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Note: We are currently missing at least two audio tapes of the end of the lecture as well as one with the beginning of the Q&A audio section. These will be available soon.

Toward a Cognitive Science of Culture and Society

Lecture Introduction

Mark Liberman
Hi, I’m Mark Liberman, co-director of the Institute for Research in Cognitive Science here at Penn, and it’s my pleasure to introduce this year’s Pinkel lecture. We’re grateful to the Pinkel family for endowing this series of lectures in cognitive science. This year’s lecturer is Ray Jackendoff, whom I’ve known and admired for many decades, and never more so than a few weeks ago at the annual meeting of the Linguistics Society of America of which Ray is the president. At the meeting he gave the traditional presidential address, and I’ll give you my summary of what he said not so much in terms of content but in terms of its implications for research in the field. We can think about the way in which people studying language turned their attention starting at the middle of the 19th century to the problem of systematically reconstructing the history of languages based on the historical records that they’ve left. And then about 50 years later at the turn of the 20th century a different idea arose about how language and communication and its social contexts should be studied, associated with anthropologists such as Boaz and Sapir, who focused on the question of understanding a wide variety of languages of the world on their own terms, and the role that those languages played in the culture and social life of the communities that developed them. Fifty years after that Noam Chomsky and others turned the attention of the intellectual community towards formal generative models of the structural properties especially of human languages both in terms of their sound and their syntactic structure and the ways in which sound and meaning could be
systematically related through generative grammar. And this past year as we’re beginning the 21st century, Ray invited the field to turn its attention outwards again to the possibility of more fruitful sorts of interaction with allied fields, especially those I think that are normally gathered together under the rubric of cognitive science. And in his talk today Ray is going to present a program, a prescription for one kind of exploration in the direction that he suggested we undertake in his presidential lecture of a few weeks ago. And I - I’m sure like all the rest of you - look forward to hearing what he has to say.

Lecture: Toward a Cognitive Science of Culture and Society

Ray Jackendoff
Thank you, Mark. It’s an honor to be here, and to be an invited speaker for this prestigious lecture is always a great honor. I’ve decided to talk today about something that is really not so connected to language, but it’s a theme that I’ve been interested in for about 15 years, and somehow other things keep intervening so I never get to working on it. I figure if I give talks on it, it will help me actually get to work on the problem. And the problem is that of working out an approach to social and cultural cognition from the perspective of cognitive neuroscience.

At the time I started thinking about it nobody at all was thinking about these issues. Now it seems like a community of researchers is beginning to coalesce that are interested in this topic. So it seems worth at least attempting to state an agenda for this possible area of inquiry. I’m going to try to try to lay the issues out as broadly as I can. What are the big questions that a theory of social and cultural cognition would address, and especially issues that would concern not just scientists but also the general public?

What do I mean by social and cultural cognition from this perspective? It’s the domain of cognitive science or cognitive neuroscience that pertains to particular sort of subject matter in an organism’s repertoire, namely social interaction. For a rough definition I’ll take “social interaction” to mean an organism’s ability to deal with conspecifics, as well as its grasp of interactions among other conspecifics in the context potentially of larger social institutions. You’ll see what that means as I go along. But this definition of social interaction can be applied not just to humans but to animal societies as well, all the way down from chimps to ants.

Now of course for an organism to make use of a capacity for social cognition, it has to be able to perceive the environment and act in the environment. But I take it that a theory of social cognition can abstract away from the most basic problems of perception and motor control and concentrate on phenomena that are more basically of social significance. Social significance does penetrate into the perceptual systems when we look at phenomena like face perception, tracking eye gaze, and recognition of affect through facial expression, gesture and posture. All of these fall under “person perception” as I think it is standardly studied by social psychologists. Motor control is also involved when we study the production of signals like facial expression and communicative calls. These
are certainly fascinating phenomena in their own right, and if we go back to Darwin we find he paid attention to these sorts of things. But what’s more important for me is what deeper purposes these perceptual and motor phenomena serve. What non-perceivable systems of cognitive organization make it important to know who you’re interacting with and what’s on their mind, and make it important to produce signals that let other organisms know who you are and what’s on your mind?

