On the Hive Mind:
Explorations in Social Semiotics

A Thesis
Presented to
The Division of Philosophy, Religion, Psychology, and Linguistics
Reed College

In Partial Fulfillment
of the Requirements for the Degree
Bachelor of Arts

Sarah J. Gould

May 2009

Approved for the Division
(Linguistics)

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Stephen E. D. Hibbard

Acknowledgements

Thank you, Steve: you are a semiotics super-hero.

Thank you, Gavin: you are an awesome editor.

Thank you, Thomas: you make everything meaningful.

Thank you, Rob, Ken, and Michael for serving on my orals board.

Thank you, everyone who shared their ideas with me through their books and conversation!

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Abstract

This thesis is about how coordinated group behavior emerges out of the many interactions between individuals. While I focus primarily on humans, other animals — including the honeybee — provide simple models to explain some of the principles that are at work in all societies. How are individuals influenced by the groups they live in? When do individuals act for the group and not for themselves? How do groups emerge, interact, and survive as entities in and of themselves? Traditionally, linguistic analysis of meaning and interpretation has been focused on language use in humans, but here I focus on language as the medium of social thought. Language is not just for humans to think with as isolated individuals, nor is it just for communicating information. It is also used to create society, in every interaction. Here, I explore a set of questions about group minds that I hope will be useful in thinking about our roles within them.

Introduction

This is a story about groups: how they evolve and live and function as independent entities. We all run into the circularity sooner or later — which came first, society or the individual? It is not an easy question to answer, since the two are constantly in a dialogue with one another. Individuals make up society like cells make up a living body, going about their daily business and at the same time carrying out the functions of the larger whole. The group has an existence beyond a collection of people — or animals, as the case may be — and has its own behaviors that emerge from the continual interactions of its members with each other and with the group itself. We have some idea that there is a system of conventions and symbols beyond our immediate control, something that has been evolving through human history that provides us with the ability to derive meaning from the world and communicate coherently with those around us. We also know that we contribute our own experiences and interpretations to the future of that system. Language is not just a tool for thinking and talking, it is the medium through which groups think together ("social thought"), breathing life into society with every greeting and bit of gossip. Yet this is not unique to human language, for all social beings create groups through their own systems of meaning-making. Each honeybee actively participates in the quasi-mind of its hive. Semiotics, the study of how meaning is constructed, can be used to understand how groups are constructed as well. Sapient brains are not unique in their capacity to interpret signs,

yet no interpreter is a mere automaton. Sociality is a bunch of dynamic processes acting on many levels, and everyone participates in the conversation, even if by remaining aloof.

The Meaning of Groups

I have often wondered about the meaning of culture and the function of language. The customs of others seem so mysterious at times, yet there is also a compelling coherency to the way humans behave. More intriguing still are the similarities between humans and other animals, which make it so easy to grant them understandable thoughts and emotions. What is the background against which all our distinctions emerge? If humans are so special, why is it every new animal cognition study throws another of our "unique" features into question? We consider ourselves the ultimate social animals, trading in instinct for cultural patterning. Human language is held as evidence of our superior mental prowess. But we are *not* unique in constructing elaborate societies, nor are we alone in being influenced by them — social insects manage to do so without anything close to our level of brain power, and their communication strategies are so structured and complex that scientists have ventured so far as to call them "languages." The principles that underly competent and coherent societies are based on the semiotic processes of individuals and groups, whether these semiotic processes are linguistic or not. If we can understand how meaning is constructed within and even *by* societies, wherever they might arise, then we can gain insight into the workings of the very groups in which we spend our daily lives, and the language we use to create both society and ourselves within it.

Social groups are made up of individuals, but they are more than just the sum of their parts. The fact that group members are aware of their membership allows

the group to maintain a cohesiveness which a loose association would not have. In fact, the only way for any two individuals to associate at all is through the persistent systems of meaning ("institutions") they hold in common. Some things that we hold in common are innate, like the mirror neurons that allow humans and other primates to imitate one another's physical actions and facial expressions. Most animals have instincts that guide social coodination. But in humans, gestures, lexicons, and rules of conduct vary from group to group. This makes our societies particularly (if not uniquely) complex, and the large number of factors involved in their structure and reproduction makes them difficult to encompass in a single theory.

One of the biggest challenges is simultaneously keeping in mind both the individuals interacting with each other and the coherent structures they produce. What's more, these structures do not have a fixed, independent existence, but exist only in the moments of their reproduction. We often treat them as external forces because they do inform our behavior and transcend the individual, but social structure is only real because all the members of the group participate in it, and institutions are only real because people realize them over and over again in their interactions. If they have power over us it is because they are real to us, forming our social environment and the means for navigating that environment. On the other hand, this social reality is completely dependent on our continuous reproduction of it across time and space. This is what Anthony Giddens calls the "duality of structure" (1979, p. 5) and what Berger & Luckmann call the "dialectic" between individual and society (1966, p. 61).

Living in a group means coordinating with others, for otherwise there is no group to speak of. This requires a means for communication, as well as patterns of behavior that minimize conflict and promote productive group activities. These last two are necessary from an evolutionary standpoint, because group living has

no reason to arise if members do not derive some benefit. Coyotes, for example, form packs when there are large and concentrated sources of carrion available, which can be defended and shared effectively, but strike out on their own when there are plenty of small rodents, which are easy to catch yet hard to share (Bekoff 2006, p. 93). If patterns of socializing cause discord instead of harmony, however, the group is just as likely to fall apart. As another non-human example, wolf packs break down when they have too many members. "The number of wolves who could live together in a coordinated pack was governed by the number of wolves with whom individuals could closely bond... balanced against the number of individuals from whom an individual could tolerate competition" (ibid, p. 167). Wolves need to maintain a "code of conduct" with one another, and the mechanisms for maintaining this code break down when the group gets too large. The same phenomenon is observed in humans: groups tend to have populations hovering around Dunbar's Number (roughly 150 individuals), which represents the number of people with which any one person can maintain stable social relationships. Our ability to interact productively with others is what gives rise to society as a whole.

Thinking With Institutions

Unlike wolf packs and other animal societies, however, humans participate in multiple social groups at the same time. Institutions overlap for us, and we need a way to sort out who participates in which ones and in what ways. This is a possible explanation for why there are tendencies towards clean-cut divisions between groups, utilizing techniques like social classes that refuse to intermingle, or having multiple cultural patterns team up so that they tend to occur in tandem (liberalism and environmentalism, for example). The typifying power of language allows us

to reconstitute groups in such ways that make them easier for us to handle. The social world is almost as complex as the natural world, rich as it is in continuities and subtle interrelations, so simplifying it is essential for our understanding and our ability to maintain large-scale societies.

Stereotyping is an especially powerful tool for this purpose. However, though stereotypes may be used initially to describe general tendencies and patterns, they come to define essential characteristics of a group and its members. This can be applied externally, often pejoratively, but it is also used by groups themselves: social movements and cliques, once essentialized in this way, can require those characteristics be exhibited in order to join. The pressure to conform in order to be included can also be seen as a desire to exhibit the characteristics of people you like. This allows for more implicit group formation, where the members don't all hang out together face-to-face or even give themselves a name, but rather pick up on these markers of behavior in order to align themselves with a certain point of view and communicate that alignment to others. Word-choice, physical appearance, hobbies, opinions, and even subtle positioning within speech, all serve as indices of the groups to which we belong and of our positions within those groups, and draw upon a common pool of social cues. We interact with others in terms of these indices, and construct our own socially-available selves out of such mutually-intelligible patterns.

To some extent, then, society does control the individual, insofar as any individual can only meaningfully and intelligibly frame their actions in terms of social norms. Norms are largely assumed and unquestioned because they form the foundations for other negotiations. For example, we usually use language without consciously focusing on its syntax or semantics, instead simply using it in the same way that we learned it and have used it since. Language-use is part of our habitual behavior and the social habits of our fellow fluent speakers, and we end

up reproducing its forms in the course of communicating through them. The rules of language and social conduct survive largely unchanged from one interaction to the next because we take them for granted as the background for other social activities. When they cannot be safely assumed, then their utility — the legitimacy of that tradition — is challenged. Of course, even this challenge must rely on other norms, or else the challenge itself would be unintelligible!

One way norms can defend themselves from too much questioning is by hooking up with some non-arbitrary reason for being. I must take a moment here to explain that while I do not mean to anthropomorphize these patterns of behavior, it is a handy way to describe how some patterns remain intact over many reproductions while others change quickly beyond recognition. As a parallel, Richard Dawkins describes genes as 'selfish' not because they have conscious interests to survive at the expense of all else, but because those that are bad at replicating themselves simply get out-numbered by those that are good at it. Small mutations may make genes that are even better or even worse at replicating in a given environment, but since only the better ones are represented in future generations, it seems like the gene-pool is adapting intelligently. It is in fact only the process of natural selection — Darwinian evolution. In the same way, cultural patterns that exist in our current social environment are the ones that people historically reproduced with higher fidelity than the patterns that we no longer use. And just as genes affect their environment and thus change the conditions for successful replication, extant cultural patterns affect how new ideas will be received and spread. In other words, because individuals are aware of their social environment (however conscious that awareness is), it will influence their behavior; because their behavior is what constitutes the social environment in the first place, the entire system is a continuous, self-referential feedback loop.

