such as “I *feel* good about being in this group”. Both dimensions are critical to capturing the property of cohesion<sup>18</sup>.

Bollen and Hoyle (1990) then proceeded to validate the concept by testing it in different kinds of groups and found that the “Perceived Cohesion Scale suggests that it has indicators with high reliability, validity, and some degree of invariance in different groups” (p.500). The metric has gained considerable popularity among researchers. While the first study used relatively large groups such as city residents and college students, a successful effort was made by Chin & Salisbury (1999) to adapt and test the scale in small groups of 4-7 each. The PCS has since been relatively widely used by both psychological and sociological social psychologists as well as scholars of organizational behavior. In his review of the cohesion literature Dion concludes by saying “The PCS may qualify as a general and broadly applicable measure of cohesion, one useful both for small, interacting groups and larger ones in which

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<sup>18</sup> Interestingly, these two dimensions are consistent with Lawler, Thye, and Yoon’s (2000) endogenous mechanisms that lead to relational commitment. Indeed the authors themselves point to this parallel with Bollen and Hoyle’s perceived cohesion scale. They say “One endogenous path operates through the uncertainty reduction effects of exchange frequency, and the second endogenous path operates through the emotional/affective effects of exchange frequency. These two processes converge in that each enhances perceptions that the group is a unifying or cohesive unit (see also Bollen and Hoyle 1990).” (ibid: 628)

members know some, but not all, of the members” (Dion 2000:21). This is the scale I will use in this study.

The space limitations of this review prohibit considering other nuances in the cohesion literature that are less relevant to the current study. However, a voluminous literature exists on the topic.<sup>19</sup>

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<sup>19</sup> A large body of work exists in linking the cohesion mechanisms in small groups to cohesion in society. However, whether the answer to the question of what makes small groups solidary is the same to the question of what makes large societies solidary, is itself an open question. Within this literature there are sometimes strong theoretical distinctions. Some scholars emphasize the exchange element in the production of cohesion (Cook and Emerson 1987; Ekeh 1974; Emerson 1976; Lawler 2001). A related program of rational choice analysis of cohesion has emerged, that conceptualizes cohesion as the compliance to group norms in the absence of material compensation for such compliance (Hechter 1987:10). This has been proposed as reactions to structuralist and normativist accounts of cohesion (see ch1 of Hechter 1987). Finally, there is important work in identifying the relationship of cohesion with cognate processes such as commitment, morale, group longevity, resistance to attrition, cooperation, collaboration, and altruism, group identification, sense of belonging, and trust (Austin and Worchel 1979; Baumeister and Leary 1995; Cook;Hardin and Levi 2005; Hogg 1992; Kanter 1972; Zander 1979), as well as larger questions of societal order (Durkheim and Halls 1984; Elster 1989; Lawler;Thye and Yoon 2009; Wrong 1994)

## **FROM SECRECY TO COHESION: CAUSAL MECHANISMS**

But what are the mechanisms by which secrecy generates cohesion and is secrecy doing the causal work? In this section I will consider such questions. In particular I will examine the two mechanisms suggested in Simmel the “aristocratic motive” and the “allure of the mysterious”, the possible explanatory power of status and trust (separately), obsessive preoccupation, social identity, associative learning, social exchange, affective effects, as well as less plausible mechanisms such as psychological reactance, cognitive dissonance, and the need for uniqueness.

### ***The Aristocratic Motive***

The first mechanism to consider is the one that Simmel offers, which is the so-called aristocratic motive (Simmel 1964:364). Simmel says that “the secret” and “the mysterious” have a certain psychological allure for the secret-keeper. He points out that this starts from early age of human development and continues into adulthood. “Among children a pride and self-glory often bases itself on the fact that one can say to the others: ‘I know something that you don’t know.’ This is carried to such a degree that it becomes a formal means of swaggering on the one hand, and of de-classing on the other. This occurs even when it is a pure fiction, and no secret exists. From the narrowest to the widest relations, there are exhibitions of this jealousy of knowing something that is concealed from others” (Simmel 1906:462). The notion that concealment and uncertainty can increase the subjective value of an object, a person, or a relationship is a critical insight of Simmel’s. Sharing a secret self-signals exclusivity - ennobles the person of having something valuable that others don’t have.

### *The Allure of the Mysterious*

One might further ask, what is it about concealed information that makes it so alluring? This is a difficult question. There is a seeming irrationality in the idea that because something is complex, incomprehensible, uncertain, and ambiguous one must increase one's commitment rather than lesson it. This is especially true for scientifically-oriented academics that live by the idea of evidence, consistency, and clarity as the paragons of worth when evaluating ideas and beliefs. However, there is a tradition in the West and other cultures of mysticism and obscurantism – that the most worthy ideas are the mysterious ones, the ones that defy common sense. The religious traditions of the three major religions have mystical branches that survived into modernity (e.g. Kabbalah in Judaism, Christian Mysticism in Christianity, and Suffism in Islam)<sup>20</sup>. There is evidence that all kinds of esoteric practices have survived and even flourished in modern times (Tiryakian 1972). For the mystical traditions the truth is not in the rational or the plane but in the paradoxical, the sublime, the subtle, the indirect, the puzzling, and sometimes even in the contradictory. Some would even claim that this trend exists in the various humanities departments on campus (e.g. a la Sokel Hoax). Regardless, the mechanism proposed is that the secret is alluring because it is mysterious. Note that this mechanism suggests that it is not the information itself that is generating the effect, for if the information was revealed, it would be worthless – it is the very property of being secret and mysterious that makes the information alluring. Sharing a secret with someone signals access to this privileged information.

An interesting point from Simmel on this is that he notes that the effect of secrecy gets magnified when there is an active effort to puncture that secrecy. Simmel says that “the intention of the concealment assumes, however, a quite different

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<sup>20</sup> Some smaller religions are entirely obscurantist, for example the Druze as well as certain animist religions in Africa and Latin America.

intensity as soon as it is confronted by a purpose of discovery” (ibid:462). The demand for the information adds value to the secret.

There may be a connection to self-esteem such that one increases their self-esteem by being *above* the rest of society, by going beyond the mundane and what everyone is doing and following. Modern society emphasizes logic, consistency, and evidence – this becomes the mundane. Perhaps people that seek exclusivity and distinctness will reject those norms – not because they oppose those norms but because they are associated with the normal, average, and mundane. Being one of the few who knows the secret (regardless of content) perhaps taps into this desire.

### ***The Status Mechanism***

But maybe secrecy is nothing more than an instance of status. To share a secret and be “in the know” is just to share high status. Those who possess the secret are the high-status group and those who don’t are the low-status group. Indeed secret-holding may appear like status holding – both appear as processes where holding some kind of resource allows one to increase one’s power, prestige, and wealth (Berger, Rosenholtz, and Zelditch Jr 1980). Both share the property of being exaggerated when threatened. However, there are a number of reasons to doubt the notion that the two are identical.

First, one of the key properties of status is its mutual recognition. Status processes, for instance those involving gender, race, or resource wealth, rest on the fact that others must recognize that one is a high status person in order to defer to them (Berger, Cohen and Zelditch Jr 1966:29-46; Berger, Cohen, and Zelditch Jr 1972). Status then is a relational property between the low and high status persons. Secrecy on the other hand operates (or can operate) on the premise that only one party knows. That is “I know something most people don’t *and others don’t know that I know*”. Secrecy has this perverse effect that it is precisely the fact that others don’t know that

you are a high status person, that you maintain your status. They may *not* defer to you in interactions and treat you like an ordinary person. The thought of “if they only knew who I am or what I know” is what allows you to keep the secret. To understand this it is helpful to consider the anonymous philanthropist. Take the case of an anonymous donor who along with her husband just bequeathed a large gift to a university. Maybe the couple is taking a stroll around campus, no press is following them, no students turn in admiration, no plaques or honors are conferred upon them, no building bears their name. In fact students and campus administrators pass by and treat them as just another elderly couple visiting the campus<sup>21</sup>. They alone know the secret, and it is this knowledge that they know and other don't, that binds them. Status is not the operator here.

Second, secrecy may not be connected to any resources (e.g. knowing the way to manufacture a highly demanded good or knowing information that can be used to blackmail some powerful actor). Religious secrets or fraternalistic secrets regarding traditions and rituals of secret societies don't provide any direct societal resources. A soldier who is part of an elite secret unit may never gain the glory that his compatriot in the open unit will gain. One can certainly argue that the resources are individual (e.g. self-esteem, pride, personal satisfaction) or intra-group (solidarity among the secret members) but this is a sharp break with social resources.

The sufficiency of private knowledge and the sufficiency of private resources isolates secrecy from theories used to account for status emergence that are dependent on public knowledge and public resources. For example one cannot have an expectation state if there is no knowledge of who the high status person is by the other

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<sup>21</sup> Another example of this is a much noted practice among some monarchs of Europe and the Middle East to disguise themselves as commoners and walk the streets of their realms (Suedfeld 2004).

party and power and prestige are not allocated based on one's occupation of high status.

### ***The Trust Mechanism***

The other candidate for an alternative explanation is trust. Perhaps trust is doing all the causal work. The trust mechanism would work like this. The act of sharing a risky secret authentically signals trust and trust is what creates the feeling of cohesiveness. The fact that one's compatriots keep the secret and don't give it up and one knows that they know, is what creates the unity. The fact that one does not give up their friend even though one could and that one's friends observe the same phenomenon creates a self-reinforcing loop, which reinforces cohesion. Probably the effect is more pronounced when a prisoner's dilemma game is played such that temptation does not result in defection and one would feel guilty defecting. Simmel actually notes (p.470) the role of reciprocal confidence between members of secret societies, the fact that members know that others depend upon them and trust them – makes the secret stronger.

However, I doubt that trust is the whole story. Instead it is more likely that trust plays a moderator role in the effect. It is hard to imagine the sharing of secrecy without simultaneously sharing trust or sending a signal to the person that one trusts them. Secrecy is likely to significantly enhance trust compared to a situation when trust is not based on anything secret. An experimental design to test this proposition will be suggested in the *Experimental Extensions* section.

### ***The Obsessive Preoccupation Mechanism***

This is a mechanism studied extensively by Daniel Wegner and colleagues (Lane and Wegner 1995; Wegner, Erber, and Zanakos 1993; Wegner, Lane, and

Dimitri 1994). The classic illustration is the white bear phenomenon. When subjects are asked not to think of a white bear, they inevitably think of a white bear. What happens is the following. Ironically, telling yourself “don’t think of a white bear” activates the category “white bear”, which in turn recalls the image. The harder you tell it to yourself the more vivid the picture becomes. This mechanism relates to secrecy in the following way. A person who holds a secret must ruminate and monitor themselves about the secret to not reveal it. “The secret must be remembered, or it might be told. And the secret cannot be thought about, or it might be leaked” (Wegner, Lane, and Dimitri 1994:288) But how does this lead to cohesion? Wegner references a sizable number of psychological studies that link obsessive preoccupation with attraction – rumination about an object causes attraction to that object. The step from interpersonal attraction to cohesion is relatively small since some scholars define cohesion as interpersonal attraction. Being a member of a secret group causes one to obsess about protecting that secrecy, which in turn causes one to feel attracted to the group.