For most animals social organization seems to be essentially fixed across different populations of the species, or at least so I gather from the literature that I look at. And of course there’s considerable variation from species to species. In primate species, especially apes, there seems to be a limited amount of variation among populations. On the other hand, in the human case there’s this vast range of variation in social behavior and social organization among populations, and the differences are what we call culture. Given these differences, children that are born into a particular culture have to learn appropriate patterns of social interaction on the basis of cues provided in the environment by other people. And they do learn them - whether they learn them consciously or unconsciously, that’s an interesting question.

Now this is where I come in as a linguist. The parallels between the problem of studying language and the problems of studying culture have been pointed out many times before, for example by American structuralist linguists/anthropologists like Ken Pike and also by philosophers like John Rawls. I don’t think such arguments have played much of a role in recent theorizing that I’m familiar with. But in fact the problem of how a child comes to acquire social or cultural competence bears a deep analogy to the problem of language acquisition that Chomsky set forth about forty years ago. This problem is still of course the foundation of much of contemporary linguistics. So it’s worth reviewing how this problem works for language, and then I’ll give you a parallel story for cognition -- you can follow the parallels in your handout.

So here’s how language goes: humans manage to create and understand an unlimited number of utterances of their language, most of which they’ve never heard before. This ability therefore has to involve a set of combinatorial principles or a *grammar* in the language user’s mind or brain, which allows the language user to build up linguistic structures from some finite stock of learned elements that are stored in memory. The grammar isn’t available to the consciousness of the language user; only the output is available. The child has to acquire this grammatical system in the course of learning to speak, but the child has no direct evidence for the grammar. Only the output is available. You only hear the talking, so learning has to involve the active creation of organization in the mind of the learner. And it may or may not involve active teaching on the part of those with whom the learner interacts.

Now in order to use speech in the environment as evidence for the grammar, the child has to bring to bear some sort of inner resources. These inner resources are the basis for learning, so they’re by definition not learned. They have to be a consequence of the inherent structure of human brains, which is in turn determined by the interaction of the genome with the processes of biological development. Some of these inner resources that
the child brings to learning language may be cognitive specializations for language; some may be applicable for purposes more general than just learning language. In principle we ought to be able to sort these out. So that’s the argument, basically. And the standard term for the language-specific resources that the child brings to bear is *universal grammar*, which is not to be confused with universals of language. It’s a bad term, but that’s what we’re stuck with. It means “here is what the child knows in advance that enables him or her to learn language”.

So let’s run this argument for social cognition and let’s just do a substitution of terminology. We can state an almost parallel sequence of problems. The answers may or may not come out in parallel and that’s the interesting issue. Humans manage to participate in and understand an unlimited number of social interactions, most of which they’ve never encountered before exactly. The ability to interact socially therefore has to involve a combinatorial system of principles in each individual’s mind which makes it possible to build up an understanding of particular situations from some finite stock of stored elements. The principles maybe aren’t as unconscious as in the case of language but I’m sure they’re not totally conscious either. For the most part only the output, actual behavior, is consciously available. The child then has to acquire the system of principles in the course of being socialized. The child only has partial evidence for the system, namely what people are doing in interacting with each other, so learning has to involve the act of creation of organization in the mind of the learner. In the case of social interaction there’s probably more teaching than in the case of language; rules and manners and maybe religious rituals and things like that are overtly taught, but I suspect that there’s a large amount that we never even think about which nobody has to teach kids, and which again remains to be discovered.