Survival of the Fittest

It is apparent that in this competitive environment, systems of meaning that are perceived as being justified will survive and become institutionalized, while those that are consciously understood to be contrivances will fall away. A transparent social contract like, "Why not just avoid violence, lest fighting break out?" is far too easily abandoned when push comes to shove (Douglas 1986, p. 52). It's much better to say something is right or fair or virtuous or natural, because then there is something beyond the group itself that is the source of their continual agreement of how to interact. They renew this belief implicitly each time they assume its foundational nature, and explicitly each time they reprimand someone for breaking the rules. In Garfinkel's breaching experiments, his students were asked to foreground subtle rules of discourse and question common sense (Heritage 1984). "How are you?" was greeted with "What do you *mean* how am I? How am I in regards to what?" The targets of these experiments invariably became outraged. They got more upset than one would suppose for such an innocent-seeming breach of normality. "The experiment thus indicated that maintaining the 'reciprocity of perspectives' (as one of the presuppositions of the attitude of daily life) is not merely a cognitive task, but one which each actor 'trusts' that the other will accomplish as a matter of moral necessity" (ibid, p. 82). It appears that even such arbitrary norms that govern discourse, much less the larger rules of marriage, war, etc., become so ingrained in our sense of being that behaving counter to them is seen as a threat to the very possibility of order and its ability to grant us security.

Groups do indeed provide security, so it is perhaps little wonder that we become personally offended when the groups we belong to and the rules that bind them together are threatened. Indeed, morality can be seen as an adaptation to group-living. Other social animals also exhibit a sense of justice, keeping track of who is benevolent and who takes advantage of others' generosity. Cheaters are

quickly recognized and shunned — and living alone can have dire consequences (Bekoff 2006, p. 162). Game-theoretical models show reciprocation to be the only evolutionarily stable strategy for group-living individuals (ibid, p. 163). Without firmly ingrained rules for social interaction, groups — and the benefits they provide — tend to dissolve. If fairness is an evolutionary advantage, it's no wonder that it would have a neurological basis, so that we feel good for being nice (ibid, p. 140). It's even possible that other, more arbitrary norms have taken advantage of this built-in moral sense to make themselves seem like rules for playing fair. After all, humans are just as likely to ostracize someone for praying to the wrong gods as for stealing bread from the poor, if not more so.

Of course, none of this is deterministic. The cohesiveness of a group depends on its members treating it *as* cohesive in every action and interaction. Its status as an 'entity' is entirely emergent, as are its characteristics, behaviors, and interests. The continual renewing of its existence means that there will always be small adjustments made for the particular context from moment to moment. Reproduction is never perfect for the very reason that patterns, generalizations, rules are only realized when they are applied to a particular situation. We take them for granted, making them the background against which to foreground our more relevant interests. Our understanding of the world is framed by social thought, so we participate in social thinking simply by thinking for ourselves. Our interests are described in terms of society's structures, so we recreate those structures as we pursue of our own goals. Just as our behavior arises out of the complex interactions of our cells and organs, group behavior arises out of the complex interactions of individuals. The large-scale patterns and structures, the body and mind of society, consist of people (and other animals) going about their day-to-day activities. Yet they take on a character all their own, composing a being just as worthy of study as any other organism that at once depends on and informs its constituent parts.

This thesis endeavors to describe the means by which group thought emerges and functions.

Things to Come

In Chapter 1, I give a brief introduction to Peirce's semiotics, which will provide the framework for understanding how meaning is created in biological and social systems. The power of semiotics is that it does not require a human brain or a conscious mind to explain acts of interpretation. As we will see in Chapter 2, it is well-equipped to describe the social dynamics of honeybees and even bee *hives*. Through a series of feedback loops mediated by dancing, bee collectives exhibit emergent behaviors that are not encoded in individual bees. That is, a single bee does not react to the state of the entire hive, only to its particular situation. But it becomes useful to describe the hive itself as directing actions, because many aspects of bee-level behavior do not make sense outside of hive-level functions. When von Frisch discovered that bee dances contain information about foraging locations, he proposed what has become the "dance language hypothesis:" that bees use this information to communicate locations directly to other bees. But Wenner and Wells found this to be problematic, since bees can find nectar sources perfectly well without paying attention to dance information, and in fact don't pay attention most of the time. Inspired by Seeley's proposal that hives are "group-level adaptive units," I suggest that bee dancing maintains the hive's knowledge of its environment, consisting of a living memory.

The bee hive thus acts as a model society which exhibits some of the same processes as mammal societies, but on a reduced scale and much simplified. The analogy is extended in Chapter 3, where I discuss human rituals and their role in maintaining group solidarity and social reality. Taking a fresh semiotic per-

spective on the theories of various anthropologists, including Durkheim's totems and Frazer's magic, Tambiah's ritual language and Duranti's ritual spaces, Parmentier's "diagrams," Silverstein's emblems, and Bourdieu's rites of institution, it becomes apparent that a better understanding of icons and indices can explain how ritual socializes natural processes and naturalizes social relations. Rituals bind members to the group, legitimizing, naturalizing, and internalizing the behaviors and ideologies that cause the group to emerge. They tell institutions about themselves — for Mary Douglas, this is how institutions think.

But at the same time, institutions are how *we* think, and Chapter 4 examines Schutz's principles of social interaction and Garfinkel's extension of those ideas to the moral realm. Berger, Luckmann, and Giddens further address this dialectic between the group and the individual. The formation of institutions is a historical process to which we, in the present, continually refer, and even as we foreground some things to communicate explicitly, we leave others in the background to be passed on implicitly. Humans create their identities by adopting the characteristics that represent their group, in order to broadcast their membership status to others. This way we can figure out what we can assume the other knows. Instead of one "everyday reality" as Berger & Luckmann suggest, we shift between multiple realities depending on context and negotiate our common ground in a complex social world.

Chapter 5 will look at how ideas and institutions spread by imitation. Imitation is often dismissed for being simplistic, but as Tarde discovered in the last century, iconicity is actually a powerful way to understand the dispersal of cultural patterns. Blackmore's memetics takes this one step further by showing how selective pressures on imitation and the species that use it to socialize might have led to the development of human culture as we know it. Finally, in the concluding chapter, I talk about how semiotic systems of all types, linguistic and non-linguistic, are used

by animals to formulate social reality. Semiotic systems act as a medium through which social thought occurs, and symbolic semiotic systems — specifically, human languages — are far from unique in their ability to construct societies. In the end, by not merely assuming that language is fundamental to this endeavor, we can hope to discover something of its true nature.

Like any other theory of society, this one can do no more than grasp at the shadows that society casts. If societies do indeed have minds — or quasi-minds — then we cannot know them, in the same way we cannot know the minds of other people or of other animals. The very attempt to describe the social world changes it, and not in any way we could predict with certainty. All we can do is make guesses at how things work and hope that those guesses help us make sense of the world around us. Here's hoping you learn something new, and find it useful in navigating this ongoing kaleidoscopic dialectic between the part and the whole.

Chapter 1

Semiotics

The Sign Relation

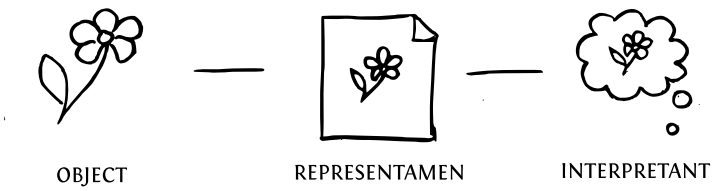

Fig. 1.1: A basic sign relation (an icon).

Semiotics is the study of meaning — how meaning is created, how it is conveyed. For Peirce, the father of semiotics, meaning lies in the sign relation. A sign is simply something that stands for something else for some interpreter. The thing doing the representing is called the *representamen*, whether it is a word on a page or a pointing finger. The thing it is referring to is called the *object*. Finally, we define the interpreter — actually, the interpreter does not need to be a person at all, or even a sentient being. The third part of a sign is actually the idea, feeling, or action that is generated by the very act of interpretation. This is called

the *interpretant*. For example, "assume someone looks at a falling barometer (sign) and picks up his umbrella (interpretant). Presumably, the barometer reading is being interpreted as a sign of rain (object). Assume someone else sees him pick up his umbrella (sign) and also picks up her umbrella (interpretant). Others might decide, seeing the two leaving with umbrellas (sign), not to go out for lunch (interpretant). At a more detailed level, the barometer reading is already an interpretant which takes the needle position as a sign of atmospheric pressure" (Bakker & Hoffman 2005, p. 338). The power of Peircean semiotics is that it can be used to analyze meaning wherever it occurs, without depending on a linguistically-powered brain. This makes it unique in that it refuses to privilege one mode of meaning-making over any other. And precisely because of this, it provides a unique perspective on linguistic meaning in particular.

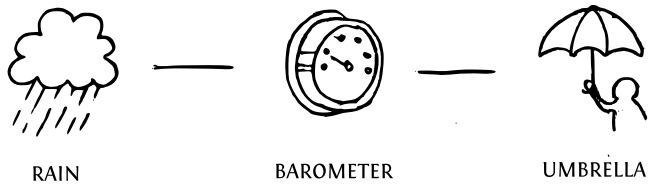

Fig. 1.2: The barometer sign relation (a dicent index).