### ***The Ingroup/Outgroup Identity Mechanism***

Another possible mechanism is that of social identity (Tajfel 1978; Tajfel 1981). Sharing a secret among a group of people signals a boundary between an ingroup (possessors of the secret) and an outgroup (those who don’t know the secret). Secrecy in this account is merely a demarcator of ingroup/outgroup boundaries. One of the claims of social identity theory is that the ingroup experiences greater cohesion among its members simply by virtue of sharing an attribute (ibid). As mentioned earlier, social identity theorists have documented even trivial attributes contributing to cohesion, so secrecy may plausibly do the same.

### ***The Associative Learning Mechanism***

This is a particularly clever idea discussed as an alternative explanation in Wegner et al (1994:289). The notion is that there is a much simpler explanation for why secrets are more appealing. The secret in most cultures, and certainly in our modern culture is associated with “something sordid or unseemly”. Stories broadcast over the news media about a secret money laundering ring, or a secret bank account, or secret affair make the word secret becomes associated with something exotic, even if the secret may be intrinsically trivial. A person thinking they share a secret may unconsciously value the item because of this connotation.

### ***The Exchange Mechanism***

We can combine certain insights from exchange theory (Blau 1967; Cook and Emerson 1987; Emerson 1976) and rational choice theory of group solidarity (Hechter 1987). The mechanism involves the following reasoning. When two people share a secret there is an implicit exchange – “If you don’t betray, I won’t betray”. If the secret is consequential for both (e.g. an extreme example is murder) both face consequences if it is discovered. Therefore there exists a dependence of each on the other. This of course is also true of more mundane things such as some secret rituals or membership. If the rituals or the membership are betrayed and made public, the society ceases to exist. In this sense there is an interdependence of members. To the extent that participating in secret rituals and the pleasure from knowing that one keeps information that is a secret, the members are producing and consuming a joint good. One might consider that the more secrets one is exposed to the greater the dependence becomes. Monitoring for signs of betrayal and sanctioning of unfaithfulness becomes

critical given the increased risk. This in turn produces greater solidarity (see Hechter 1987)<sup>22</sup>.

### ***The Affect Mechanism***

Another possible mechanism by which secrecy produces cohesion was suggested by Gary Fine (Fine and Holyfield 1996). He aptly point out that sharing a secret from the outgroup is seen as a fun game. “Secrecy, though it appears to be centrifugal, binds members together in providing for friendly competition-an arena of fun, reflected in narrative.” One can further adapt Lawler’s Affective Exchange Theory to argue that the implicit exchange of the secrets (noted above) creates positive affect, which in turn, increases cohesion (Lawler and Yoon 1996). This seems highly plausible – there is something fun in hiding things (e.g. there are lots of games where the object of the game is to hide yourself or some object) and doing this in a team manner can heighten the excitement and the positive affect involved.

### **Other Less Plausible Mechanisms**

#### ***The Psychological Reactance Mechanism***

This mechanism involves the idea that forbidding something may actually make someone want it and positively evaluate it. If you restrict a person’s freedom along a particular dimension, some people will react by developing positive attitudes toward the restricted item (See Brehm and Brehm 1981). This resembles the “forbidden fruit” argument that a small portion of illegal drug users try and continue using for no other reason than it being prohibited by society. Secrets that others are

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<sup>22</sup> Here there is a slight shift to Hechter’s definition of solidarity as voluntary compliance to norms, instead of cognitive and affective dimensions of cohesion I stressed earlier.

trying to penetrate may work the same way – one feels the attraction to the secret for no other reason than that it is concealed.

### ***The Cognitive Dissonance Mechanism***

Demanding tasks that are highly costly can be evaluated more positively due to cognitive dissonance (Festinger 1962; 1957). One is conscious that s/he is doing the task, which is perceived as important, the task is unpleasant, to balance the negative attitudes (the task I am doing is important, the task I am doing is unpleasant) the person re-assigns the valence of the task to “positive” (the task I am doing is pleasant). To the extent that keeping a secret is costly – one must constantly monitor oneself for disclosure, one may come to view the secret itself as favorable.

### ***The Need for Uniqueness Mechanism***

Uniqueness theory proposed by (Snyder and Fromkin 1980) is an extension of Festinger’s social comparison theory. They argue that people constantly compare themselves with others and look not just for similarities but also for differences. Human beings engage in a search for distinctiveness and this is especially the case when that need is threatened (e.g. one finds out that all one’s colleagues are listening to Diana Krall as well, so s/he begins to explore different musical artists). Satisfying the need for uniqueness from others is claimed to contribute to self-esteem. Sharing a secret may in effect contribute to satisfying one’s need for uniqueness since so few people know of the content of the secret.

## **EXPERIMENTAL STUDY**

To test the relationship between secrecy and cohesion I conducted an experimental study. The study was largely an existence proof; it was the first experimental study trying to establish whether sharing a secret increases cohesion in dyads (the Wegner study mentioned earlier involved interpersonal attraction between singletons). While the study was designed to rule out some mechanisms, its purpose was not to hone in on the exact mechanism that produces secrecy, though extensions of the study will be considered in the “Future Extensions” part of the paper.

### ***Participants***

The experiment involved a two condition design with 112 participants in total, with 56 participants in each condition<sup>23</sup>. Participants were recruited from sociology and psychology undergraduate courses and were offered either financial incentives (\$5 and up to \$1 for the point allocations task<sup>24</sup>) or extra credit in their courses. The method of recruitment involved giving announcements in classes, posting printed advertisements around campus, and electronic postings on the online-managed recruitment system SUSAN, where students register after hearing about the research opportunity. The study was advertised to be about how artistic preferences relate to

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<sup>23</sup> The original number of participants was 134. Some participants were excluded because they did not meet the theoretical conditions of the study. For example in a large number of instances the individuals came as friends or admitted during debriefing to being friends with their own or the other group’s members. This of course introduces a high baseline level of cohesion into the experiment prior to the actual manipulation. Such individuals were excluded irrespective to their scores on the dependent measures. Some individuals were aware of the hypothesis because they were alerted to it by classmates. Some were familiar with the Klee-Kaninsky paintings and did not believe their group assignment. Unfortunately because the tasks involved dyads, I had to exclude the entire dyad if one of the members knew the real set up of the experiment. Only one dyad or two participants were excluded for statistical reasons. One of the persons scored an extremely low score on the cohesion scale, three standard deviations below the mean. The score was also influential. We took notes on all the participants and nothing unusual was noted regarding this particular individual. It is not clear why such a low score was obtained.

<sup>24</sup> Subjects were given the full sum of \$1 for the points allocations, regardless of actual point allocations.

subjective prioritization and was titled “Artistic Preferences and Subjective Prioritization”. The demographic composition of participants is summarized in table 1. The experimental setting was the Social Science Laboratory on the third floor of Uris Hall at Cornell University. The lab consisted of four cubicles, a circular table, and some filing cabinets and lab equipment.

<b>Table 1: Descriptive Statistics - Categorical Variables</b>		
<i>Variable</i>	<i>Raw</i>	<i>Percentage</i>
Race		
<i>Whites</i>	52	54.2%
<i>Asians</i>	25	26.0%
<i>Other<sup>1</sup></i>	19	19.8%
Gender		
<i>Male</i>	26	27.1%
<i>Female</i>	70	72.9%
Income		
<\$10K-\$29K	6	6.7%
\$30K-\$74K	21	23.3%
\$75K-\$150K<	63	70%
Homogen <sup>2</sup> .		
<i>Gender H</i>	60	62.5%
<i>Race H</i>	36	36.7%
<i>Income H</i>	46	46.9%
Index <sup>3</sup>		
<i>0</i>	8	8.3%
<i>1</i>	46	47.9%
<i>2</i>	30	31.3%
<i>3</i>	12	12.5%
Missing	16	14.2%
<sup>1</sup> “Other” includes Blacks, Hispanics, Multiracial and Others. These categories were combined to create balance in the variable. <sup>2</sup> “Homog” refers to Homogenous dyads in respect to gender, race, or parental income. The inverse category can be computed by subtracting the raw scores from 96; 16 cases had missing demographic information. <sup>3</sup> “Index” refers to the number of traits (race, gender, class) a dyad shares. 0 refers to no traits in common and 3 refers to all three traits in common.		

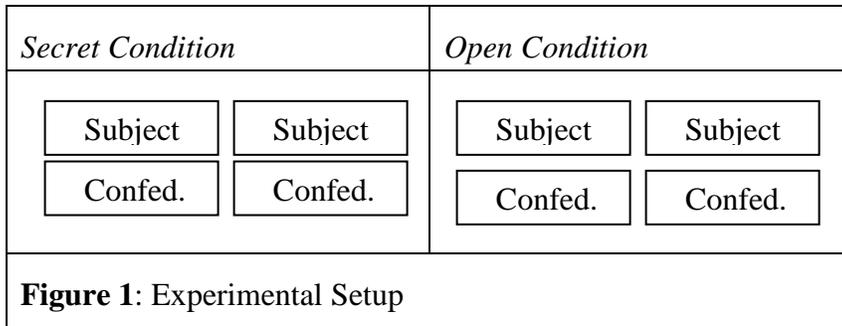
## *Procedure*

Before I describe the details of the experiment, I will summarize the overall set up. The goal of the experiment was to see whether secrecy increases group cohesion. Hence the experiment involved four main parts: 1) creating a group, 2) generating a basic level of cohesion, 3) manipulating secrecy, and 4) measuring cohesion. The experiment contained two conditions with the only difference being that one entailed the creation of secrecy while the other did not. Each condition had five persons involved. Of those five, one was the experimenter, two were the confederates and two were the subjects. Furthermore each condition had two groups<sup>25</sup> (or more precisely, two dyads) of two people (see figure 1). The first group consisted of two subjects and the second group consisted of two confederates. The subjects were led to believe that the confederates were participants much like themselves. The assignment to condition and group was done by the experimenter prior to each experimental session using an electronic random number generator. The four participants in the experiment interacted face-to-face<sup>26</sup>. The study was approved by Cornell's Institutional Review Board for Human Participants; the protocol ID was 08-02-002.

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<sup>25</sup> While technically speaking my groups included two people, making them dyads (See Simmel's essay "Quantitative Aspects of the Group" in Simmel (1964)). Groups require, according to some definitions, more than two people, for simplicity I will refer to my two person collectivities as "groups" throughout the paper.

<sup>26</sup> Some studies involving groups opt for fictitious partners by having participants believe they are part of a group or that they are interacting with another group while they are really sitting behind computer terminals and interacting with a pre-programmed computer or experimenter. While this reduces noise, it raises the level of artificiality and some researchers of cohesion worry that genuine cohesion may not be generated when interaction is not face-to-face and propinquity that is characteristic of cohesive groups is manifestly absent. The digital interaction model may work for the study of some social psychological processes, it does not work well for cohesion and was hence not used.



The experiment proceeded as follows. The confederates (posing as subjects) as well as (actual) subjects waited outside the lab at a predetermined time. The experimenter opened the lab door and seated all four participants at a rectangular table (two on each side) and asked them to fill a consent form (see Appendix A) before continuing. Two separate scripts were used for each condition. I won't replicate the scripts here, but both the experimental and the control script are included in Appendix B and C, respectively.