In order to use social behavior in the environment, as evidence for a system of principles, the child has to bring to bear some sort of inner resources. These are not learned because they’re the basis for learning, so they have to be a consequence of the inherent structure of human brains, determined by the interaction of the genome with general processes of biological development. Some of these inner resources may be a cognitive specialization for social cognition and some may be applicable to purposes other than learning social systems and we have to sort these out. So it’s exactly the same line of reasoning as for language, it’s setting out the same problem. The answers may come out different but let’s see where it leads.

First of all, if you follow this line of argument, all aspects of cognitive neuroscience all come to bear immediately on the problem of social cognition. We have to study the characteristics of social behavior and inquire into universals of human culture, and this is sort of the counterpart of studying grammars of human languages. We can ask about the neurological and genetic basis of social cognition - that’s the counterpart of neurolinguistics. We can ask about the cognitive processes of social cognition, that is, how the brain accesses, processes, and stores social information in real time - this is the counterpart of psycholinguistics. We can ask about the course of the child’s social development - that’s the counterpart of developmental psycholinguistics. And we can ask about the consequences of various brain deficits for social cognition, either genetic
deficits maybe autism, or deficits acquired through injury like Phineas Gage, the guy that had a railroad spike driven through his head. In other words all of the angles that are available for studying the language capacity have analogs in the capacity for social interaction.

But we have another line of evidence for social cognition that isn’t available for language, that’s comparative ethology. Primate societies are highly structured and vary somewhat from species to species. This suggests that there is a strong innate genetic basis to their social organization. And much of primate social behavior looks quite familiar to us. It deals with things like group membership, dominance, reciprocity, and so on. That suggests, following Darwin, who said the same thing, that behind human culture lies a firm foundation of primate evolutionary ancestry. So by standard comparative methods we can form hypotheses about the ancestral ape social repertoire and we can ask what tricks evolution had to add to the ancestral repertoire to get modern chimps and bonobos and gorillas – and us. So the issue for the evolution of social cognition is not just what problems early hominids had to face - that’s the way Tooby and Cosmides have gone at it - but actually what problems earlier ancestral primates, and mammals before them would have to face, so that we can ask on what solutions did hominids have to build. And this kind of evidence just isn’t available for language because there are no counterparts to anything like the complexity of human language in any of the other apes. So actually we have a further area of triangulation for social cognition that we don’t have for language.

Now this is, I have to say, not the predominant way that culture has been studied. At least in America, anthropology and sociology have been dominated by the view that humans are totally a product of their culture and that we should not be seeking ways that culture is the way it is because of human cognitive abilities. There are outliers here and there, you see references to this cognitive way of looking at culture, but I gather this is not the way anthropologists and sociologists on the whole study it. And Steve Pinker in his recent book *The Blank Slate* has documented how pervasive these attitudes are, that everything is culturally based, not only among scientists but also in politics and ordinary life. Now in some cases there were good reasons for these culturally-based attitudes. For instance, Franz Boas, one of our joint forefathers in anthropology and linguistics, fought hard for cultural relativism in the early part of the 20th century, and he passed on this position to his students Margaret Mead and Ruth Benedict for example. And he was doing that in reaction to the then-pervasive attitudes about inherent differences in intelligence and moral capacities among the races, attitudes held even by Darwin. So Boas was saying “no, we’re all the same and it’s really culture that makes different people different, it’s not basic intelligence”. But it’s one thing to assert that technological development and military prowess are a consequence of cultural differences and ecological opportunities rather than heritable differences - an argument taken up again in our time by Jared Diamond in his book *Guns, Germs, and Steel*. It’s one thing to say culture has a major impact on how we behave and how we take care of each other, but it’s another thing to conclude that no aspects of human cultural capacity have an inherited basis – that there’s no inherent human nature of any relevance to the social sciences. In other words, anthropological description and interpretation do have a lot to offer us in terms of data about social behavior and social organization, but I think the theory of
social cognition becomes quite different when we ask seriously what the cognitive capacity is that lies behind the overt phenomena that they study.