Sign relations can occur in the mindless activity of cells as they send messages to one another within and between the body's immune system, nervous system, etc (Hoffmeyer 1998). Rather than mindless, Peirce calls such interpreters "quasi-minds" (Peirce 1998, p. 386). In fact, if we take awareness to mean the ability to interpret signs generally, then the cellular messaging system could be called aware. Consciousness would then be just one — though perhaps the highest — level of awareness in our bodies. But just as an individual is composed of cells, society is composed of individuals, and it is probably also aware. This does not mean a society thinks in the same way we do, but it can still respond to its environment

at least as well as a barometer. In the next chapter, we will look at how feedback loops among honeybees creates a general hive awareness, where the hive itself is interpreting signs that the bees *aren't* aware of.

A Variety of Signs

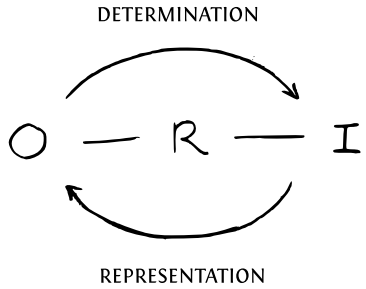

Fig. 1.3: The two parts of interpretation.

Interpretation is actually a combination of two processes, *determination* and *representation*. Signs are classified according to which of the three types of determination and which of the three types of representation they are interpreted as being. Determination, to start with, is how the object constitutes the representamen. If representamen and object are related by similarity — that is, if the representamen is determined by the qualities it shares with the object — then the sign is an *icon*. When the object and representamen are related by spacial or temporal contiguity, like a pointing finger or a footprint, the sign is an *index*. Here, there is a real or necessary connection between the two. Finally there are *symbols*, which are determined by convention, patterns, or regularities. A word, one of the few true symbols, has no necessary connection to its meaning except that it is repeatedly used to mean the same thing. This also gives symbols the unique power to name and categorize phenomena, because unlike icons and indices, they can refer to a

class of entities. An icon can refer to anything that looks similar, but it cannot refer to the abstract category of all such objects — and an index is concretely tied to its object.

So determination goes from the object to the representamen, and then the process of representation goes from the representamen to the object. Representation depends on what the representamen can say about its object. The simplest type of representation is *rhematic*, in which nothing can be concluded about the object except that the fact that it is being represented. For example, you can't learn anything new about a person from their portrait alone — you know what they look like, but that is exactly how you know it's that person being depicted in the first place. That sign is a rheme. If you *do* learn something, then the sign is *dicent*. A person's footprint, for example, can tell you about how they walk, their shoe size, weight, and probably many other things if you are the right kind of interpreter, in addition to simply representing that person. The third type of representation is an *argument*, which not only represents and describes its object, but determines its very identity — like a logical proof.

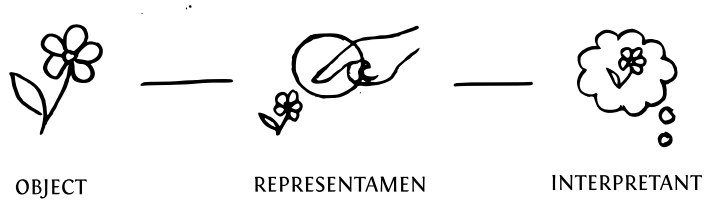

Fig. 1.4: A rhematic index.

Determination actually exists pre-semiotically — it does not depend on an interpreter — but only as one of many potential sign relations. The object is not truly represented until an interpreter comes along and creates an interpretant, which is determined by the relation between object and interpretant and represents that relation in turn. The type of determination of a given sign depends on its inter-

pretation, for the same representamen can represent different objects in different ways for different interpreters. What makes communication so interesting is that it requires different interpreters — minds or quasi-minds — to interpret signs in more or less the same way.

Icons, for example, represent by means of shared qualities. Peirce believed that qualities were real and inherent to their objects, but culturally-constructed qualities work just as well — and outside of Peirce's realism, it may be that *all* qualities are artificial to an extent. The sign for the women's restroom, for example, is an icon of a woman only if one recognizes the triangle as a skirt and a skirt as conventional women's clothing. Two different shades of red may be considered the same color if you happen to be grouping red items against green ones. Because an icon refers only to one half of a sign's interpretation — that is, determination — strictly speaking, it is only a potential for resemblance. It does not really exist until it is interpreted, and then it becomes an *iconic sign*. For Peirce, the resemblance is really there and exists even without an interpretant, though there might be an infinite number of possible similarities. The qualities that an interpreter chooses to compare have to be delineated from the all the rest. If one object is pink and another red, we might ignore the paleness of the first and emphasize their shared redness instead.

If the representamen is a petroglyph of a bird and the object is a living dove, we may be able to point out wings, a head, and feet that they have in common. Even if someone else divides up the objects differently, the two things do not suddenly lose those qualities that led us at least to see a similarity in the first place. The petroglyph is an icon of the dove, and the dove is also an icon of the petroglyph. At the same time the petroglyph is *not* an icon of the dove, insofar as it is a two-dimensional carving in stone — in this respect it is an icon of other petroglyphs instead, or of other scratched-up rocks. But like restroom gender signs, qualities

may be culturally determined. The lines of the petroglyph may not realistically resemble a living bird in any way, and if it is taken to be iconic of other unrelated pictures of a particular culture or artistic tradition then the conventionality of these properties becomes even more clear. "*How something looks* (and not just what we believe it is) depends upon our expectations" (Hookway 2007, p. 66). Then how can we tell if a sign is iconic or symbolic? "What determines whether we think a sign resembles its object is the action we are prepared to undertake on the basis of our interpretation of it (i.e. the signs dynamic interpretant)" (Jappy 2001). In other words, if we focus on the qualities involved and conclude that an abstract petroglyph *looks like* a bird, and doesn't refer arbitrarily to the socially-constructed *concept* of "bird" as our English word might, then what we have is an iconic sign. And because the qualities cannot be assumed to exist outside of this sign relation, icons (as opposed to iconic signs) are not pre-semiotic entities. Icons are not inevitable.

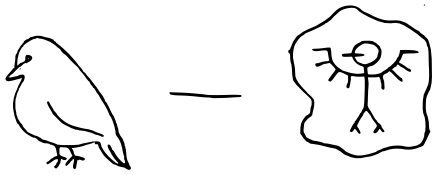

Fig. 1.5: An icon relation.

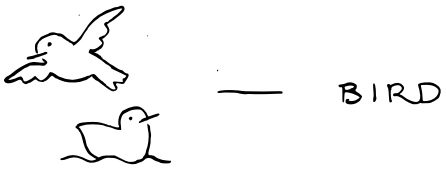

Fig. 1.6: A symbolic relation.

Semiotics in Culture

In addition to iconicity being dependent upon culture, culture is dependent upon iconicity. "Cultural norms *require* similarity in their description because culture consists in people acting similarly in some respects; one could say that one culture differs from another because it emphasizes other similarities" (Stjernfelt 2007, p. 54). As these cultural norms become naturalized, qualities begin to appear essential, and similarities start to seem objective. The true nature of iconicity becomes obscured through habituation, as "even the most 'natural' looking icon... is mediated through social convention and subject to the historically specific interpretative habits of its users" (Mannheim 2000, p. 107). This is not just a characteristic of human beings, either. Every living thing must differentiate among features of its environment according to its needs, thus experiencing a subjective reality instead of the infinitely varied and interrelated world that actually exists. This reality is called a being's *Umwelt*. This is especially important for social beings, which must ensure they are picking out the same relevant details. As Bourdieu (1991) says, "social magic always manages to produce discontinuity out of continuity" (p. 120).

If you haven't noticed already, everything in Peircean semiotics is a triad, and icons are no different. There are three types here, as well: *images*, *diagrams*, and *metaphors*. Imagic icons are the familiar pictograms we've been discussing, and metaphors are pretty much what one would expect. But diagrams are particularly interesting because they have internal structure, like roadmaps and blueprints. Instead of two things being similar in and of themselves, as in an image, in a diagram both things are made up of parts. The parts of the representamen are connected in a way that is similar to how the object's parts are connected, which allows for correspondences to be made between the two sets of parts. Consider two food webs drawn on a blackboard, each with different animals at their vertices. If the networks of lines are the same, then each could be diagrammatic of the other. The

relations themselves are indices, so a diagram is really an icon of indices. In a roadmap, the lines are related to each other based on their spatial orientations, and the spatial relations of the lines on the map represent the spatial relations of the roadways. Keep in mind that just as maps can be misread, a diagram can have multiple interpretants, so it is only a possibility until it is actually interpreted in a particular time and place (Stjernfelt 2007, p. 96). But for simplicity's sake, I will refer to such diagram tokens as diagrams, iconic signs as icons, and do the same with indices and symbols.

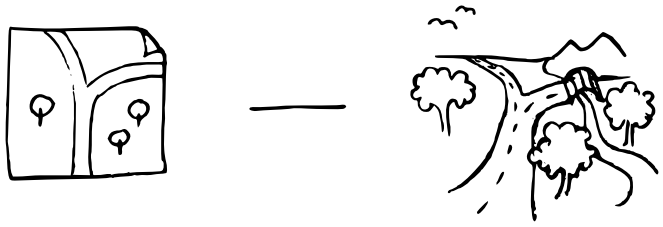

Fig. 1.7: A roadmap is a diagram of roadways.

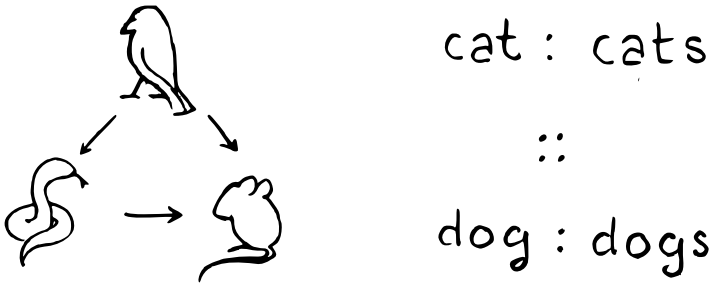

Fig. 1.8: A food web and an analogy are also diagrams.