After the subjects signed the consent form, they were asked to complete a task that would result in the formation of groups. The goal of the tasks was to assign subjects to a group which was: 1) *artificially created*, such that it is not based on any real characteristics of the subjects; 2) *believable* such that subjects believe that they are in a meaningful group and that they share something common with their group-mates; and 3) *status-neutral* such that it is not inherently better to be in one group than the other. The rationale for these three properties is as follows.

First, groups based on socially/culturally salient characteristics such as race, gender, or academic status can create differences based on those characteristics themselves (Berger, Cohen and Zelditch Jr 1966; Berger, Cohen, and Zelditch Jr 1972; Hilton and Von Hippel 1996). For example if all the female black students were put in one group and all the white male students were placed in another group, the cohesion observed could have been due to those socially meaningful characteristics and

expectation states associated with those characteristics rather than my manipulation<sup>27</sup>. Similarly if I were to group individuals based on personality traits like extraversion, likeability, or intelligence, any differences I observe could be due to the behavioral consequences associated with those traits, rather than the manipulation. I wanted to eliminate this alternative explanation, such that any differences observed could be due to the experimental manipulation – secrecy. Since the groups I created were based on a fictitious ability, where in reality groups were assigned randomly and all characteristics had an equal chance to be in either group, any endogenous explanations for differences in cohesion levels can be ruled out.

Second, the groups needed to be plausible or believable. I wanted to create some base-level of cohesion for groups in both conditions since increasing cohesion may depend upon at least some minimal sense of “togetherness”. It is hard to feel cohesive if there is not basis whatsoever other than the secrecy manipulation. Furthermore, part of the scope conditions of the theoretical idea that I am testing is that there have to be groups, since the theoretical proposition I am testing is that secrecy increases cohesion in *groups*. Since this was done in both conditions it should not have affected the result.

Third, any differences in groups, *even artificially created ones*, could not be based on characteristics which the group members perceived to be valenced such that it was “better, more prestigious, more desirable” to be in one group than another. Status differences have been shown to result in the creation of power and prestige orders such that higher status actors perceive themselves and are perceived (by the lower status actors) as more competent at a task, even when the status difference has nothing to do with competence at the task (Berger, Rosenholtz, and Zelditch Jr 1980).

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<sup>27</sup> For more details see the larger theoretical research program called Expectation States Theory. Two excellent reviews are by Wagner & Berger (2002) and Correll & Ridgeway (2003).

Indeed one of the main instruments used to establish this was the contrast sensitivity task. Subjects were presented with a series of twenty slides. Each slide was composed of an array of rectangles, colored in either black or white. Subjects were asked to estimate whether the slide had more black or white rectangles. They were then told that they had “very high contrast sensitivity ability” or “very low contrast sensitivity ability. In reality each slide included the same number of black and white rectangles and subjects were randomly assigned to the high or low contrast sensitivity assessment (Rosenberg and Turner 1981). Two other fictitious ability tests used (especially in the earlier phases of the Expectations States Program) for this purpose are the Meaning Insight Ability Test and the Relational Insight Ability Test, both of which are presented to subjects as “measuring a basic ability of an individual” but actually being artificial (Berger and Fisek 1970:293). The reason I have not used those tasks was because I wanted to explicitly rule out any difference that could have been due to status characteristics. It is plausible that a high status group may experience cohesion on account of being in the “high ability group” or being the “competent ones”. The opposite process of lowered cohesion may result in the low cohesion group. I wanted to rule this alternative explanation out and employed another task that would divide the individuals in groups that were different but such that the differences had no evaluative connotations.

One of the basic findings of the social identity research program is that even trivial differences and similarities are sufficient for people to organize into groups that favor in-group members and discriminate against out-group members in attitudinal evaluation and resource allocation (Tajfel & Turner 1979:33-47; Tajfel 1970). To establish experimental evidence for this claim, researchers used the so-called “minimal group paradigm”. Subjects were assigned into groups that were based on “ad hoc, arbitrary, and minimally meaningful categories”(Abrams 1996:390). Inter-group

effects based on trivial characteristics were observed with different colored lab coats (Worchel et al. 1978), different colored wristbands (Bernstein, Young, and Hugenberg 2007), bogus personality tests, and even different colored experimental booklets (Vanbeselaere and Originally 1993).

I used either the Klee-Kandinsky Task or the Dot Estimation Task<sup>28</sup>. The assignment worked as follows. In the Klee-Kandinsky task (Chaserant 2006; Tajfel et al. 1971, study 2), subjects were given color booklets used by (Kalkhoff and Barnum 2000)<sup>29</sup> which had 10 paintings of the famous painters arrayed in two paintings per page labeled painting A and painting B. Subjects were instructed to choose the painting they liked most (either A or B) on each page – for a total of five choices. An example is given in Appendix D.

For the Dot Estimation task (Gerard and Hoyt 1974; Jetten et al. 2000; Jetten, Spears, and Manstead 1996) I used the design by Cynthia Pickett<sup>30</sup> with some modifications. The slides exploit a feature of Microsoft PowerPoint in that slide exposure can be timed precisely. I used a laptop situated in the front of the table to expose the participants to ten slides of the Senton<sup>31</sup> Dot Estimation Task. Each slide had a constellation of two types of dots, large or small, in various quantities. The participants were given a sheet of paper and asked to estimate the number of dots. The choices were: a.10-20 b. 21-30 c. 31-40 d.41-50 e. 51-60 f. 61-70 g. 71-

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<sup>28</sup> I began using the Klee-Kandinsky task but switched to the Dot Estimation task since a small number of subjects were familiar with the painters and did not believe their assigned group. When conducting the analysis I controlled for the task type and found no meaningful difference, as was theoretically expected.

<sup>29</sup> The color booklets were generously supplied to me by William Kalkhoff, which I duplicated. Only the cover page was modified.

<sup>30</sup> The design of the slides is available at a social psychology instrument repository for electronic/computer-based instruments, tests, and stimuli called SocialThinking.org, maintained by the lab of Dr. Neale Roese – a social psychologist at the University of Illinois, Urbana-Champaign. The Dot Estimation Task slides are available here: <http://www.socialthinking.org/mlwfiles.html>

<sup>31</sup> “Senton” was added to further a sense of legitimacy (and hence believability in the subsequent results) to the task.

80. Following convention, they were first given a practice slide. An example of a constellation slide is included in Appendix E.

Once the subjects submitted their answers, the experimenter retreated into one of the cubicles and proceeded to feign calculating their score. In reality the experimenter used a random number generator to assign the participants into one of two groups. Each of the participants and confederates were assigned into opposite groups. The experimenter then stepped out of the cubicle and announced the assignments into the two groups, asking the members of the two groups to sit at opposite sides of the table.

Next the participants were asked to occupy one of two cubicles – one for each group. Participants were then given a minimal cohesion building task. The idea was to have the participants engage in a collective task such that some sense of collective orientation is created and floor effects are avoided. Once again, this was done to create a sense of “groupness”. Tasks involving intra-group competition were avoided for obvious reasons and tasks involving inter-group competition were avoided to rule out competition-cohesion effects (Sherif 1961; Stein 1976). The task used was the Lost on The Moon Task (Hall and Watson 1970; Johnson 1991; see also Merrill 1971) as a team identity building exercise. The task involves a scenario where one is asked to imagine that their spaceship has crashed on the moon. The mother ship is located 200 miles away from the crashed spaceship and the cosmonauts need to make the journey by foot. However they can only take ten<sup>32</sup> items with them. The participants are presented with a list of 10 items and are asked to rank them from 1-10. See Appendix E. During pre-testing the LOM task was confirmed to boost cohesion to a minimal level in both conditions.

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<sup>32</sup> The set up was changed from 15 to 10 items since subjects were taking too long to answer with 15 items.

Next, in the experimental condition, the experimenter approached the subjects with a manila folder and a sheet with a blank line in the middle and a stamp marked “Secret” on top. The subjects were then quietly told the following:

*You are going to play a game with the other team. Part of the game you will play with the other team involves coming up with a secret password that they (the other team) must not know. Please take a moment to come up with such a password and remember it. In addition, we would ask you to write down the password on this sheet and insert it into this manila envelope, which you will take with you as we join the other team members.*

In the control condition the fill-in sheet did not have “secret” stamped at the top and the chosen word was framed as a “word” rather than a “password”. The participants were told:

*Part of the game you will play with the other team involves coming up with a word, which you will show to the other team when you see them. Please take a moment to come up with such a word and remember it.*

Once both groups of participants have chosen their words, they were asked to rejoin at the main table. In the control condition subjects were asked to exchange the manila folders and observe each other’s words<sup>33</sup>. This was not done in the experimental condition. Next participants were given the Perceived Cohesion Questionnaire, followed by a Demographic Questionnaire. Upon completion, the subject were individually debriefed, probed for suspicion, and compensated.

### **Measures**

Cohesion was measured using the Perceived Cohesion Scale (Bollen and Hoyle 1990; 1999). The PCS has two components: an affective component – measuring the emotional morale of the group and a cognitive component – measuring the cognitive belongingness to the group. An average of all the PCS questions is the

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<sup>33</sup> This manipulation of secrecy may appear as relatively weak. This is an issue that will be addressed in the “Experimental Extensions” section. The short explanation is that it is very difficult to manipulate secrecy (but not other processes like status or power) in a clean way. The hope was that some differences would be detected with the design.

overall cohesion measure. The range of the scale is from 1 (lowest) to 7 (highest). The correlation between the two cohesion types is .8, which was similar to what the validation studies reported. A copy of the PCS is presented in Appendix G.

Trust was measured during debriefing<sup>34</sup> by asking “*On a scale from 1-5 with 1 being completely distrusted and 5 being completely trusted, how much did you trust your partner?*”

Liking was measured during debriefing by asking “*On a scale from 1-5 with 1 being completely disliked and 5 being liked very much, how much did you like your partner?*” The correlation between trust and liking was only .45.

This of course is not an ideal way to control for variables in an experiment, since both trust and like could capture personality variables. Subjects who were inherently more trustworthy or affection-providing could have scored high on these measures rather than genuinely react to the trustworthiness or likeability of their partners. This point will be addressed in the limitation and extension section of the paper.

Table 2 presents the average scores across the two conditions on those variables.

<b>Table 2:</b> Descriptive Statistics of Key Continuous Variables			
<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>Range</i>
Affective Cohesion	4.98	1.07	1( least) - 7 (most)
Cognitive Cohesion	5.35	1.14	1( least) - 7 (most)
Cohesion Overall	5.17	1.05	1( least) - 7 (most)
Trust	3.87	0.84	1( least) - 5 (most)
Liked	3.91	0.71	1( least) - 5 (most)

<sup>34</sup> The reason why trust and liking were measured during debriefing was that the table at which the participants sat was relatively tight and I was afraid that participants might peek and influence each other’s answers on such personal questions regarding trust and liking. Since debriefing was done outside the room and the other team member could not hear the answers, the confidence in the answers could be expected to be higher.

## RESULTS OF THE STUDY

The dependent variable in this study was cohesion measured by the perceived cohesion scale in a dyad<sup>35</sup>. The participants were interacting in a symmetric dyad, hence the sources of variation on the dependent variable came from two sources – the individual level and the dyadic level.