At this point I jump into my approach to these things as a linguist, which is quite different from the way a lot of neuroscientists, for example, go about this problem. I’m interested in social cognition more from a formal or functional point of view. At our present stage of understanding the brain we may be able to localize some social functions, say here’s where face recognition is, in the right parietal lobe, or something like that. Or we may be able to find a neurotransmitter that enhances aggression or affiliative behavior and see where it does its thing in the brain. But figuring out how the whole system works is probably better done at a level of abstraction somewhat distant from the neurons. Again, I think this is analogous to the study of language. We know a fair amount about the localization of different aspects of language function in the brain, but for the moment I think it’s fair to say that it will be a long time before we understand the details of how the neurons instantiate case marking in Serbo-Croatian or Mandarin tone in language, or the concept of ownership in social cognition. We don’t even know how a single speech sound is instantiated in the neurons – the simplest possible linguistic unit. So I think it’s more fruitful for the moment to look at these problems form the perspective of an abstract structural grammar or internal logic and to put off the issues of neural instantiation for a while.

This doesn’t preclude applying tools of neuroscience by any means; there is a lot to be learned from them and the two efforts ought to run in parallel. The problem that I see is that the neuroscientists often say “well who needs formal analysis now that we have MRIs?” I think both are necessary.

So where do we localize social cognition in the functional ecology of the mind – not in the brain but the mind, looking at the brain functionally? I think that social cognition is one of the central systems of cognition, alongside the understanding of physical space. So let’s look at the physical domain. This involves concepts of physical objects which are located in three-dimensional isotropic space, and which move in this space and exert forces on each other. Among the physical objects are natural objects like rocks and trees and rivers, functional objects with affordances for use like bicycles and tables, and animate objects like ants and worms and rats and tigers. The animates, unlike the rest of the things I mentioned, are conceptualized as capable of unpredictable self-initiated motion, that is they have volition, and perhaps they have desires and intentions as well.

The social domain is different. It consists, at the purest, of persons: individuals with whom we can have social relations. And it encodes the relations and actions among them in the roles as persons. Now like all concepts the concept of ‘person’ has a certain amount of leakage at the boundaries, so pets probably count as sort of honorary persons. Animals in Aesop’s fables count as persons once we give them language and so forth. On the other hand we don’t want to say all animals count as persons; the mosquito that’s buzzing in your ear certainly doesn’t get conceptualized as a person. And in the other direction there’s leakage as well: it’s an all-too-common social tactic for endorsing ruthless behavior toward another group to characterize them as animals, not persons, and
therefore they don’t qualify for social relations. You do that to the other football team, you do that to the enemy in the war, and in the 60s we did that to policemen. You say they’re animals, so they don’t deserve any special social treatment. So that’s leakage in the other direction: people who don’t count as persons.

People are actually conceptualized as occupying both the physical and social domains at once. And this duality is signified, I think, by the traditional common-sense division between the body and the soul. We can demonstrate that these aspects of the person are conceptualized separately by noticing the culturally universal (or at least very widespread) belief in supernatural entities such as spirits and ghosts and gods and souls that survive death. These are persons that lack definite physical bodies and exist in the social domain. The have social relations with people and each other and so they definitely exist in the social domain. And we have no problem conceptualizing persons that come to inhabit different bodies through reincarnation or metamorphosis or body switching. You know there’s a whole genre of movies about body switching, the most recent of which is *Freaky Friday*, right? No problem – the mind of one, or the soul of one gets in the other body. In each case the personal identity, which is the social side, is thought of as being preserved despite radical physical change. A further argument for duality and separation of these domains is the extreme difficulty that people have with accepting and reasoning within a materialist philosophy of mind: of thinking of persons as defined only in physical terms. I mean it’s really hard for your undergraduates to give up on the soul, right? And it keeps sneaking back. Similarly, people show extreme discomfort with notions like golems and humanoid computers and so forth – these are physical objects that suddenly sprout a social identity or personhood. Conceptually there is some sort of a transcendental difference between the physical and the personal and it’s virtually impossible to erase it.