The important thing about diagrams, however, is the ability to learn something new about the original object by manipulating the representamen. Using regular transformations of the diagram — in a process called "diagrammatic reasoning" — we can reach a new diagram that has a new set relations between its parts, ones

which also hold for the original object (Stjernfelt 2007). This is similar to reading a roadmap, inferring from the way the lines on the paper curve intersect what the roads ahead will do and thus allowing us to plot a specific route to take. As we will see in the next two chapters, diagrams play an important role in structuring knowledge in society in a way that makes it collectively accessible and adaptable. Iconicity in general is also the semiotic form of imitation, which is fundamental to socialization.

Indexicality (i.e., the use of indices) is also important, specifically dicent indices. Like diagrams, they provide information about their objects beyond merely representing them. A peacock's tail feathers, for example, tells the peahen that he is able to maintain such bright and bulky plumage without starving or getting killed, and so acts as an index of his health and fitness. A human's accent might index what place they come from, as would a crow or a monkey's region-specific call (Dunbar 1996, p. 158), or even a bee's dance rhythm (Su et. al. 2008). Meaning is created all over the place, and humans have no monopoly on it. In fact, symbols, those bastions of human language, are actually less useful to understanding society and culture than one might think. Symbolic semiotic systems, of which human language is currently our only example, instead act as a backdrop against which other semiotic processes to occur. Semiotics allows all kinds of meaning to be compared, whether they exist in humans or non-humans, brains or societies, and out of the comparison we can hope to learn something new.

Chapter 2

Bees

The Dance of the Hive

Humans are complex social animals, and the fact that we *are* human makes it especially difficult to study our own group-building behavior and the behavior of society itself without bias. We also cannot hope to understand an entire society when we cannot even fully grasp the workings of another individual — assuming we can even come to fully understand ourselves. It is far easier to take a simpler model for society, one which exhibits complex emergent behavior at the group level that still finds its origins in individual interactions. In short, a society we can wrap our heads around. For this purpose I intend to use honeybees, but as we shall see, even this "simple" social species may be too much to handle.

Honeybees have an amazing means of communication — they dance. Since Karl von Frisch first did extensive research into the complex structure of bee dances, they have captured the imaginations of scientists around the world. But their exact nature has proven to be a controversial topic, and the linguistic structure and communicative effectiveness of bee dancing has come under doubt. One side sees bees as sharing information via a dance language, and the other side claims that

dance information is superfluous and unused. Yet the data falls somewhere in the middle, for while bees dance and attend dances regularly, they only rarely respond further to these dances in any meaningful way. But the meaning of bee dancing, I propose, lies not in inter-bee communication, but the behavior of the hive as an organism in and of itself.

Most dances do not actually have internal structure, and act simply as dicent indices. For example, a bee returning from the field has to search for a worker to take its heavy load of flower nectar before it can go out on another run. Seeley (1997) found that when the forager has to wait a long time to unload its nectar to a receiver bee, it does a tremble dance. This encourages other bees to become nectar receivers and discourages other foragers from recruiting. So if there is a lot of nectar coming in, represented by the collective trembling of impatient bees (so to speak), the colony increases its nectar-receiving capacity while simultaneously lowering its nectar-collecting rate. It's like a giant nectar thermostat made out of bees.

Seeley found the group to be the appropriate level to study honeybees. This makes sense considering that most bee species are eusocial (like ants, termites, and naked mole rats), meaning that individuals' existence is wholly subsumed by the collective. All bees in the hive are sterile except for the queen and her drones — put another way, these are the gonads of the hive. The only way workers can increase their own reproductive fitness is to increase the fitness of the queen and therefore the success of the colony as a whole. They are even willing to die in its defense. To keep the colony working smoothly, each bee must play its part and communicate its status to other bees. Each communicative act then becomes part of a larger cycle of information transfer and response, which keeps the hive functioning smoothly.

What Does the Waggle Dance Do?

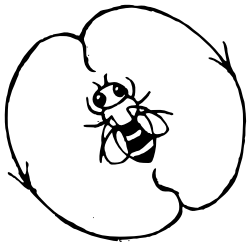

Fig. 2.1: The waggle dance.

The controversial part is the waggle dance. Foragers that return from high-yield nectar sources (and aren't deterred by tremble dances) will perform a dance for other bees in the hive, conventionally understood as a recruitment signal. When the nectar source is nearby, the forager will perform a round dance, which basically consists of moving in a circle; but when the nectar source is far away, the dance expands into a figure-eight, with the bee "waggling" down the center of each loop. Von Frisch (1956) found that the angle of this "wagging run" is relative to the force of gravity (beehives are oriented vertically) is the same as to the angle of the nectar source relative to the sun. Bees normally orient themselves in relation to the sun's position in the sky and the time of day, so that even if they were to find a good source of nectar in the morning, they could return in the afternoon by reorienting relative to the sun's new position.

Furthermore, the "rhythm" of the dance — the length of the waggle run — is correlated to the distance of the nectar source from the hive. Different species of honeybee even have different "dialects" depending on exactly how distance is related to waggle duration (Su et al 2008). Distance is also correlated with the frequency of the wing vibrations of the dancer, which creates a buzzing sound that other bees can hear in the dark beehive (Wenner & Wells 1990). The waggle dance

is thus a diagram of the nectar source's location. Each part of the dance corresponds to an aspect of the location — the angle to the direction, and the rhythm to the distance. These are the indices that make up the bee's version of a map.

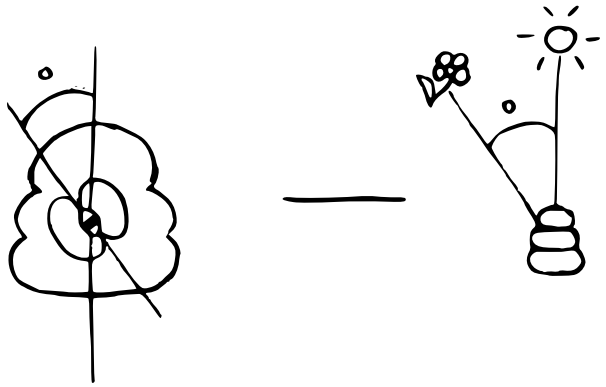

Fig. 2.2: The diagram of the waggle dance.

Von Frisch suggested that the simpler round dance indicates "symbolically" to other bees that they should search near the hive for the same floral scent that is attached to the forager. "Livelier" dances mean more food and get more recruits, although bees are probably responding to the resulting increase in odor-dispersal rather than the vigor of the dance itself. However, like the tremble dance, the round dance is not a symbol at all, but rather a dicent index. The dance points to the nectar source by means of the scent the forager picked up while it was there, and since bees can memorize many flower characteristics (Vadas 1994), they can potentially learn quite a bit about the nectar source from that scent. In other words, honeybees are able to match up the smells from incoming foragers to flower patches out in the field.

This ability to find nectar sources by smell alone encouraged Wenner & Wells (1990) to delve deeper into the ways in which bees actually use the information contained in the more complicated waggle dances. They discovered that most of the research that had attributed recruitment to distance and direction informa-

tion contained in the waggle dance — in other words, communication via dance-language — could be better explained by the odor-search model that predominated prior to von Frisch. Because passive odor communication looks a lot like active dance communication, it is difficult to conduct a controlled experiment on bee behavior. If a researcher wants to test the dance-language hypothesis, they can use the same evidence that can be explained by the odor-search hypothesis to confirm their "wishful thinking." Wenner & Wells noticed that such experimenters ignored the tendency for bees to start downwind of the hive and zig-zag upwind, tracking smells as they are blown away from their source. Although dances gather crowds in the hive, very few bees are actually recruited to the sites that are danced about, and even those few recruits don't fly directly there — the beeline is a myth. Even when bees fly in the direction indicated by the dance, they may get the distance wrong, and vice versa (Vadas 1994). Primitive species with undirected dances are still able to recruit workers successfully (ibid).

The directed dances of honeybees, however, would have to benefit them in some way or they would not have evolved. For one thing, bees have to keep track of how far they've travelled in order to include distance information in their dances or make use of the dances of others, and they do so by visually estimating how fast the ground moves beneath them (Esch & Burns 1996). The waggle dance is just too complex to be an accident of evolution with no real function for bees or for the hive. Yet Wenner & Wells would have us believe that the waggle dance does nothing more than the round dance, that its diagrammaticity means nothing to the bees themselves.

Michelsen responded to Wenner & Wells' challenge by building a mechanical bee. It recruited very few bees, but a statistically significant number were in fact searching in the direction or (more approximately) the distance he told them to search in — regardless of wind direction. The imperfections in his mechanical bee

led to his recruiting fewer bees than a live dancer could elicit, but his ability to communicate with bees at all through the waggle dance demonstrates that bees are indeed capable of interpreting it. Even though bees rely on their smell-o-vision most of the time, dances do appear to have some communicative purpose. That purpose, however, is more subtle than von Frisch's simple conception of one bee telling another where to go.