Because the data points collected were not independent but nested in a unit, using simple T-tests and OLS regressions would have been inappropriate. Since the dyads were homogenous (i.e. there was no theoretical difference between the dyad components) a hierarchical linear model was used to model the data (Kenny;Kashy and Cook 2006; Luke 2004; Snijders)<sup>36</sup>. I have used the Linear Mixed Model with a Restricted Maximum Likelihood (REML) estimation procedure. The Wald Test was used to compute coefficients.

<b>Table 3: Secrecy Effect on Overall Perceived Cohesion</b>					
	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model5</b>
Intercept	5.15	5.28	1.62	.38	.54
<b>Test Variables</b>					
<i>Condition<sup>1</sup></i>					
Experimental		-.21 (.21)	1.97* (.86)	3.33** (1.01)	3.39** (1.11)
<i>Liked</i>			.47** (.16)	.73*** (.16)	.78*** (.17)
<i>Trust</i>			.47** (.14)	.53** (.16)	.47** (.17)
<i>Condition*Trust</i>			-.57** (.22)	-.89** (.26)	-.89** (.27)

<sup>35</sup> Cohesion is a collective property, though it is measured attitudinally on an individual level - how attached the person feels to the group. It would have been much easier to design the experiment to have three confederates rather than two, such that the subject interacted in a dyad with a confederate (along with the other confederates on the opposite team). Such a design would have introduced an element of artificiality since cohesion is a product of two interactants that mutually influence one another. Having a confederate who behaves in a relatively constant manner across conditions may undermine the cohesion of the subject.

<sup>36</sup> Since each unit in the dyad is homogenous, or what Griffin and Gonzalez (1995) call exchangeable or interchangeable, a hierarchical linear model (HLM) was used. If it was distinguishable a different analysis utilizing structural equation modeling (SEM) would have been utilized (Gonzalez and Griffin 1999).

Table 3 (Continued)

<b>Demographic Variables</b>					
<i>Race</i> <sup>1</sup>					
Black				-.07 (.24)	.07 (.28)
Other				.18 (.23)	.22 (.24)
<i>Gender</i> <sup>1</sup>					
Men				-.44* (.21)	-.57* (.23)
<i>Income</i> <sup>1</sup>					
>10K-29K				-.45 (.37)	-.5 (.4)
30K-75K				.36 (.23)	.39 (.26)
<b>Homogeneity Variables</b>					
RaceHomog					-.49 (.36)
GenderHomog					-.09 (.41)
IncomeHomog					-.34 (.41)
Index Homog					1.1 (.87)
Homog Index 0					.511 (.5)
Homog Index 1 <sup>3</sup>					
<b>Residual Variance</b>					
Level 1 ( $\tau^2$ )	.94 (.18)	.94 (.18)	.89 (.12)	.89 (.12)	0.65 (.16)
Level 2 ( $\sigma^2$ )	.16 (.15)	.16 (.15)	0.000	0.000	0.08 (.15)
<b>-2*Log Likelihood<sup>2</sup></b>	328.39	328.67	296.322* **	219.7***	218.05** *
<b>N</b>	112	112	107	<b>86</b>	86
<p>*p&lt;0.05, **p&lt;0.01, ***p&lt;0.001 significance level; Standard Errors are in paranthesis</p> <p><sup>1</sup> Reference Categories for: Condition – Control; Race – Whites; Gender – female; Parental Income – 76K-&lt;</p> <p><sup>2</sup> The -2LL denotes whether the model fit is improved significantly when compared with an intercept-only model. Significance levels are calculated using the Likelihood Ratio Test.</p> <p><sup>3</sup> HomogIndex 2 was perfectly collinear with some other dimension in the model and hence the parameter was redundant and not estimated.</p>					

I began by estimating the null model with trial set as a random effect to compute the intraclass correlation coefficient (ICC). Variability between trials was 16% and variability within trials was 98%, for an ICC of 14%. This confirms the

utility of the mixed model as substantial variation can be explained on the group-level. See model 1, table 3.

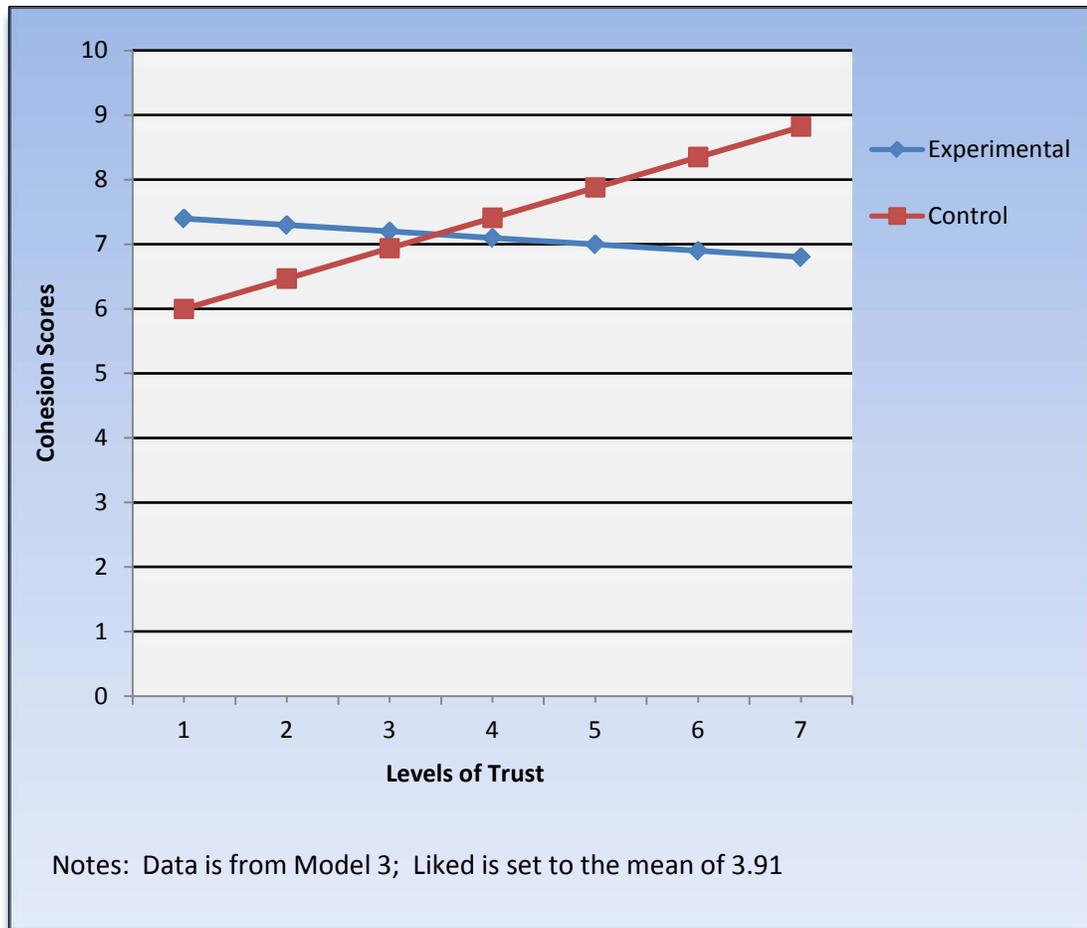
The next model included condition only. Unfortunately the coefficients were not significant and no effect was detected. See table 3, model 2.

Thereafter controls were added. It was reasoned that noise would be generated in the cohesion level if partners simply didn't like one another or didn't trust one another. Some minimal level of trust and likability would therefore have to be established for secrecy to have an effect. For example, if there was some dislike for the partner, the supposed cohesion-induced effect of secrecy may have been cancelled out. Therefore *liked* and *trust* were entered as controls next<sup>37</sup>. Since trust and liking (separately) had an effect when condition was entered I tried adding an interaction term into the model. There was indeed an interaction between trust and condition (but not for liking and condition). Specifically a disordinal/cross-over interaction was identified, between secrecy and trust; secrecy has a positive effect on cohesion when trust is low but a negative effect when trust is high. Participants exposed to the experimental condition have their cohesion increased by 1.4 units over subjects in the control condition, when trust is 1; but have their cohesion decreased by -.03 units, when trust is 3.5, and decreased by 2.02 units when trust is 7, adjusting for other variables in the model. See table 3, model 3. Figure 2 illustrates the interaction effect of condition on cohesion at different levels of trust. This suggests that secrecy creates cohesion when trust is low, but when trust is high cohesion gets diluted, by somehow counteracting the effect of trust. Perhaps when one trusts someone, sharing a secret becomes onerous – one worries about disclosing the secret. More likely this is an artifact.

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<sup>37</sup> As expected both *liked* and *trust* by themselves positively predicted cohesion. One unit increase in Liked increased cohesion by .56 points (p=.000). One unit increase in Trusted increased cohesion by .38 points (p=.001). The correlation between the two was only .45.

There is also an unexpected effect of trust. In the secrecy condition increasing trust by one unit leads to a decrease in cohesion by .10 units. In the control condition (no secrecy), increasing trust by one unit leads to an increase in cohesion by .47 units. One would expect trust and cohesion to increase in the secrecy condition.



**Figure 2:** Illustration of a Disordinal Interaction Effect Between Trust and Condition

Next I tried adding demographic variables into the model such as race, gender, and parental income. These are some of the most robust variables in sociological analysis and it was worth examining whether they contribute to cohesion (when condition) is considered. Again, there was no effect for condition unless condition was interacted with trust. Gender was however found to have a slight effect. Cohesion

decreased by .44 units if the member of a dyad is a man, adjusting for all other variables in the model. See table 3, model 4. I don't have a good theoretical account for why this may have happened. This effect may be artifactual as the sample was overwhelmingly female. Also the gender effect disappears when gender is considered without other demographic characteristics.

Perhaps demographic variables played a role in a different way. Participants were interacting in dyads containing people both similar and different from them along the different dimensions. Social identity theory claims that individuals who share traits will develop identity on that basis alone. Perhaps the more similar one is to one's partner, the more cohesion he or she will feel toward them and perhaps secrecy will tip the scales of cohesion slightly. A scale was created such that the subjects were either completely dissimilar (shared no characteristics along race, gender, or parental income) or completely similar (shared all three characteristics). Alternatively maybe homogeneity along specific dimensions (e.g. race, gender, class upbringing) but not others was what really mattered. Homophily effects have been well-documented as people are attracted to similar others and perhaps experience more cohesion when being in a group with similar rather than dissimilar others (McPherson, Smith-Lovin, and Cook 2001). However, none turned out significant. Again there was an interaction effect. See table 3, model 5. I also ran the homogeneity variables without the demographic controls, but present them together in model 5 for a nested comparison.

Controlling for other variables such as academic year, major, and academic discipline were not found to have an effect. Efforts to control for the age of the respondents or the region of the United States did not produce any differences either.

Finally, I controlled for the various elements of the experiment itself, which potentially were covering up effects. Variables such as whether the participants were assigned to a Klee group or Kandinsky group, whether the Dot Estimation Task was

used, whether the specific confederates had an effect, whether the specific experimenter had an effect, whether the compensation chosen was cash or credit, whether manila folder was used, and whether a certain version of the Lost on the Moon task was used, and even the coders who coded the data.