Now, actions on the social plane are on their own unobservable. They become observable only through their linkages on the physical plane. Some physical actions such as eating and walking make sense on their own, but some like shaking hands or performing religious ceremonies only make sense as instantiations of actions on the social plane. Choices of costume or speech style can be used to signify social roles, but they don’t constitute the roles they symbolize, even if people sometimes act as if they do. And of course the intentions and actions of disembodied spirits can only be determined through magical or spiritual interactions. Now this idea that actions are simultaneously being formulated and interpreted in two parallel and linked planes - you might say “well that’s really weird. What’s that like?” Well, in fact it’s not so unfamiliar; language is exactly that way. Because language has the two planes of phonology and meaning (we’ll disregard syntax, which is a third plane actually), but we can associate different phonology with the same meaning by switching languages, we can have sound dissociated from meaning such as non-linguistic sounds and nonsense syllables, and we can have meaning dissociated from sound, i.e. thought. Meaning is unobservable without being linked to speech – at least other people’s meaning. And just as you can mislead about your thought by lying, uttering sounds that are linked with some other thought, you can mislead about your social intentions by producing physical signals consistent with other intentions, say your facial expression or gesture or disguise. So the idea that there is
a physical plane and an unobservable social plane being linked, and the physical being used to signal the social is just like the way language is structured.

I think it’s important to separate the notion of the social domain from another notion that has received a great deal of currency lately, namely the theory of mind. You might say “oh, yes we know about the social domain, that’s the theory of mind”. In fact stereotypically in human social relations that’s right; we do attribute a mental life to the persons with whom we interact. But it’s possible also for us to attribute a mental life to animate entities with which we have no social relation. Let’s say we’re watching a tiger stalking an antelope. We don’t hesitate to say the tiger has beliefs and intentions. We may be right or wrong, but we are using our theory of mind to apply to the tiger. Still, the tiger is definitely not a person. Conversely, there are many aspects of social relations that don’t require a theory of mind. For a person to be a member of a certain clan, and therefore to have certain obligations, it doesn’t matter what they think or believe or desire, that’s just an objective fact about them, an objective social fact. Also, it makes sense to attribute some sort of social cognition to monkeys, who, according to much current thinking, lack a theory of mind. So although theory of mind clearly plays an important role in social cognition, social cognition and theory of mind are not coextensive, although they overlap in all kinds of interesting ways.

So far this has all been very abstract. I now want to give you some examples of the kinds of issues in social cognition and action that we could look at from this point of view. Social psychology has dealt a great deal with person perception; sociobiology and evolutionary psychology have dealt a lot with sexual selection, dominance, and altruism, so I want to talk about some other things that have played much less of a role in the literature that I’m familiar with.

The first one is cooperation. Now people have talked about cooperation in terms of reciprocity but there’s more going on than that. I came to thinking about cooperation through my work in lexical semantics, where I’ve studied a lot of words that express intention and social coercion, things like intend and persuade. But I got into trouble. I was really stumped by words like cooperate and agree, until I came across a proposal, by Searle of all people, in his book The Construction of Social Reality. Searle proposes that we’re capable of what he calls “joint intention”. Not just “I intend to do such-and-such” but actually “we intend to do such and such, and my role in that is this other thing”. A simple case to imagine is moving furniture together. If I just lift an end of the couch and push, and you pick up an end of the couch and pull, that’s not moving the couch, right? We both have to understand that there is a desired action on both our parts that we’re participating in. And this seems to be just right to characterize cooperation and agreement. Cooperation and agreement are a necessary component of any sort of transaction or trade or contract. And contracts include marriage contracts, which seem to be at base declarations of joint intention to maintain sexual exclusivity (or something like that). Herb Clark in his book Using Language argues that joint intention is a basic aspect of linguistic communication. He’s saying that using language is not just “I’m talking and the information is going to you and you’re receiving it.” Rather it’s a joint cooperative act, at least in the usual case of conversation, where the joint goal is of getting
information across and the hearer is giving back all kinds of clues that are saying “yes, I’m getting it” or “no, I’m not” and the speaker is responding to them.