The Hive Mind

Seeley's group-centric analysis provides a potential solution. It turns out that the simple dance-language hypothesis, in which all honeybees in the audience follow the directions straight to the nectar source, is a suboptimal foraging technique for the hive. Perfect information transfer would result in an "all-or-nothing" response, with foragers collecting nectar from only the best locations. But the world of the bee is a constantly changing one, and what's good one minute isn't so good the next. If all the bees were in one place over-exploiting the flowers, it would take them a while to discover that a once-plentiful nectar supply was running dry and move to a fresh source. The entire colony would suffer from the lag time required to redistribute foragers in response to changing conditions.

In practice, bees are distributed among nectar sources in proportion to the the quality of those sources. According to Seeley (1997), foragers about to leave the hive will follow the first recruitment dance they come across. Because higher-quality nectar sources result in longer dances, more foragers will be happen by those dances and then search for those sources. Thus the "recruitment signal" of dances that represent good nectar sources is stronger than those that represent poor ones, and foraging will be distributed accordingly. The behavior that emerges ends up generally close to the optimum, allowing the hive to smoothly track the

current state of its food supplies. Although this means that some bees are foraging at second-rate sites, which would seem to be a waste of time from the perspective of an individual bee, it translates to superior adaptation from the perspective of the colony. In this light, such problems facing the dance-language hypothesis, such as the poor levels of recruitment observed, actually play a role in the collective's well-being.

Another possible function of bee dancing is to serve as a living memory for the colony. It is not necessary for every bee to memorize all the nectar sources in the hive's repertoire for the hive itself to remember them. As long as a single bee is recruited to a given location, and returns to tell the tale to at least one other bee, then that location remains alive in the hive memory. When times get tough, even remote nectar sources that normally aren't worth much time or energy could become vital to the hive's survival. Combined with tremble dance interactions and other feedback loops, these behavior patterns serve to reflect and react to the hive's subjective environment (its Umwelt) and its internal workings. The colony has energetic interpretants for these signs, as it interprets bee dances as representing internal and external states of the hive itself.

The individual bees don't interpret dances in the same way. Their interpretants are for face-to-face interactions which cannot represent the state of the hive in its entirety. Instead, bees collectively tell the hive about itself, so that the hive becomes semiotically aware of such information as how much food it has, how much foraging is happening, what the status of all known nectar sources is — information of which the bees themselves are *not* fully aware. Bees, it would seem, act as cells in a larger organism. By dancing, bees play their parts in a cohesive whole, which is able to keep track of its environment and make efficient use of its resources. Bees may not be aware of their participation in such a "hive mind," but the hive nevertheless frames their every interaction. In this way they are not unlike other social

beings. Bee dancing is not the symbolic semiotic system that human language is, but it is still able to construct group-level behavior simply by creating the means for individuals to communicate.

Chapter 3

Ritual

Diagrams of Society

Ritual has the ability to bring a group together. In these moments, the group acts as a single unit, as each person plays their part and realizes the social structuring of reality. Ritual has been used "to co-ordinate human groups by synchronizing everyone's emotional states" since ancient times (Dunbar 1996, p. 147), and other primates use ritual-like behavior as an expression of community, such as singing in choruses (ibid, p. 150). Ritual "attempts to re-structure and integrate the minds and emotions of the actors" (Tambiah 1968, p. 202). It is the process of re-creating the community, telling the community about itself, and making social relationships and natural phenomena intelligible within the framework of cultural institutions.

Morris thinks, "like Clifford Geertz, that nobody, not even religious mystics or saints or Catholic priests, live in the 'world' that religious symbols formulate all the time, and that the majority of humans live it only at moments, or not at all" (2006, p. 11). This is to suggest that religious symbols, rather than being tools to think with, provide a framework for collective action that is only fully manifest during ritual. Silverstein agrees, saying that, "in ritual, participants spatiotem-

porally manipulate signs of these beliefs and areas of knowledge in their uttered words and their actions with each other and with objects" and in doing so create an "emergent, real-time structure of meaningfulness" (2004, pp. 626-627). He claims that rituals are diagrammatic, representing the abstract world of sociocultural knowledge in the world of physical reality. Manipulating the signs within the ritual reveals the relationships between the beliefs they represent.

One example of diagrams in human society is in the Belauan "cornerposts." Parmentier describes four primary relationships that the Belau conceive of things in: "paths," "sides," "larger/smaller," and "cornerposts." Cornerposts can refer physically to the four pillars "supporting the roofs of various buildings," but also the "coordinated system of political relations among the four chiefly titleholders in a village (the 'cornerposts of the village') and among the four principle villages of the archipelago (the 'cornerposts of Belau')" (1985, p. 842). Parmentier relates a story of social upheaval that reveals how the cornerpost relationship is the central relationship in social diagrams for the Belau, but unfortunately he misunderstands what a semiotic diagram is. He sees the relationships themselves as diagrams, complete with their own "cultural valuation" (ibid, p. 843), but from this point of view the so-called diagrams are instead acting as symbols. It is only when one set of cornerposts is taken as a sign for another set of cornerposts that we would be looking at a true diagram, which Parmentier calls "diagrammatic complexes" (ibid). Abstracted away from any particular instance, a single cornerpost does not a diagram make. The confusion is obvious when he says, "Belauan diagrams are not just icons; they are iconic *symbols*," because when they *are* considered in the abstract, they symbolically represent the idea of stability and coherence rather than a similar set of relations (ibid, p. 850).

What Parmentier misses is a beautiful expression of the power of diagrams to represent social relations in the physical realm. The foremost among the corner-

post villages is Imeiong, but after World War II the "'cornerpost' titleholders of Imeiong... moved to low-ranking Ngeremetengel" (1994, p. 77). The people felt that their leaders had "abandoned the legitimate locus of their rank" and were no longer representing the diagram of proper society. Ngiraklang, the second-ranking chief of Imeiong, upset the order even further during a municipal council by directly challenging the highest ranking chief, Ngirturong, to address this unrest. Ngirturong tried to prevent Ngiraklang from coming forward, knowing that he would bring up this embarassing subject, but Ngiraklang "left his prescribed seat in the corner of the meeting house and moved closer to the center of the floor. From this vantage point he repeated his request, but this time to the elected magistrate... The magistrate," who was lower-ranked than the traditional matrilineal chiefs, "had no option but to acknowledge this request from his social superior" (ibid, p. 78). Here Ngiraklang literally steps out of his place and destabilizes the social hierarchy by doing so. In using non-traditional modes of authority, many saw Ngiraklang's speech as marking "the demise of chiefly authority and respect" (ibid, p. 96). The cornerpost structure of the social world was supposed to be embodied in the positions and actions of the leaders, and by disrupting this diagram he disrupted society.

The Samoan *fono* is another excellent case of spacial diagrams of social relationships. During the *fono*, a sort of community meeting, where one sits represents where one stands in the day's agenda and the social hierarchy in general. The front is reserved for high-ranking orators and guests, and each side is further divided between center and periphery, where higher-ranking individuals sit closer to the center. Even subtle adjustments to one's position on the floor can have significant meaning: "Sitting slightly 'off' center even when no other high chief is present shows that one is not advocating total or exclusive sovereignty over the role and status represented by that particular location in the house; it implies not

only humbleness but also a sharing of authority with absent others" (Duranti 1994, p. 64). The seating arrangements reflect the nature of the social network, including alignments and conflicts.

The way in which Belau and Samoan authority is exercised in physical space acts as a map of social relations, and looks very similar to the way bee dances collectively diagram the Umwelt of the hive. The honeybees keep track of their territory through repeated social action, and the Belau and Samoans keep track of their political relations through physical placement. On the other hand, the things they are representing in these diagrams are different: bees are enacting their *external* environment, while cornerposts and the fono are representing the *social* environment. If the analogy can be extended, then the bees are creating a hive memory of nectar sources, while these humans are maintaining a collective memory of their society's own structure. Diagrams mediate the relationship between social and physical space, serving as maps for the web of relations — social or physical — within which groups exist. But just as most bee dances other than the waggle dance are indexical, human rituals are not always diagrammatic icons. Indices and non-diagrammatic icons also play an important role.

Living in Rituals

Iconicity and indexicality appear in Frazer's work (1922) on magic. He posits two laws of sympathetic magic: the Law of Contiguity, which is based on indexicality, and the Law of Similarity, which is essentially iconicity. He finds "belief in the efficacy of magic" to be nearly a human universal (excepting, of course, the enlightened few who replace it with religion and science) (ibid). Hibbard (2009) suggests that magic reverses the normal order of sign determination and interpretation. For example, since having many children is a sign of fertility, the Ndembu hope to

work backwards by giving women icons of fecundity, like the many-branching *molu* vine, in order to *induce* fertility (Turner 1969, p. 59). Cause and effect are seen in cultural terms, and even failure can be attributed to witchcraft or other malevolent forces rather than calling into question the institutions themselves. The institutional framework extends beyond the social world to encompass the natural one. In Trobriand magic, spells are intertwined with mechanical operations to bring the mechanical into the realm of the social through ritual (Tambiah 1968). Ritual frames activities and events so as to make them socially intelligible. Even if we do not always internalize their underlying logic, something Morris (2006) and Giddens (1979) resist, we still use ritual to understand and affect reality, social or otherwise.