I have also checked the results when the perceived cohesion measure is split into its affective and cognitive components. Neither has a main effect of condition only. Again there is an interaction effect for both but it is more stable for affective than cognitive cohesion. There is also an odd effect of parental income in the 30-75K when homogeneity controls are added. The stronger effect of affective cohesion is probably to be understood in that secrecy works stronger on the visceral level of cohesion. Cognitively there is no reason why one will view oneself more as a member of a group once one shares a secret. It is likely that the aforementioned mechanisms of secrecy and cohesion are more subconscious and result in a feeling first and cognition consistent with the feeling second.

### *Ancillary Analysis*

The items on the cohesion scale were checked for internal validity. Consistent with previous studies the items were highly correlated with a Chronbach's alpha of .92.

I checked that the residuals of the most plausible models were normally distributed and that they satisfied the homogeneity of variance assumption. Similarly I checked for collinearity for the independent variables used. The assumptions of the mixed linear model were satisfied. Also observations done by different coders were checked for systematic discrepancies and none were found.

## **DISCUSSION OF RESULTS**

Despite the somewhat mixed results I am not highly confident in the findings. The sample size was relatively small and the interaction finding was unexpected. It would have been more impressive to find a main effect of secrecy on cohesion. More importantly it is hard to interpret the interaction effect theoretically. Had the interaction effect been in the opposite direction, such that secrecy increased cohesion but only at moderate and higher levels of trust, the effect would have been more interpretable. Perhaps one needs some basic level of trust for secrecy to work and create cohesion. It is not at all clear why high levels of trust would decrease cohesion for the secrecy condition. It would have been more plausible if there was no effect at all. In that case one might interpret the results that at low levels of trust secrecy can generate cohesion but if there is high trust, one does not need secrecy.

Other results such as the effect of gender, the effect of the middle income group for affective cohesion, and the backward effect of trust for main cohesion is hard to interpret.

Trust was not optimally operationalized and the observed interactions could be artifacts. The results are not conclusive and not ready to be publicized. However, a strengthened design can address some of the weaknesses of the study. This will be the subject of the next section of the paper.

## **EXPERIMENTAL EXTENSIONS**

While the study described here did not achieve conclusive results a number of extensions and modifications in the design suggested themselves in the course of doing the research. The extensions have to do with five elements: 1) strengthening the manipulation; 2) diversifying the measure of cohesion; 3) homing in on the mechanism 4) eliminating confounds; 5) having more robust confound checks and manipulation checks; 6) as well as making other design tweaks.

### ***Strengthening the Manipulation***

One concern regarding the experiment was the strength of the chief manipulation – secrecy. Did the participants actually experience a sense of sharing a secret? Part of the challenge of manipulating secrecy is to prime it alone and not to (simultaneously) prime other dimensions such as status, excitability, group identity, instrumental value. A lot of thought and care went into designing the right experimental set up, but one could still do better.

One possibility is to have the participants interact over the task a bit more such that the secrecy is primed repeatedly. Perhaps the participants would come up with an esoteric ritual, password, or symbol combination, which they would communicate to one another repeatedly and in different contexts<sup>38</sup>. The control condition will have the communication done openly. It would be expected that the very act of communication and interaction would produce cohesion in the control condition, but more cohesion should be produced in the secret condition.

Perhaps part of the task would be that the other team will try to guess the secret word

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<sup>38</sup> This suggestion was provided by Thomas Gilovich

I have them come up with an esoteric ritual, password, and symbol combination. In both conditions they are asked to ask questions to try to guess the other sides' password. However, in the control condition they are asked to reveal it or maybe just come up with ritual, password, and symbol in front of the other team, such that they hear it.

Part of the reason I did not want to *assign* the secret word was that I was worried that status might be manipulated as a result – subjects might think that they were picked for a reason – therefore I wanted to have the subjects generate the secret “from the bottom up” so to speak. However, another possibility is that the subjects draw “random” lots such that any secrecy designation is perceived to be a chance event.

Perhaps having subjects more invested in coming up with the secret would be important, such that, one person comes up with first half of the password and the other person with the other half, or each comes up with a set of letters. This is not central to the theory. Indeed, secret societies operate well beyond its charter members who came up with all the rituals. The weight of tradition may even add to the legitimacy. Nonetheless it may be worth asking who came up with the word during debriefing (something I have not done) and control for it statistically.

It may also be that not any and all content may equally suit to be a secret or a secret password. It may be that words, rituals, or symbols that are exotic or unordinary in some way, would be more effective.

### ***Diversifying Measures of Cohesion***

The measure of cohesion – my dependent variable – was carefully chosen given the problem I investigated. The perceived cohesion scale was one of the state of the art measures of cohesion. However, adding other scales of cohesion such as the

Group Environment Questionnaire (Brawley, Carron, and Widmeyer 1988) may have been more convincing for scholars of that research program. Furthermore, no measure is perfect and it is best to use a variety of indicators, particularly different *kinds* of indicators. In addition to the attitudinal measure such as PCS, having a behavioral measure would have been particularly useful. In fact toward the end of the experiment I tried adding a behavioral measure, but too few trials had it incorporated and so results were not reported. I had subjects play a version of the Dictator game (Forsythe et al. 1994; Kahneman, Knetsch, and Thaler 1986) called the points allocation task.

Participants were instructed:

*You have 100 points which you can allocate to the four participants in today's study. The points correspond to real money (at some ratio; all participants will receive actual money based on the allocations you make). Please make an allocation between the four persons. The total must sum to 100.*

They were then instructed to allocate between themselves, the person who was their teammate, the person sitting diagonally from them and the person sitting opposite of them (the later two being the members of the other group).

Another good behavioral measure, used in early studies and encouraged by Dion in his review (Dion 2000:22) is the counting of "I" and "we" statements in interaction. He cites several early studies (p.9) and encourages this kind of methodology (p.22). The idea is that members of cohesive groups refer more to themselves as "we" than as "I". This can be done by having individuals write letters of what the task was about or complete a fill-in story, where blanks can be filled with an "I" or a "we".

Perhaps taking cohesion measures before and after the treatment would have been more robust, though the fact that participants were assigned to groups randomly would take care of the objection that there were different levels of cohesion susceptibility. The other worry of the before-and-after design is that it may alert participants to the research hypothesis. However, administering different cohesion

metrics (that are otherwise highly correlated) alongside some filler questions (to distract the participants) may partly solve this problem.

### *Fleshing out Mechanisms*

The present study tried to rule out some mechanisms for how secrecy increases cohesion. For example accounts involving status were ruled out by not having secrecy be connected to any resource and by making sure that the groups were organized based on a status-neutral trait. Social identity mechanisms were ruled out by having both teams form groups based on the same trait and by later controlling for homogeneity of the dyads along the most socially salient dimensions of homophily as well as the index of degree of homogeneity (how many of such traits did participants share). However, exact mechanisms were not fully or adequately investigated.

Given my results, trust is a key variable. Is trust a mediating variable, a moderating variable, a confounding variable, or simply epiphenomenal to secrecy? In the current study I tried to get at this question by asking subjects how much they trusted their partner and controlling for the response in my statistical model of the data. This of course is imperfect for many reasons. For one thing, the use of an experiment should exploit the virtue of the design for experimental rather than statistical control. Part of the problem with statistical controls is that they may reflect personality differences, which random assignment only partly controls for.

Since it was implicated in an interaction with the key variable – condition – it should be manipulated directly. This can be done following a version of a trust game described in other studies (Berg, Dickhaut, and McCabe 1995; Fetschenhauer and Dunning 2009). One participant is asked to donate money to the other participant out of a sum of \$10. If the other participant matches the money within a certain range the experimenter doubles the money for both. If s/he does not, they both lose. The opening

gambit signals how much you trust the other person. To manipulate trust, the experimenter may ask the participants to write the figure down on paper and then provide a false number to the other team member – low numbers in the low condition, medium in the medium condition, and high in the high condition. Instructions not to communicate about the interaction afterwards and other details will obviously have to also be included.

Subjects should be assigned to low, medium, and high trust conditions and exposed to secrecy in a two by three design (see table 4). If trust is not implicated the prediction would be as follows.  $a=b>c>d=e=f$ . If it is clearly implicated it would look like this:  $c>b>a>f>e>d$ . The higher the level of trust the more secrecy has an effect on cohesion. A similar effect for the control condition would be expected though the highest trust condition should still have less cohesion than the lowest trust-secrecy condition.

<b>Table 4: Testing the Trust Account Design</b>				
		<i>Trust</i>		
		Low	Med	High
<i>Secrecy</i>	Secrecy	<i>a</i>	<i>b</i>	<i>c</i>
	Control	<i>d</i>	<i>e</i>	<i>f</i>

The other alternative explanation involves Wegner’s obsessive preoccupation (Wegner, Lane, and Dimitri 1994) where consistent rumination on secrecy produced interpersonal attraction. These kinds of cognitive explanations can be tested for with a cognitive load task. (Gilbert, Pelham, and Krull 1988; Gilbert and Osborne 1989). Note that this is only the case with conscious cognitive processes (as opposed to automatic processes) and there is debate regarding the extent to which processes like

cognitive dissonance or obsessive preoccupation are automatic vs effortful<sup>39</sup>. In this task participants’ attentional or cognitive resources are occupied, typically by playing sound tones of high and low pitch and having them count chimes of only the lowest pitch (Lieberman et al. 2001) or by having participants memorize numbers of 4 digits, 6 digits, and 8 digits – thus varying the extent of the cognitive busyness (Yzerbyt, Coull, and Rocher 1999). This is done simultaneously of whatever task they are performing, in the cognitive-busyness condition. Since the mind can only process a finite amount of cognitive information, cognitive processes in the background are effectively elbowed out (Gilbert and Osborne 1989). In a 2x2 design two additional conditions of cognitive busyness and non-cognitive busyness would be introduced (see table 5). If the obsessive preoccupation account is correct, the prediction would be as follows:  $b > a \geq c = d$ . The cognitively distracted subjects should not experience a boost in cohesion if secrecy operates through a cognitive mechanism. In the control condition cognitive resource depletion should have no effect.

<b>Table 5: Testing the Cognitive Busyness Account Design</b>			
		<i>Cognitive Busyness</i>	
		<b>Cognitively Busy</b>	<b>Control (non-busy)</b>
<i>Secrecy</i>	Secrecy	<i>a</i>	<i>b</i>
	Control	<i>c</i>	<i>d</i>

<sup>39</sup> In a somewhat different study and design from their “footsie” study discussed earlier, Lane and Wegner (1995) suggest that the preoccupation process of secrecy may be automatically controlled, in which case my proposed study may not adequately rule out the preoccupation mechanism. However, they do suggest some checks of whether rumination is actually occurring, which may be profitably employed instead. For example, differential response times on the Stroop task may indicate rumination/hyperaccessibility of the secret.

Finally mechanisms involving self-esteem, need for uniqueness, or sense of exclusivity can be investigated in the following way. Psychological properties such as self-esteem can be threatened or enhanced. One way this is done is by giving subjects a valued achievement test of some sort (e.g. IQ test) and telling them that they either did “much worse” or “much better” than most people who took the test (Rsin and Spencer 1997). If the self-esteem account is correct, we should see the following pattern:  $a > c > b > d \geq e \geq f$ . Participants who had their self-esteem threatened should experience the highest levels of cohesion, followed by controls, followed by those who had their self-esteem enhanced.