A joint intention is kind of a weird idea because it pretends that two people are sharing their minds, which we in fact can’t do. So the best approximation we can get to actually realizing a joint intention is to get assurance from the other person that we are sharing the intention. So there have to be signals for offering cooperation and for the uptake of the offer. These could be explicit in things like signatures on a contract that says “ok, we now have a joint intention, your role is this and my role is that”. They could be a handshake that says “yes, ok” and you say “ok”, they could be subtle little things like inflections of body language that say “yes, we’re going along with it.”

Now this analysis raises a lot of questions – exactly what sort of cognitive structure is a joint intention? Is a joint intention necessary for cooperation? What are the signals of offer and uptake in the general case, how are they produced, how are they perceived?

Think about the case where you’re walking toward someone and all of a sudden you realize you’re on a collision course. If you both just swerve, then it’s not necessarily a joint intention. You both sort of move at the same time and it sort of works. On the other hand, if you both swerve in the same direction, there now starts this little dance where people go back and forth and finally you achieve the trajectory where you’re not going to run into each other and you smile and go on and laugh or something. At some point in there the joint task of not running into each other is established. How is that done? That’s the kind of little subtle question that we deal with every day.

When chimps and wolves cooperate, let’s say in hunting, do they need cognitive structures like joint intentions? I suspect ants don’t. If chimps and wolves don’t conceptualize such a thing as a joint intention, what evolutionary precursors do they have that enable them to cooperate to the extent that they do? One important precursor is probably joint attention - observing that the other individual is looking where you’re looking. And notice that this doesn’t require a theory of mind. You don’t have to know what they’re thinking, only that they’re looking there. Evidently chimps do have joint attention, but maybe not joint intention. Another place to look for precursors might be sexual behavior, both in courting and actual intercourse, which call for a certain amount of physical coordination between individuals, though not theory of mind. Another might be mother-infant interaction, where the mother has a theory of mind. She thinks the infant is having this wonderful loving interaction – but the infant doesn’t have a theory of mind yet. The infant is just doing this stuff automatically, but it’s enough to make the mother feel all warm and cuddly inside. So what’s going on here in the infant’s mind that’s making this interaction work?

When we think about joint intentions, we’re immediately into issues of game theory, so we get prisoner’s dilemma sorts of situations from the possibility of defection. You have a joint intention and you abandon it and leave the other person in the lurch. So theory of mind and so-called cheater detection, in Tooby and Cosmides’s sense, psyching out whether the other participant really shares a joint intention, really come into play quite naturally, at least in the human case.
Now structurally is there an opposite polarity to joint intention? It might be competition. In competition each participant knows the other one is out to get them so in a sense there’s a joint project of exploiting each other. This is more complex that just “I’ll exploit you and protect myself”, which is plain aggression, because it includes a theory of the competitor’s goals. But competition isn’t symmetrical with cooperation; you can’t take advantage of a competitor by defecting, rather you lose if you defect in competition. So the only way to opt out is to surrender, or perhaps through a joint decision to abandon the activity. This is the way you have to start thinking about it combinatorially.

Now I want to turn to another case, group membership, which I think is really important. The fundamental premise of the logic of groups is that some set of individuals constitutes a group and everyone else is not a member. The basic principles of groups seem to be these two axioms:

- First, if you are a member of my group, all else being equal, I’ll behave favorably toward you, I’ll cooperate with you. I’ll expect the same from you.
- Second, if you’re not a member of my group, other things being equal, I’ll behave unfavorably towards you, I’ll compete with you and I’ll expect you to compete with me.