Silverstein suggests that every interaction, "even everyday, ordinary conversation," can be analyzed as a ritual event (2004, p. 627). In order to establish "intersubjective coherence," participants must rely on established patterns — genres — of interaction and position themselves within social space (ibid). We do this with symbols that are recognized by other community members as indexing our social positions, so that our "social selves have been in effect wrapped in these culturally widespread *emblems of identity*" (ibid, p. 632). Emblems are treated as dicent indices by people who know what they represent, but in fact they are established by historical processes rather than necessity. A true dicent index would be the color of a male gelada baboon's throat, which indicates his place in the social hierarchy (Dunbar 1984). The geladas use real indices that are founded in their biology, while humans tend to rely on naturalized symbols.

Durkheim (1961) also speaks of this emblematicity in his discussion of totemism. A totem represents the group and also places the group in a network of relations between different totems. Since the natural world has no inherent categorization, we project our own social hierarchies and divisions onto it. The Mount Gambier

tribe has ten clans, and it is not a coincidence that for them there "ten families of things [that] make up a complete and systematic representation of the world" (ibid, p. 179). The Kangaroo clan has the kangaroo as its totem, as do many other things like particular trees, and the kangaroo itself — these are all in a class separate from things with other totems, and are considered to be of the same essence (ibid, p. 174). The totem thus appears to be an index of the essential character that belongs to all clan members, human or non-human, though it is apparent to outsiders that this particular classification is purely arbitrary. The totemic sign is ultimately symbolic. Treating it as an index, however, allows it to play a part in larger diagrams, where the relationships between totems — or more accurately, the characteristics that totems stand for — become realized in the real relationships between people. As Durkheim says, "the unity of these first logical systems merely reproduces the unity of the society" (ibid, pp. 169-170). Groups adopt certain emblems that individuals exhibit to prove their membership, and their continual use as indices of social identity reinforces the reality of the group.

Constructing Groups

Rituals themselves serve to create and naturalize emblems. Bourdieu suggests that rites of passage should be called "rites of institution," because they tend to differentiate between those in the group — those who can undergo the rite — and outsiders who cannot (1991, p. 117). But by drawing attention to the passage rather than the division it creates, such rites make social divisions seem fundamental and even natural (ibid, p. 118). They construct groups by defining them against others, and legitimize the institutions that characterize it. Members draw upon the these institutions and the properties attributed by them as markers of identity and "social essence" (ibid, p. 120). "All groups entrust the body, treated like a kind of

memory, with their most precious possessions" (ibid, p. 123) — the most precious being the composition of the group itself. Symbols have a special role to play here, because they have the power to name a pattern and thus create discreet categories out of what is naturally a continuity. Through ritual, a collection of individuals becomes a community, and the individuals themselves become members. Each act of membership recognition becomes a recognition of the reality of the group as a whole.

Since ritual is the repetition of group-forming and group-maintaining activity, it is actively involved in the legitimation of social institutions and the establishment of the traditions that frame the way we live. Rituals may not bring rain or increase fertility, but they are effective at creating groups and reproducing ideologies. "Among the Australian Aboriginals, for example, clans gather together once a year to organize rites of passage for the young males, to contract marriages, and generally to reinforce the sense of collective identity by rehearsing the old rituals and recounting the age-old myths and stories that tell of the people's ancestry and their relationships with the spirit world" (Dunbar 1996, p. 71). Such rituals recall a tradition and an essence that define the clan and legitimates the existence of that particular collective and its inner workings. We become social entities in the act of ritual, and big or small, they are the tools we use to interact with each other and the environment. Each interaction reproduces the ritual framework in a new context, renewing the social categorizations of the world and making it mutually intelligible to the community at large.

Chapter 4

Dialectic

Finding the Common Ground

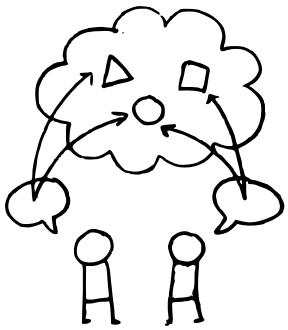

Fig. 4.1: Referencing the common ground.

Suppose two people sit down to play a game on a deserted island. They pick up flotsam and jetsam off the beach to act as playing pieces, and take turns moving them according to certain rules. Simply by following the movements and reactions on the board drawn in the sand, it quickly becomes apparent (to them as well as to us, the omnipresent observers) that they are playing chess. If the two people are, however, from very different cultures and are not able to discuss the game ahead of time (either through a language-barrier or severe dehydration), it might

happen that one ends up trying to play checkers while the other plays nine-men's-morris. Each player is positioning himself on the board in relation to the other player and the other game elements, in such a way as is meaningful within the game-world. Silverstein (2004) suggests that all social interactions are like this: people figuring themselves in cultural frameworks, in as strict an occasion as ritual or as chaotic a situation as multicultural miscommunication, or the in-between of everyday conversation.

No conversation or other meaningful interaction can occur without a common ground between the participants. Part of this common ground is biological, but the uniqueness of every individual's subjective experience means that even species without much in the way of cultural variation are still far from being mind-readers. Dogs and other canids, for example, use a stereotyped signal called a "play bow" to communicate their desire to continue play even when they are doing something aggressive. Biting, for example, might "easily be misinterpreted if its meaning is not modified by a bow" (Bekoff 2006, p. 131). But because humans have given up many forms of instinctual communication for socialized behavior — or perhaps because we never had the instincts on which to base symbolic communication in the first place — we must rely on learning the tools we need from scratch.

Getting Used to Ourselves

To establish group knowledge in the first place requires what Berger & Luckmann (1966) call "mutual habitualization." If our behavior follows certain patterns, then it becomes predictable to others — our responses to our environment reveal something of how we think of that environment. In order for our intentions to be understood, we must "ongoingly externalize [ourselves] in activity" (ibid, p. 52). Shared activity, such as ritual experience, is helpful in establishing the stability of habits

that are mutually intelligible. We see each other behaving in regular ways, and develop our own habits accordingly. We abstract away from a particular occurrence to a whole class of entities, in a process Berger & Luckmann call "typification." We divide the social and natural world into categories of stereotyped actions, people, and things. Heritage (1984) does a good job of describing this: "Mutual understanding is ultimately dependent upon the co-ordinated use of these frameworks of common constructs. The congruence of these constructs is continuously adjusted in face-to-face interaction in the light of whether the other's actions confirm, or fail to confirm, the anticipations of the actor on which his or her own conduct is based" (ibid, p. 59). We maintain our typified social world through our interactions, and part of this process of typification is the construction of rules and institutions that guide our interactions.

Institutions form "whenever there is a reciprocal typification and habitualized actions by types of actors" (Berger & Luckmann 1966, p. 54), and these become the code of conduct for society. But the "everyday reality" formed by all this coordination only works smoothly until the routine is interrupted — until the inevitable exception occurs. After all, nature is not actually made up of the simplified abstractions we create for the purposes of communication, and people do not all perfectly "'inhabit' the transmitted universe" (ibid, p. 106), which is ultimately a bunch of idealizations. We have to continually renew our categorizations of the world by using them and naming them. Just as symbolic language has the ability to name and thus *create* human groups as an act of typification, it also has the ability to name and create the categories of the socially-constructed world. Language is "the medium through which these common-sense equivalence classes are constituted and communicated" (Heritage 1984, p. 145).

Two people's "*communal common ground* represents all the knowledge, beliefs, and assumptions they take to be universally held in the communities to which they

mutually believe they both belong" (Clark 1996, p. 332). This is why establishing group membership is so important. Displaying emblems is like broadcasting what channels you operate on, so that others can tune into those frequencies. Using the common ground also relies on our ability to abstract away from our subjective experience and step into each other's shoes. Schutz describes two principles — his "general thesis of reciprocal perspectives" — that we rely on to perform the feat of transcending our private experiences into a common experience of the world: "(1) The idealization of the interchangeability of standpoints [if I stand where you stand, I'll see things the same way, and I assume you're making the same assumption]... [And] (2) the idealization of the congruency of the system of relevance [your unique biographical differences are irrelevant for practical purposes]" (Heritage 1984, p. 55). In other words, we have to use our common-sense understanding of context in order to make sense of what others are saying or doing — the context being exactly which aspects of the communal world they are drawing upon to create meaning. We must give each other wiggle room as we implicitly use social constructs as the background for our interactions.

The Morality of Cooperation

As Dunbar explains it, "we commonly speak in telegraphic fashion, providing just the key points and assuming that the listener can fill in the bits and pieces to makes sense of what we say" (1996, p. 89). We are trusting others to respect the communication attempt and follow the norms of interaction. When they don't, we get upset — or downright angry. Garfinkel conducted a series of "breaching" experiments that challenged the unspoken rules of conversational conduct, and found that what we might objectively understand to be arbitrary conventions were treated as moral norms. There is nothing inherently wrong about standing closer than expected to

someone or asking precisely what they mean by "How are you?," yet the subjects (or perhaps "victims") of Garfinkel's experiments took these actions as personal affronts. "The experiment thus indicated that maintaining the 'reciprocity of perspectives' (as one of the presuppositions of the attitude of daily life) is not merely a cognitive task, but one which each actor 'trusts' that the other will accomplish as a matter of moral necessity" (Heritage 1984, p. 82).

There are non-arbitrary social behaviors that evoke this same reaction — those surrounding the issues of fairness and empathy. Whereas social norms can be any consistently followed rule, fairness requires very specific — thus non-arbitrary — behaviors for a group to exist *as* a group. And humans are not the only animals to possess a sense of justice — other social animals, including primates and canids, exhibit signs of morality as well. In fact, morality is a requirement for group-living species. Simulations have shown mutual reciprocation to be the only evolutionarily stable strategy (Bekoff 2006, p. 163), and when the group gets too large to support this strategy, the group itself dissolves (Dunbar 1996, pp. 44-45). In order to prevent moochers who take advantage of others' generosity, individuals must keep track of the other members of the group. As long as everyone has some idea of how others in the group behave, cheaters will be shunned.