<b>Table 6: Testing the Self-Esteem Account Design</b>				
		<i>Self-Esteem</i>		
		Self-esteem threatened	Self-esteem Enhanced	Control (self-esteem neither threatened nor enhanced)
<i>Secrecy</i>	Secrecy	<i>a</i>	<i>b</i>	<i>c</i>
	Control	<i>d</i>	<i>e</i>	<i>f</i>

### ***Conducting More Confound Checks***

Other confound checks should be instituted. Testing for affective effects can be examined by administering the now-common PANAS test (Watson, Clark, and Tellegen 1988).

To ensure that trivial group membership was salient, the post-study questionnaire included an item for which subjects designated on a seven-point Likert-type scale the similarity of themselves as a person to each of their partners (1 = not at all similar to me; 7 = extremely similar to me). This measure would allow the

assessment of the effectiveness of the manipulation of trivial group membership. A more detailed Partner Likeability Questionnaire would be more sensitive. I have actually implemented one toward the end of the experiment (see Appendix H). Along similar lines probing during debriefing for things such as who came up with the word and whether the participants felt they actually held (or were holding) the secret word after they came up with it, would be well-advised.

Furthermore looking into the temperance of the secret – asking whether the participants anticipated that the secret will be revealed or not may be revealing of how seriously they absorbed the manipulation. If the participants thought their secret will probably be revealed to the other group – the secrecy may simply not have had its effect – it was expected to be too transient to really be “secret”.

### *Other Design Elements*

Though the experimental design was generally carefully-crafted, I realized in the course of running the study that there are other features of the design that could be “tightened”. Some design decision had to do with practicality others did not occur to me until well into the experiment.

Practical issues of using groups (of three or more persons) rather than dyads would certainly have made the findings more impressive. However the practical aspects of coordinating such a study are quite challenging. Even with dyads, when one person did not show up as scheduled, the experiment was cancelled and an opportunity cost was incurred. This happened frequently enough to be an obstacle. Running the experiment with three people would have been even more disruptive. However, eventually extending the experiment to triads would be important.

Increasing the number and the diversity of subjects would be very helpful. Part of the problem with having 56 participants per condition is that one’s statistical power

is relatively low and as a result the chance of making a false negative “finding” (claiming there is no effect, when in reality there is) greatly increases. Similarly (this is a general trend and not particular to my study) there is an overwhelming tendency for participant volunteers to be white women, which makes it hard to detect gender and race effects. The fact that participants are randomly assigned to condition does not help if both conditions are overwhelmingly white and female. Consequently, we don’t know if the process operates similarly for men or for persons of color.

## **THEORETICAL EXTENSIONS AND PRACTICAL CONTRIBUTIONS**

The sustained academic study of secrecy is important and may shed light on many areas of interest to social science such as social capital, norm theory, the maintenance of power inequality, and symbolic capital. The study also has practical implications for disrupting criminal groups that utilize secrecy to maintain themselves such as transnational organized crime syndicates, terrorist organizations, and urban gangs.

### ***Theoretical Extensions***

Gist (1940) noted that the United States was especially prolific in producing secret societies; citing Mertz he claimed that the US had approximately 800 secret societies, with a total of 30 million members (p.349) before WWII. Interestingly, there was a strong counter-movement led by Christian reformer groups, against secret societies, whom they charged with “*fraternalism*”<sup>40</sup>, a practice they saw as contrary to Christianity’s emphasis on universalism. Since WWII there had been a massive decline of secret societies. It is not clear whether such decline is simply a symptom of the larger trend of declining social capital (Putnam 2000). Indeed Putnam briefly mentions secret societies in his chapter on “The Dark Side of Social Capital” (p.350) but the analysis is unsystematic. Secret societies indeed represent a perverse form of social capital but we do not know why individuals join secret civic organization as opposed to open ones. We do not know if secret civic societies are more resilient, if they decline slower or quicker. The analysis by Laurence Iannaccone (1994) of traditional and liberal churches bears on this issue. Iannaccone argues that strict churches impose greater costs on their members by weeding out free-riders who consume more of the public good than they contribute. Some secret societies have

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<sup>40</sup> While fraternalism connotes male-exclusive groups, women also formed exclusive secret societies. So did minorities excluded from white secret societies. Oftentimes these societies paralleled the dominant group’s symbols, rituals, and practices (See Gist 1938: 351)

become more transparent in recent years by discussing the meaning of their rituals, publicizing members, and opening up their lodges to outsiders – with the rationale that secrecy was turning perspective members away. It would be interesting to study whether this had an unintended opposite effect.

What about the *type* of content that a secret protects. Sociologists such as Max Weber (1968) Talcott Parsons (1968), and Rosabeth Moss Kanter (1972) distinguished between instrumental and value-based social action, goals, and cohesion. Perhaps business secrets having to do with the maximization of profits are qualitatively different than religious secrets having to do with moral or terminal values.

Secrecy, in particular secret norms, has a paradoxical implication for norm theory. While social scientists disagree on the exact nature of norms, there is largely a consensus that norms need to be known in order for them to be followed and sanctioned if they are broken (Hechter and Opp 2001). Hechter and Opp define norms as “socially shared prescriptions or proscriptions for behavior p.278” But socially shared by whom? What about secret norms? Consider the following practice of a secret society – whenever one sees a member one must greet him with a secret handshake – this norm is only known by members of the secret group and its knowledge is actively hidden from the wider public; it may be disguised, denied if asked, or deliberately misrepresented. The secret norms are not socially shared, yet they are shared among the secret ingroup. Sanctioning for violating the norm cannot be done publically for it will raise questions. For these reasons one might ask whether secret norms really are norms and whether they have any special properties that ordinary norms do not have as far as how they are maintained and how they emerge.

Similarly secrecy also poses challenges to such elemental questions as what is a group and what is an intergroup relation. Tajfel considers intergroup relations to involve both internal and external criteria. A group must be aware of and consider

itself as a group and a group must be considered by others to be a group (Tajfel 1982). Furthermore he says “There can be no intergroup behavior unless there is also some "outside" consensus that the group exists” (p.2). Secret groups whose membership is unknown form an exception to this since they *only* satisfy the internal criteria, yet exist as groups and interact with outgroups. The focus on the external environment makes sense since it is by social interaction that one comes to define and feel as part of a group, to develop an identity, and the outgroup sometimes plays a subtle but key role in this process. It is probably an accurate characterization of most social groups. However, this is not so for secret groups. Indeed it is the very absence of recognition of the group by the outside environment that in a sense makes it a group. Once the secret is out, in some cases, the group may cease to exist. Tajfel’s larger point is about intergroup relations, but the same problem applies. Consider a secret group (e.g. group A) whose members interact with an open group (e.g. group B). Group A members interact as individuals and members of group B think they are unconnected individuals. A nice example of this is discussed in Baker and Faulkner (1993) of a well-documented price-fixing conspiracy by several corporations in the heavy electric equipment industry. According to Tajfel this is not an intergroup interaction since one of the groups is not aware of the other, but of course that’s not exactly true – the price-fixing cartel was acting as a group toward buyer parties, which thought they were interacting with individuals who were competing with one another. A similar situation occurs in secret political alliances. How should such cases be treated and what implications does this have for theorizing intergroup relations?

Scholars of power inequality may also benefit from the analysis of secrecy. Early theories of the emergence of status and power hierarchies have emphasized the importance of secrecy. Weber’s theory of how status differences are legitimated by the closure of social intercourse between status unequals (Weber et al 1991) is of

particular relevance. It is counter-intuitive but the maintenance of secrecy may itself be a power move. Secrecy may (though not always) encourage deference. There is a self-reinforcing connection between secrecy and power. Those in power maintain secrecy and those who are acknowledged to hold a secret are deferred to and hence legitimated in the eyes of others. The esoteric wisdom of pre-modern priests or modern technocratic experts elicits submission. Paradoxically once the uncertainty and the ambiguity that the experts confront is more widely known by the laity, deference is sometimes challenged. This has become apparent with the science studies movement and the emboldenment of the laity to question scientific authority on such diverse issues as vaccines, global warming, creationism, alternative medicine, and various public health policies such as fluoridation (for an excellent discussion of this see Collins and Evans 2002). While most modern democratic institutions have abandoned secrecy as a legitimate practice some continue to follow it. For example the Supreme Court of the United States and some lower courts prohibit cameras in the courtroom on the grounds that it may undermine the augustness and authority of the proceedings. The study of secrecy as a status signal promises to be profitable.

Secrecy may also be an important form of symbolic capital. One of the paradoxes of the secret is that it can signal value, without its object having any extrinsic value. If one wants to start a religion, one would not want to make it simple and plain, and have lots of practical answers for possible questions. While one would want to make it relatively understandable one would also want it to be highly mysterious and profound. There is a kind of seduction of the secretive or an allure of the mysterious. Concealment may explain how certain symbolic information comes to be viewed as valuable.

### ***Practical Contributions***

The study of the secrecy-cohesion relationship also has a number of practical implications. The practice of secrecy is often adopted by groups who are interested in breaking the law and which are actively hunted by the law enforcement agencies of civic society. Transnational crime syndicates, inner-city gangs, hate groups, violent anti-abortion groups, and terrorist organizations all rely on secrecy to shield themselves from authorities. Weakening such groups is in the interest of society. If cohesion is tied to secrecy perhaps these groups' cohesion can be weakened by tinkering with the relationship.

One good example of this is the so called "Superman vs KKK" case documented in *Freakonomics* (Levitt and Dubner 2006: ch2) and more scholarly sources (Wade 1987). By the 1940's the Ku Klux Klan has become a notorious terrorist organization responsible for many violent politically-motivated crimes in the South. With a strong political base it was difficult to weaken the group. Stetson Kennedy, an investigative reporter, managed to infiltrate the Klan and familiarize himself with the group's secret practices – its rituals, its costumes, titles, passwords, and secret jargon. He then shared the information with writers of a popular radio program called *The Adventures of Superman*. The writers penned an episode where Superman would battle the Klan, in the process revealing all the secret rituals, jargon, passwords, and customs as well as what they meant. After the airing of the episode, membership for new applications and attendance at meetings began to plummet. Levitt and Dubner explain this by the process of privately hoarded information being made public and hence reducing demand – much like when terminal life insurance policy prices plummeted when internet comparison-shopping websites began to make price information more instantly accessible (Levitt and Dubner 2006:62). Another explanation is that the basis of cohesion of the Klan was undermined once the secrets were made public. This is an

empirical question and one fruitful issue to investigate is this; once cohesion is established on the basis of secrecy – does it decline when the secrets is betrayed?