This logic, if you think about it, pertains to primate groups and to every kind of human group all the way from teenage cliques to nations, with professions and religions and social classes in between. And the symptoms that go with it are feelings of pride in one’s own group: “we’re great!”, a sense of superiority to other groups, “we’re better than you guys”, and on occasion a partial loss of individual ego within group identity.

Groups often stage events that reinforce group identity, such as rituals that grant membership or status, awarding doctorates, coming of age ceremonies, coronations, marriages, awards ceremonies, endowed lectures I suppose. Funerals and football games also can play this role, right? I mean a funeral is partly about: “we’re all in this group and the person who died is too and we’re all showing our solidarity”, and football games too right? “Yay, yay Eagles”, “We’re great, we’re from Philadelphia.”

What about the relations between groups? They seem to be conceptualized as though a group is like a super-individual. It’s like an individual in that it can exert dominance over another group, it can compete with another group, it can form alliances for cooperation with another group. And these relations are inherited by the members of the groups, so a member of a dominant group will presume personal dominance over a member of a subordinate group. You know, “I’m from MIT and you’re from Kansas State, so I’m better than you.” But of course on a more important scale this is one of the bases for racism. Members of allied groups are more likely to show affiliated behavior than are members of competing or hostile groups. So, for instance “you’re British, you’re on our side in the war so I like you. You’re French; you weren’t on our side in the war so I hate you”. This is transposing from the group level down to the individual level with no basis other than group membership.
In order to assure the continued cohesion of a group it’s necessary to enforce the axiom of cooperation with group members against members who choose not to cooperate. So groups invariably have a code of conduct, a set of normative principles, which may be explicit or implicit (I’ll get back to normative principles in a minute). My sense is that the code of conduct is taken to be a joint commitment of the members. This is an ontological type I’ve never seen in the literature – a joint commitment to the norms, but I think it’s just the right thing. What this means is that punishment for violating the code is collectively imposed by the group even though individuals have to impose it. In smaller, less formal groups the sanctions are actually imposed collectively - everyone snubs the offender. In larger more complex groups they have to invent institutions like police and courts that grant authority to certain individuals to impose sanctions on behalf of the group. And one of the worst sanctions that can be imposed, I think universally, is expulsion from the group, exile. This seems to be part of the logic of groups at every level.

Of course given this logic it’s very important to determine who is in and who is out of the group, especially when groups get so large that members don’t know each other anymore. And so members of human groups often make themselves more easily identifiable by adopting characteristic dress, customs, manners of speaking, systems of admission, procedures for determining descent, and that includes even academic, intellectual descent, right? So I’m a linguist and I studied with Chomsky and Chomsky is Lila’s intellectual brother so she’s my intellectual aunt, and that kind of thing, right? There’s the annual Lila descendants’ dinner. There’s also often a presumption of a sharp distinction between members and non-members, a demand for some sort of purity. So in academia, again, and you can extend it to any kind of group you want, I’m not considered exactly a linguist by linguistics departments because I think about psychology, but of course I’m not considered a psychologist by psychology departments because I don’t run experiments. So you end up in this funny situation, you don’t conform to the purity of a group.

An important source of conflict arises from the fact that one typically identifies with numerous overlapping and hierarchical groups. Should I act at any particular moment as a linguist, as a cognitive scientist, as an educator, as an American, as a member of my family, my extended family, etc.? Each of these gives a different space of who counts as other, for me. More important, perhaps: In terms of which of these groups do the people I’m interacting with identify me? How are they going to treat me, what do I have to establish about my group membership to make them treat me with cooperation? This insistence on group purity and this attitude of essentialism, this group membership, combined with the inevitable mixtures of group memberships lies behind the outcast status that’s often accorded to those who make the mistake of belonging to incommensurate backgrounds. For example, mixed-race people are in this weird limbo that they don’t belong to anything for exactly that reason.