Cheaters appear to lack evolutionary fitness, as well. In Bekoff's seven-year study of coyotes, "more than 55 per cent of yearlings who drifted away from their social group died, whereas fewer than 20 per cent of their stay-at-home peers did" (2006, p. 162). Genes that promote free-riding are less successful in a group setting where individuals know and police each other, so it makes sense that social animals would evolve a built-in sense of justice. In humans, morality is regulated by "dopamine, serotonin and oxytocin" — it is deeply ingrained in our physiology and not simply a learned, cognitive feature (ibid, p. 140). Our brains reward desired social behaviors with warm-and-fuzzy feelings, and undesired behaviors

with shame and guilt. Fairness and benevolence are part of human nature, and very likely the nature of other social animals. Morality is in fact fundamental to all societies made up of sentient individuals (ibid, p. 142).

However, fairness is not all there is to morality, at least not for humans. If someone steals something from us or slaps us across the face, we will get offended. Likewise if someone verbally insults us or we take something to be an insult — well, them be fightin' words. But as Garfinkel showed, if someone overturns the basic principles of discourse, we are likewise angered. It's hard to say if it's exactly the same reaction in all cases, but we do include both arbitrary social customs and rules governing fairness in the rubric of morality. If principles of interaction are not explicitly moral it is likely due to the fact that we do not think about them, but rely on them so implicitly that we become deeply disturbed when they are breeched. An observer might find the situations described in Garfinkel's social experiments absurd and comical, but empathy doesn't prevent us from enjoying slapstick violence, either — we shouldn't discount these feelings of affront. To act inappropriately might be seen as questioning someone else's knowledge of what appropriate behavior is, and this is especially true of face-to-face conversations where your going-along-with-it is the only assurance I have that I am not crazy. Indeed, "any tendency (from any actor) to deviate from the standardized expectations will encounter sharply disadvantageous consequences" (Heritage 1984, p. 17). In a society where cheaters have to be punished to keep sociability viable, any standard used as the basis for cooperation can be considered moral and any deviancy immoral, even if those standards are very subtle or arbitrary.

Defending Convention

The trouble is, institutions that seem arbitrary have no reason to take hold. Why should I do things one way and not another way? As Douglas (1986) points out, social conventions must have good reasons for being as they are, or else we tend to deviate from them. One way for a convention to be legitimized is by flying so far under the radar that we don't even realize it's there. It simply serves as the implicit background for other actions, and through endless repetition it becomes part and parcel of the social world itself (ibid, p. 49). But the weakness of tradition comes when it is recognized *as* tradition, for "tradition has its greatest sway when it is understood simply as how things were, are (and should be) done" (Giddens 1979, p. 200). Tradition can also be legitimized by giving it the authority of ancestors or gods. Tambiah discusses how religious texts and ritual speech often contain archaisms that harken "back to a period of revelation and insists on the authority of properly transmitted true texts" (p. 182). This is a good trick for those institutions to get themselves accurately replicated. This is something Blackmore (1999) talks about in the context of memes, which are cultural patterns that survive through more-or-less precise replication over many generations. Those that fail to get copied do not survive, or change so radically that they cannot be said to be the same things. In this case, the very survival of institutions depends on their ability to be legitimized or thoroughly habitualized.

Institutions can also be naturalized, much as emblems are naturalized as essential characteristics of people who exhibit them. We impute a biological or physical reason behind naturalized behaviors, making them seem just as inevitable to us as the gelada's throat color. "In reply to the question, 'Why do you do it like this?' although the first answer may be framed in terms of mutual convenience, in response to further questioning the final answer refers to the way the planets are fixed in the sky or the way that plants or humans or animals naturally behave"

(Douglas 1986, p. 47). Because we assume that such behaviors are natural, we exhibit them such that they become objectively real patterns — and this only reinforces the idea that they are natural ways of being. We are very much aware of how society works in terms of the institutions that compose it, and this knowledge in turn becomes part of how we construct society out of those institutions.

The Roots of Reflexivity

Society is thus a reflexive entity. As Berger & Luckmann recognize that "knowledge of *how* the socially available stock of knowledge is distributed, at least in outline, is an important element of that same stock of knowledge" (1966, p. 46), so Giddens (1979) sees that the structure of society informs people's reproduction of that very structure. He calls this the "duality of structure," by which he means that "structure is both medium and outcome of the reproduction of practices. Structure enters simultaneously into the constitution of the agent and social practices, and 'exists' in the generating moments of this constitution" (ibid, p. 5). But he is careful to maintain the agency of the agents involved, for unintended consequences and unacknowledged motivations result in the incomplete domination of institutions — they do not replicate themselves perfectly, but rather must be constantly adjusted to fit a shifting social landscape. "Actors sustain the meaning of what they say and do through routinely incorporating 'what went before' and anticipations of 'what will come next"' (ibid, p. 84), and so the context of interaction is not a fixed background. The common stocks of knowledge are constantly being renegotiated.

As we cycle through Berger & Luckmann's three "dialectical moments in social reality" ("Society is a human product. Society is an objective reality. Man is a social product." [1966, p. 61]) we see that society creates the rules for its own

alteration. Groups develop the institutions that keep them coherent, able to react to a changing world without losing their form. The way individuals think and act serves to keep the group intact, by rejecting outsiders, free-riders, and deviants — Dunbar (1996) points out that people in groups are far less tolerant than people left on their own (p. 143) — and internally reinforcing the institutions that make coordination possible. Douglas puts this in a dark light by suggesting that in an emergency, our socialized sense of justice protects the "usual channels of communication" by first rejecting the "the disadvantages, the marginal, the politically ineffectual" (ibid, p. 123). But institutions are not traps, they are the tools that allow us to carry on meaningful exchange. It's just that through this exchange we create something greater than ourselves, a group with feedback systems grounded in the very reflexive nature of society's dialectic, so that it can act for its own continued existence. Society is not a fixed structure, nor the mere sum of individuals, but an "emergent, real-time structure of meaningfulness" (Silverstein 2004, p. 627) that we continually create in our interactions.

Chapter 5

Imitation

The Chinese Whisper Network

The dialectic of society means that conversations add themselves to the context, generating new conversations and creating communal trains of thought. No one person has to develop an idea for that idea to develop within a community. The process of passing an idea back and forth between people, as in a game of "Chinese Whispers" or "Telephone," modifies that idea until it is unrecognizable or else solid enough to survive the transitions unscathed. Humans, at least, rely on imitation to disseminate social norms and institutions. These super-ideas are, in turn, the basis for communication itself, since it is these stable elements that allow people to interrelate. The popular ones form the common ground and the common sense of a group.

The sign relation of an act of imitation is an imagic icon. The interpretant is going to be the imitation, and the object is the original model — whether we're talking about ideas or behaviors or even constructions. The object is itself an interpretant, possibly even of a previous imitation, creating a potentially endless chain of sign relations. This is pure Peirce, for he thought of each sign relation as be-

ing embedded in an endless network of sign relations. In this context the network is especially clear, closely associated with the network of *social* relations. But we still have the representamen left to define. Wouldn't the representamen just be the same as the object? No, because while the object includes extraneous details of the specific person and situation, the representamen is only the thing-to-be-copied — an abstraction that contains only those things relevant for copying. In other words, I see your action as a manifestation of an underlying *type* of action which I can make manifest myself.

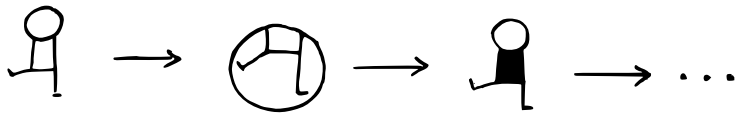

Fig. 5.1: The imitation sign relation.

Since each act of imitation requires a new act of interpretation, however, the thing-to-be-copied can change as it passes from one sign relation to the next. Consider Phillips' article (1980) on airplane crashes inspired by publicized suicide stories. Some of these suicide victims committed suicides very similar to the originals, while others killed themselves by crashing cars and airplanes, imitating in a less specific fashion. As Berger & Luckmann say, language typifies and thus "anonymizes experiences, for the typified experience can, in principle, be duplicated by anyone falling into the category in question" (1966, p. 39). One of the things Phillips found was that newspapers were better at disseminating suicides than television broadcasts, and this could be because the written word is better at anonymizing. Perhaps the specifics of visual media interfere with the process of imitation. Suicides are only a very morbid and overt kind of imitation, though, for imitation is also the source of socialization in general. In fact, for language to convey the idea of suicide, for us to even conceive of what such social action means,

we must first have a shared understanding of the world that is spread through imitation. This is one of Tarde's laws of imitation: "Internal are imitated before external models" (Tosti 1897, p. 493).

Getting Everyone on the Same Page

If many people are copying something all the time, the similarities among multiple instances become more obvious, and it becomes harder for different people to interpret them differently. If many people are performing the "same" action, then it will quickly be apparent which aspects of that action are being copied and which are individual quirks. Each instance repeats only the relevant similarities of past instances, and thus reinforces the norm. On the other hand, when many actions are being copied simultaneously and imitations overlap, then things start to get complicated — it becomes hard to tease apart individual things-to-be-copied, and so new combinations arise and become cultural patterns themselves. For Tarde, a community based on imitation evolves not linearly, but as "a network of communicating roads" (Tosti 1897, p. 503). Every idea, great or small, plays a part in the development of society, because ideas arise from imitation and get imitated in turn, only to contribute to new ideas and imitations. "When only the social process has begun, imitation becomes a self-organizing force of its own" (Borch 2005).