Consider yet another case – that of the Red Brigades. In the 1970s Italy was rocked by a wave of terrorist attacks carried out by a Marxist organization, known as the Red Brigades (or *Brigate Rosse*). One of the strategies that proved successful in bringing down this organization was the so-called Repentance Laws (*pentiti*) (Moss 2001). The Repentance Laws were a series of laws that offered reduction in sentences or full amnesty to Red Brigade members who voluntarily turned themselves in, agreed to reveal locations of weapons caches, hideouts, and testify against former colleagues, as well as agreed to “repent” or permanently renounce violence and their former organization. The laws are credited in shattering the organization’s morale, triggering a cascade of division, and delivering the final blow to an already weakened organization. The same laws were later applied to the Cosa Nostra – the organized crime syndicates in Italy. Such efforts were far less successful. Mob members would game the policy by falsely accusing judges, prosecutors, or political opponents and were not as sensitive to betrayal by formerly loyal members<sup>41</sup>. Why the difference? Recall the theoretical distinction identified earlier between instrumental and moral cohesion. One possibility has to do with the goals of the two organizations. The Red Brigades were (primarily) interested in political goals, whereas the Cosa Nostra members were (primarily) interested in pecuniary goals. The cohesion of pecuniary groups is organized around exchange, whereas the cohesion of political groups is organized around ideology. A defection and denunciation by a colleague will be interpreted differently in the two groups. The pecuniary groups can rationalize the renunciation more easily as an example of a person just making a cost/benefit

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<sup>41</sup> This was pointed out to me by Donatella della Porta, an authority on the Red Brigades (See Della Porta 1995) in a private conversation in the Summer of 2007.

calculation and exiting – no big deal. The ideological groups and their supporters will have a much harder time rationalizing the defection of their brothers who were once zealously committed to the cause. Defection and renunciation in large numbers sends a much more serious signal which degrades the group’s legitimacy and is much more difficult to cope with. Furthermore, in an ideological group fighting for justice, principles matter. False accusations, a la mafia members, are viewed as outside the bounds of their code of honor. One is not supposed to sink to the level of the “corrupt machine” one is fighting. For the mafia, corruption, framing, and betrayal are time-tested methods to carry out the purpose of the organization.

It may turn out that when information about terrorist organizations gets made public and becomes part of the mundane discourse, when the mystique is unraveled, commitment to the group may lessen among the remaining members.

## CONCLUSION

The sociological project to understand durable patterns of social relations can profit from the insight that oftentimes social relations are *deliberately* concealed. The implications of such concealment on the processes that are embedded in the social structure are profound. Secrecy and concealment for non-instrumental reasons have been practiced by humans for millennia and continue to be practiced in modern society despite the emphasis on transparency, the lifting of taboos on the sharing of private information, and the widespread availability of information through electronic media such as the Internet. Georg Simmel was one of the first social theorists to realize that *secret* social structure matters. While secret relations may be a small part of modern life, they exert a disproportionate effect. Secrecy, Simmel said, “secures, so to speak, the possibility of a second world alongside the obvious world, and the later is most strenuously affected by the former” (Simmel 1906:462).

In this study I have considered how the social psychological property of cohesion may be influenced by secrecy. While the results were not conclusive a new set of studies were suggested to improve the present design. I concluded by reviewing the theoretical and practical implications of continuing research on this important construct. I will end this paper by calling for nothing short than a full research program in the social psychology of secrecy.

## APPENDICES

### APPENDIX A: *CONSENT FORM*

#### **Artistic Preference and Subjective Prioritization**

Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

**What the study is about:** The purpose of this study is to learn how artistic preferences relate to subjective prioritization.

**What we will ask you to do:** The study will involve a set of tasks that we will ask you to perform first by yourself and then in a group. The tasks will involve selecting paintings, selecting a word, collaborating on a prioritization task, and answering some questions.

**Risks and benefits:**

There are no direct risks or benefits to you.

**Compensation:** You may earn extra credit in a select course or receive \$5 for your participation.

**Taking part is voluntary:** Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide not to take part or to skip some of the questions, it will not affect your current or future relationship with Cornell University. If you decide to take part, you are free to withdraw at any time.

**Your answers will be confidential.** The records of this study will be kept private. In any sort of report we make public we will not include any information that will make it possible to identify you. Only the researchers will have access to the records.

**If you have questions:** The principle researcher conducting this study is Michael Genkin. Please ask any questions you have now. If you have questions later, you may contact Michael Genkin at [mg324@cornell.edu](mailto:mg324@cornell.edu). If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Cornell University Institutional Review Board at:

*Cornell University IRB*  
395 Pine Tree Road, Suite 320  
Ithaca, NY 14850  
(607) 255-5138  
[www.irb.cornell.edu](http://www.irb.cornell.edu)

You will be given a copy of this form to keep for your records.

**Statement of Consent:** I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Your Signature \_\_\_\_\_ Date \_\_\_\_\_

**APPENDIX B: EXPERIMENTAL CONDITION SCRIPT (FOR THE KLEE-KANDINSKY TASK)**

**KLEE-KANDINSKY DET EXPERIMENTAL VERSION SCRIPT**

*My name is Michael Genkin, I will be running the experiment today. \_\_\_\_\_ is my research assistant.*

***Step 1: Creating a Group through the Dot-Estimation Task.***

*Today you will be participating in a study concerned with how people develop quantitative judgments (in layman's terms – how people count objects). Before we begin, I would like you to read over and sign the consent form for this experiment. In front of you are two copies, one is for us and one is for you to keep. Please turn the form over when you are finished.*

*Do you have any questions about the consent form?*

*Today you will be participating in a study concerned with how people make quantitative judgments (in layman's terms – how people count objects). Past studies have shown that, given the task of estimating how many objects they have seen, different people tend to consistently overestimate or underestimate the correct number. While researchers do not place any value judgments on whether it is better to be an overestimator or an underestimator, past research has shown that whether one is an overestimator or an underestimator does reveal something fundamental about the psychological characteristics and personality of the person.*

*Different kinds of stimuli are used to detect a person's tendency toward over- or underestimation. One standard type of procedure is the Senton Dot Estimation Task, that we will be using today. It involves looking at a constellation of dots such as this [click slide] and estimating whether there are more small dots or large dots. Each slide will be displayed for exactly 2 seconds. Try to give your best approximation of how many dots are displayed.*

*Run the slideshow.*

*I will now collect the answer sheet and tabulate your scores.*

*Collect the answer sheet and retreat behind the divider and pretend to tabulate the score. Randomly assign an artist to each group*

*I have tabulated the scores and it looks like name 1 and name 2 clearly exhibit an overestimation tendency. It also looks that name 3 and name 4 exhibit a strong underestimation tendency. For the purposes of the experiment and to simplify the associated measures we are going to assign you into groups based on your quantitative judgment tendency. So if the underestimator group can sit at this side of the table and the overestimator group can sit at this side of the table.*

## **Step 2: Manipulating Secrecy**

*We are now going to lead the two groups into a separate cubicle where you will be given special instructions.*

Lead the two pairs of participants to a separate cubicle and instruct them as follows:

*We are going to have you play a game with the other team. Part of the game involves coming up with a secret password that they (the other team) must not know. Please take a moment to come up with such a password and remember it. In addition, we would ask you to write down the password on this sheet and insert it into this manila envelope, which you will take with you as we join the other team members. Signal your completion by putting the “Finished” sign in the hanging wire basket on the side of the cubicle, over here [point].*

## **Step 3: Generating a Base-level of Cohesion**

Take two copies of LOM

*We will now ask you to consider the following task. Please read over the instructions and complete the task with your teammate.*

Hand out two copies of the Lost on the Moon task sheet.

Put the “Finished” sign back, face down next to the participants.

*Once again, if you can signal your completion with the “Finished” sign.*

*If I can have your answer sheet ... and if you can please take a seat back at the table.*

Lead the participants back to the main room

## **Step 4: Measuring Cohesion and Collecting Demographic Characteristics**

*Before we proceed we will need you to fill out a brief questionnaire about your artistic preference group as a result of the Lost on the Moon task.*

Hand out the Cohesion Scale.

*Please signal your completion of the task by flipping the sheet over.*

Once subjects completed the cohesion scale:

*We are almost done. However before I let you go, I would like you to fill out one last brief questionnaire. Again, if you can flip it over when you are finished.*

Once subjects completed the cohesion scale:

*This concludes the experiment. Thank you for your participation; we would now like to debrief you as well as provide you with the promised reward.*

Ask subjects to leave the room individually. Experimenter provides compensation, checks suspicion, and debriefs subject 1. [One of the confederates does the same to subject 2 – for later].

**APPENDIX C: CONTROL CONDITION SCRIPT (FOR THE KLEE-KANDINSKY TASK)**

**KLEE-KANDINSKY CONTROL VERSION SCRIPT**

*Hi, are you guys here for the experiment? Great, my name is \_\_\_\_\_, I will be running the experiment today. Please come this way.*

***Step 1: Creating a Group through the Klee-Kandinsky Task.***

*Today you will be participating in a study concerned with how people develop artistic judgments. Before we begin, I would like you to read over and sign the consent form for this experiment. In front of you are two copies, one is for us and one is for you to keep. Please turn the form over when you are finished.*

*Do you have any questions about the consent form?*

*Great, we will begin the study by giving you a booklet containing two pairs of drawings per page. Please take a moment to consider the two drawings and indicate the one you prefer on the answer sheet provided. Please signal your completion of the task by flipping the booklet over like so.*

Illustrate the flipping over of the booklet. Hand the booklet and answer sheet to the participants

*The pairs of paintings you have just identified were actually drawn by two 20<sup>th</sup> century abstract painters Wassily Kandinsky and Paul Klee. While the paintings may appear similar in some respects, art historians have noted a very distinct style for each of the painters. Past studies by psychologists have shown that different people tend to consistently prefer one style over another. While researchers do not place any value judgments on whether it is better to have a Klee preference or a Kandinsky preference, the research has shown that these preferences reveal something fundamental about the psychological characteristics and personality of the person exhibiting the preference. These findings are very consistent and highly robust.*

*I will now collect the answer sheet and tabulate your score, which will indicate your artistic preference. Please note and remember the number indicated on the top of the form.*

Collect the answer sheet and retreat behind the divider and pretend to tabulate the score. Randomly assign an artist to each group

*I have tabulated the scores and it looks like name 1 and name 2 clearly exhibit a Kandinsky preference. It also looks that name 3 and name 4 exhibit a strong Klee preference. For the purposes of the experiment and to simplify the associated*

*measures we are going to assign you into groups based on your artistic preference. So if the Klee group can sit at this side of the table and the Kandinsky group can sit at this side of the table.*

### **Step 2: Manipulating Secrecy**

*We are now going to lead the two groups into a separate cubicle where you will be given special instructions.*

Lead the two pairs of participants to a separate cubicle and instruct them as follows:

*We are going to have you play a game with the other team. Part of the game you will play with the other team involves coming up with a word, which you will show to the other team when you see them. Please take a moment to come up with such a word and remember it. In addition, we would ask you to write down the word on this sheet and insert it into this manila envelope, which you will take with you as we join the other team members. . Signal your completion by putting the “Finished” sign in the hanging wire basket on the side of the cubicle, over here [point].*

### **Step 3: Generating a Base-level of Cohesion**

Take two copies of LOM

*We will now ask you to consider the following task. Please read over the instructions and complete the task with your teammate.*

Hand out two copies of the Lost on the Moon task sheet.

Put the “Finished” sign back, face down next to the participants.

*Once again, if you can signal your completion with the “Finished” sign.*

*If I can have your answer sheet ... and if you can please take a seat back at the table.*

Lead participants back to the main room, say:

*Please exchange the manila envelopes with the other team and observe each other’s words.*

### **Step 4: Measuring Cohesion and Collecting Demographic Characteristics**

*Before we proceed we will need you to fill out a brief questionnaire about your artistic preference group as a result of the Lost on the Moon task.*

Hand out the Cohesion Scale.