Gladwell (2008) suggests that genius is not a rare phenomena. Whenever something is invented or discovered, it is usually accompanied by several other simultaneous discoveries of the same thing. Geniuses channel ideas that are already "in the air," following pathways that have already been laid by others in a shared "intellectual milieu" — but this ability is found in more than just a brilliant few. Everyone in society relies on existing ideas, copied from person to person, to inspire new ones. "For thinking about society we have at hand the categories we use

as members of society speaking to each other about ourselves" (Douglas 1986, p. 99). These categories shape the way we pass on new ideas, so the institutions that are copied successfully take root in our social lives in a way that they support their own reproduction. Even when our interactions are not overtly *about* these institutions, they still carry out the functions of keeping them around, recreating their conventions by using them and recreating their ideologies by using them as common ground. We are the muscles of social action and the neurons of institutional thought.

Blackmore (1999) talks about how cultural evolution requires not individual thought but a continuous exchange of ideas, in which the memes that are better at getting copied win out over time. She even goes so far as to say that in the distant past, when humans brains became especially adept at imitating, memes took over — since they informed our behavior, they also impacted our reproduction and fitness, and ultimately what adaptations were valuable. Language, for example, is an efficient means of meme replication, partially because of its ability to anonymize. Memes also tend to travel in packs, with some memes paving the way for other compatible ones, which Katz recognizes when he observes that single unconnected "raw" ideas travel less well than "finished" systems of thought (1999, pp. 150-151). Yet Blackmore thinks that memes are still primitive and stable, when the ability of memes to combine in complex self-supporting structures — with some institutions, like certain religions, or language itself, lasting hundreds of years in an identifiable form — seems to indicate that they are quite mature.

Don't Reduce the Group

One could charge institutional thought as being imaginary, since I've formulated it as existing beyond the cognition of individual brains. Indeed, they exist be-

tween brains, in the interactions between them: they are patterns. And patterns of ideas, what we might call memes individually and culture collectively, are as real as individuals are. Individuals seem real enough, to be sure, but we are "merely" patterns of cellular interactions. You cannot reduce a human being to its cells, any more than you can reduce society to its humans. Cell interactions create tissues and organs and organ systems, and finally a whole organism. The systems are not centrally controlled, but emerge from layers of abstraction. One cell gets a chemical message from another cell, and in reacting to it, creates a chain reaction of messages that tell a whole organ's worth of cells how to behave. But at the level of the organ, it appears to be reacting to other organs in a sophisticated manner: the cell-messaging cascade creates one larger sign to which the organ acts as an interpreter. Are there "really" organs, or just a bunch of cells?

Giddens (1979) stresses that people interpret the social world they live in, and this affects the social world itself. Thus society cannot be reduced to unreflective automatons, and individuals are not atoms in the classical sense of indivisible entities whose bumping around causes things to happen. It would be tempting to say that this *is* true of honeybees, but in fact even for bees, the interpretation of social phenomena is what leads to the larger-scale, higher-level hive dynamics. However, their interpretations do not necessarily coincide with an observer's interpretation of hive-level behavior. In other words, a bee does not need to know its precise role within the hive in order to perform that role. Her conclusions about what's going on may be very different than what is going on from the perspective of the hive. She might gather nectar because it is instinctual or watch a waggle dance because it is pleasurable, rather than because it is her duty to do so or because she is aware that her evolutionary fitness depends on cooperating with her sisters in this precise fashion and thus propagating the hive's structure via the queen bee.

Bees are not aware of the larger hive systems they participate in. Rather, they act according to their immediate instincts and interests. In fact, it is impossible for them to conceive of the entire hive, even if they were mind-reading super-geniuses: they would have to contain a model of all other equally big-brained bees in their own minds, which quickly leads to recursions and paradoxes. Even if each individual completely internalized just the social structure, it would make that structure very brittle, since one mistake in a single individual's internal model would topple the whole thing like so many carefully placed dominos. This sort of setup would be also needlessly complicated, since a few simple rules can lead to very robust, dynamic structures (such as the flocking behavior observed in the "Boids" simulation [Reynolds 1995]).

Just as individuals cannot be reduced to cogs, groups cannot be reduced to individual agents. The emergent behaviors of groups are definitionally above the level of individual thought (economic theory does not *dictate* economics, for example) and our own instincts and interests can even seem be at odds with the movements of the collective. What we see as everyday interactions are actually maintaining the conventions required for social thought and collective behavior. We are aware of many of these conventions, but they are often encoded as moral principles or as human nature, not as the arbitrary things they really are. Conventions are required for humans to understand one another most of the time, but many animals are able to communicate successfully without them — their conventions may be more truly natural, encoded in genes and instincts, while our species' expanded flexibility requires combatting arbitrariness with the naturalization and legitimation of meticulously maintained social norms.

We participate in and maintain social systems without understanding them completely, yet these are the frameworks through which we understand the world. There are many layers of meaning in such systems, and the interpreters are not

always human brains. My own goal is not to explain the intricacies of any one culture, but point to the general processes through which a society that acts almost as if it were itself an organism can emerge out of the interactions between individuals who have incomplete knowledge of that organism. The answer, I think, lies in the constant repetition of enacting institutions, thus realizing group dynamics through the icons and indices of identification and negotiation. Language is one medium of sociality and socialization, acting mostly as a carrier for mimetic iconicity and dicent indexicality. Symbols are reserved for the naming and (re-)creation of groups in human society, in which we play many parts and thus must negotiate our complex social identities across interactions. The reality we experience, our Umwelt, *is* social reality. As the dialectic between individual and society plays across time and space, it creates the dynamic entities that shape the world and make it meaningful. Human language — along with other human and non-human semiotic communication systems — is not a tool for our own use, but rather a tool for creating something bigger than ourselves.

Conclusion

What we know is the past. In the present, we must make knowledge manifest — by repeating a ritual, developing an idea, or taking things for granted. In this way, though we have the freedom to recreate social reality from moment to moment, we are practically constrained by the history of its creation. Meaning, after all, comes from the process of interpretation rather than being inherent in static things, according to semiotics. Alan Watts says rather poetically that the world derives its existence "from the existence of a relationship between the world and its witnesses" (1996, p. 27), though I would say that it derives its *meaning* from such relationships instead. The processes of creating meaning between people — and in society — are dynamic and historically situated. Even rebellion is a reaction to tradition. This is why social norms are not *completely* arbitrary — in a way they really are legitimized by tradition, since repetition over time is the only way for them to be accessible to multiple individuals. As knowledge is enacted and acted upon, it becomes transmuted by acts of interpretation. The binding force is repetition across time and space, via imitation or instinct.

The interactions between social beings create emergent behaviors that characterize society. Bee hives and human institutions can become interpreters themselves, performing directed acts in response to their environment without any master choreographer. A group made up of dynamic members, each with their own minds, must act to protect its own coherency or else be scattered to the winds.

Those members in turn rely on the group's coherency in order to work together, play, or communicate — even conflict requires a baseline of common understanding. Groups and individuals are interdependent and rely on each other to produce meaning.

We often act as if the world we live in is an objective one, but in fact we view reality through the lens of culture. At the same time, socialized notions of reality are made real by our acting them out. Our own identities are wrapped up in the emblems we display in our gestures, voices, and appearances, and we can only gain mutual understanding with others by trading in the same symbol sets across a common ground. Some animals may have hard-wired conventions that are true dicent indices, but humans rely primarily on symbols that are so stereotyped that we treat them as dicent indices. Either way, the subjective world is a distortion of the real one. We must divide up the world into discreet entities to make sense of it all, picking and choosing what aspects are relevant to us, and even icons — the simplest of Peirce's signs — require us to select particular similarities over countless others.

According to Buddhism and Daoism, every time we name something we necessarily separate it from its complement, and thus create me and not-me, us and not-us, culture and not-culture, language and not-language. These dichotomies are useful at times, but they get us into trouble when the real world — which includes all those entities more complex than can be described in words, such as ourselves — refuses to line up nicely. The same can be said of Peirce's trichotomies, which is why semiotics should be understood as a framework for getting at meaning and not a set of natural properties. Signs require other things to take them as signs; they are not inherently so. Semiotics is a particularly useful framework, though, because it provides an explanation for how the world can go from being fundamentally non-dualistic to having lines drawn in its shifting sands.

The Eastern traditions suggest that we would be happier if we didn't take these lines so seriously. We should make use of them, but accept that the "I" that makes social reality its home is not the same as the fluid self that is made up of smaller semiotic processes and makes up larger ones. As we realize this, "the multiplicity of the world dissolves into unity" (Watts 1996, p. 41). We have one foot in society, and the other disappears in a universe where nothing is quite distinct from anything else. Just as our social identities are forged at the intersections of groups, everything is caught up in a net of interrelatedness. Perhaps the Chinese Classicists were right to define the self as merely a node in this net, depending on relationships for its very existence and definition. The Classicists also realized that society itself is caught up in the net, expressing itself, like the individual, in the harmony or disharmony of its relationships. We are its mother and its children, its very body and mind. We participate in processes of meaning greater than ourselves, forging communities through our conversations.

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