*Please signal your completion of the task by flipping the sheet over.*

Once subjects completed the cohesion scale:

*We are almost done. However before I let you go, I would like you to fill out one last brief questionnaire. Again, if you can flip it over when you are finished.*

Once subjects completed the cohesion scale:

*This concludes the experiment. Thank you for your participation; we would now like to debrief you as well as provide you with the promised reward.*

Ask subjects to leave the room individually. Experimenter provides compensation, checks suspicion, and debriefs subject 1. [One of the confederates does the same to subject 2 – for later].

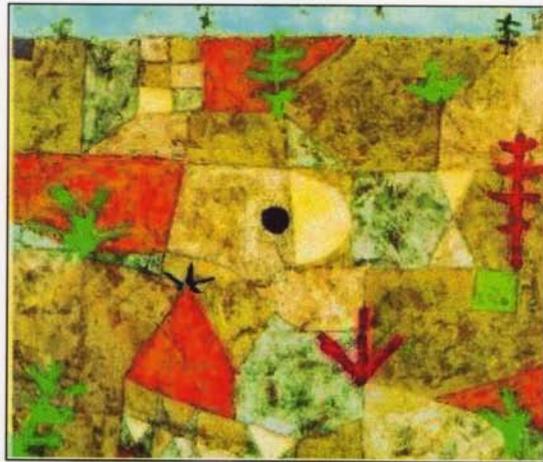
**APPENDIX D: KLEE-KANDINSKY SLIDE**

**Painting Booklet**

**Page 1**

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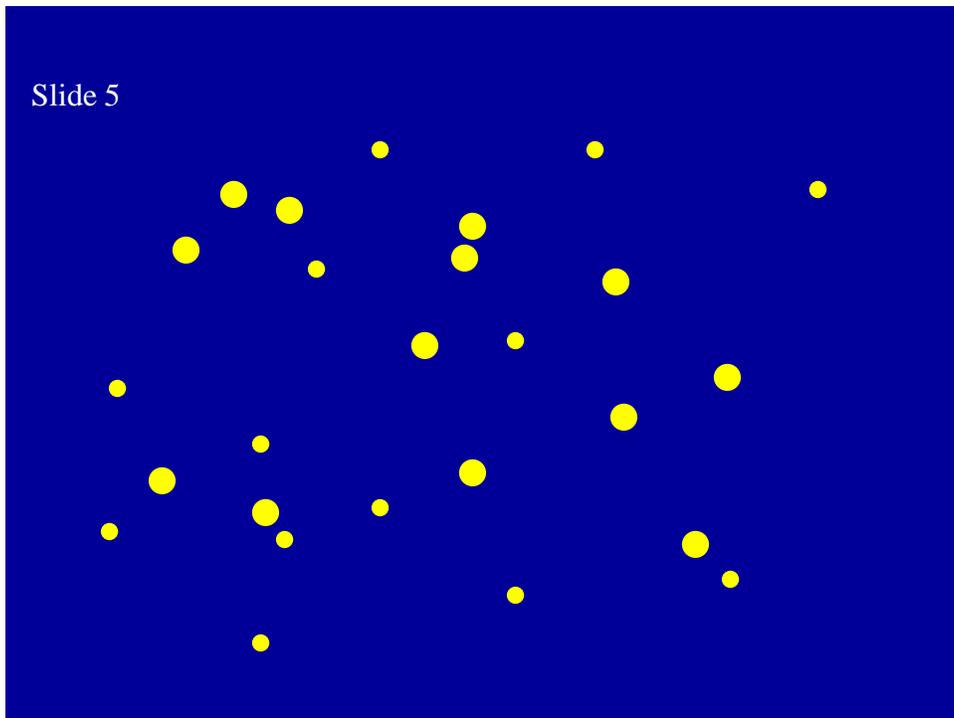
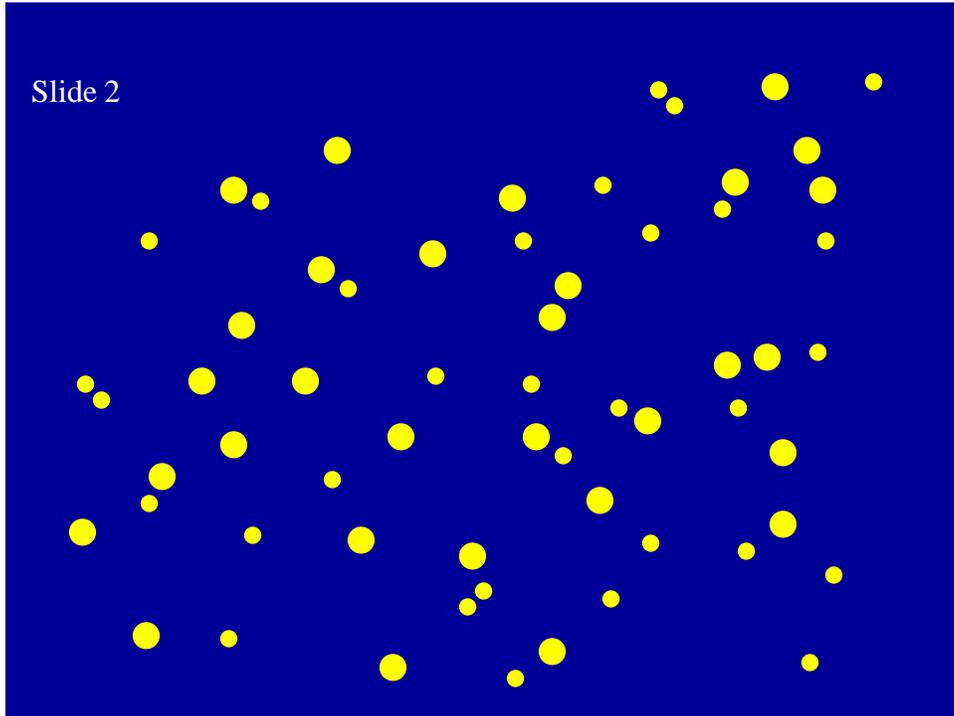
**Painting A**



**Painting B**



**APPENDIX E: AN EXAMPLE OF THE DOT ESTIMATION SLIDES**



**APPENDIX F: LOST ON THE MOON (10-ITEM TASK)**

**Lost on the Moon Task**

**The Scenario-**

Your spaceship has just crashed on the moon. You were scheduled to rendezvous with a mother ship 200 miles away on the lighted surface of the moon, but the rough landing has ruined your ship and destroyed all the equipment on board except for the 10 items listed below.

Your crew's survival depends on reaching the mother ship, so you must choose the most critical items available for the 200-mile trip.

Your task is to rank the 10 items in terms of their importance for survival. Place a number 1 by the most important item, number 2 by the second most important, and so on, through number 10, the least important.

- \_\_\_\_\_ Box of matches
- \_\_\_\_\_ Food concentrate
- \_\_\_\_\_ 50 feet of nylon rope
- \_\_\_\_\_ Solar-powered portable heating unit
- \_\_\_\_\_ Two .45caliber pistols
- \_\_\_\_\_ Two 100-pound tanks of oxygen
- \_\_\_\_\_ Stellar map (of the moon's constellations)
- \_\_\_\_\_ Magnetic compass
- \_\_\_\_\_ 5 gallons of water
- \_\_\_\_\_ Signal flares

## **APPENDIX G: PERCEIVED COHESION SCALE**

### **Questionnaire I**

*Please circle the extent to which you agree/disagree with the following statements about your group:*

1. I feel that I belong to this group.  
strongly disagree.....quite..... slightly..... neither..... slightly..... quite..... strongly agree

2. I am happy to be part of this group.  
strongly disagree.....quite..... slightly..... neither..... slightly..... quite..... strongly agree

3. I see myself as part of this group.  
strongly disagree.....quite..... slightly..... neither..... slightly..... quite..... strongly agree

4. This group is one of the best anywhere.  
strongly disagree.....quite..... slightly..... neither..... slightly..... quite..... strongly agree

5. I feel that I am a member of this group.  
strongly disagree.....quite..... slightly..... neither..... slightly..... quite..... strongly agree

6. I am content to be part of this group.  
strongly disagree.....quite..... slightly..... neither..... slightly..... quite..... strongly agree

**APPENDIX H: PARTNER LIKEABILITY QUESTIONNAIRE**  
**QUESTIONNAIRE III**

**Directions**

Please circle the extent to which you agree/disagree with the following statements about your teammate. Use the following scale to record your answers. It is very important that you provide truthful answers. They will be kept confidential and will not be shared with your partner.

	<b>Strongly Disagree</b>	<b>Quite Disagree</b>	<b>Slightly Disagree</b>	<b>Neither Agree/ Disagree</b>	<b>Slightly Agree</b>	<b>Quite Agree</b>	<b>Strongly Agree</b>
<i>1. I liked my teammate.</i>	1	2	3	4	5	6	7
<i>2. I trusted my teammate.</i>	1	2	3	4	5	6	7
<i>3. I was comfortable with my teammate.</i>	1	2	3	4	5	6	7
<i>4. My teammate dominated the interaction too much.</i>	1	2	3	4	5	6	7
<i>5. I prefer not to interact with my teammate again.</i>	1	2	3	4	5	6	7
<i>6. Interacting with my teammate made me uncomfortable.</i>	1	2	3	4	5	6	7
<i>7. I shared similarity with my teammate.</i>	1	2	3	4	5	6	7
<i>8. I felt attracted to my teammate.</i>							
<i>9. My teammate was eccentric.</i>							
<i>10. My friends will</i>	1	2	3	4	5	6	7

<i>probably like my teammate.</i>							
<i>11. My friends will probably trust my teammate.</i>	1	2	3	4	5	6	7
<i>12. My friends will probably not enjoy interacting with my teammate.</i>	1	2	3	4	5	6	7

**APPENDIX I: POINT ALLOCATION TASK**

**Point Allocation Task**

You have 100 points which you can allocate to the four participants in today's study. The points correspond to real money (at some ratio; all participants will receive actual money based on the allocations you make). Please make an allocation between the four persons. The total must sum to 100.

<i>Yourself:</i>	_____
<i>Person who is your teammate:</i>	_____
<i>Person sitting diagonally from you:</i>	_____
<i>Person sitting opposite of you:</i>	_____
<b>TOTAL</b>	<u>100</u>

**APPENDIX J: DEMOGRAPHIC QUESTIONNAIRE**

**Questionnaire II**

*Please indicate the response that best describes you. All answers are confidential and anonymous – they are not matched to your name.*

**I. Gender:**

Male  Female

**II. Race:**

Caucasian/White  Black  Asian  Hispanic (of either race)  
 Multiracial

**III. Current Year Status:**

Freshman       Sophomore       Junior       Senior   
Other

**IV. What is your major/area of study? \_\_\_\_\_**

**V. Parent's household income?**

Under \$10,000     \$10,000 - \$19,999     \$20,000 - \$29,999  
 \$30,000 - \$39,999     \$40,000 - \$49,999     \$50,000 - \$74,999  
 \$75,000 - \$99,999     \$100,000 - \$150,000     Over \$150,000

**VI. Age:**

\_\_\_\_\_

**VII. Home state:**

\_\_\_\_\_ or \_\_\_\_\_ - does not apply, I am an international student

**VIII. If you are an international student, which country are you from?**

\_\_\_\_\_

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