Now, I think that in studying other cultures, at least from my reading of the anthropological literature, it seems like everybody takes for granted this logic of groups. It’s just there and nobody bothers to state it because it’s so obvious. So it raises the usual
developmental issue: do children learn all this, or do they understand the logic of groups innately and just plug it into any old groups that they come to be associated with? Given that there’s a parallel, less complex instantiation of this logic in primate societies, I’d be inclined to vote for a substantial innate component. We might ask if there are socially impaired individuals who never understand this logic or if it can be disrupted by brain damage. I don’t know if there’s any evidence on this or not – I’ve never come across any.

There seems to be one important variable in the customs of a group that affects group behavior, the group logic. And that’s the intensity with which the second axiom, the one about non-cooperation with outgroup people is applied - at least consciously. So for example, Islam in the middle ages and in the Ottoman Empire, from my understanding anyway, seemed to have had a ‘live and let live’ attitude toward other religions and ethnicities, and that contrasts sharply with contemporary fundamentalist Islam. Similarly, if you look at what happened in Yugoslavia in the early 1990’s, the catastrophe there seems to have come from a radical shift in the public face of this parameter. If you were Serbian you may have hated Croatians in the privacy of your own home, but at least not publicly, and then it suddenly became public. So the way these public attitudes shifted had a major effect on their behavior and led to the breakup of this whole country. From relative tolerance to intense intolerance – and I don’t think I need to multiply the horrible examples. Every time I give this talk I get depressed, because the examples are just so blatant. The value of this parameter is certainly something that you learn from your culture. Publicly at least some segments of American society applaud efforts to teach tolerance, but I think this impulse is far from universal, and even those that advocate tolerance often act otherwise.

All of these structures – cooperation, competition, and group membership – have to be integrated dynamically in the course of action from moment to moment. One of the elements of integration might be called “framing”, a term I borrowed from Erving Goffman. (He’s from around here, right? Originally? Yeah, there are a lot of Penn people in this talk.) An example of a framing of an event would be a concert. You walk into a concert and everybody has a role: there are the performers and there are the ushers and there are the audience people, and you know what to do; you know if you’re an audience member you’re supposed to shut up when they’re on the stage doing their thing, you’re supposed to clap when they’re done, and then when it’s over you walk out the door and the frame is gone and you can now talk to the performers as people. And the frame is different, so the relations have changed.

An easy place to see framing is in the context of games, which as far as I know are found in all cultures. What we see in a game is the element of competition, most saliently: there are two or more people trying to outdo each other. But the competition is set within a larger framework of cooperation, so the participants have agreed to play and they’ve agreed to abide by set rules and presumptions of fairness. If a game were only competition, poker players would simply be trying to steal each other’s money rather than sitting around tables doing all these things with cards. Now the card shark is of course
being deceptive about the frame of cooperation or he’s placing it in a still larger frame of exploitation, so he is trying to steal the other people’s money.

If in the course of a game someone breaks a rule, the game’s progress is suspended until the matter is set right, and sometimes games will have meta-rules that tell you how to deal with violations. All the rules about fouls in basketball would be cases like that. But sometimes a violation of the rules will degenerate into haggling or violence, that is the larger frame of cooperation has disappeared, you’ve defected from cooperation. Let’s think structurally again. If the framing of a game is competition within cooperation, can we think of the reverse? Cooperation framed inside of competition or hostility? This seems to be a nice way to think about bargaining. In bargaining, each participant wants things the other one has, and is trying to get as much as possible while minimizing his or her own losses. But the competition is carried on in a frame of civility, so the participants don’t end up beating each other up or stealing outright. So you can think of bargaining as a way of actually competing with each other but pretending that you’re being civil. That can leak in the other direction. Just as competition in a game can leak out of the frame of cooperation and turn into hostility or enmity, bargaining and trading, which are basically competitive, cooperation within that can lead to bonding. If you think about team sports it’s even worse, you have to constantly be juggling the frame of who you’re dealing with at the moment: somebody on your team or somebody on the other team, turn taking like in baseball, you’re juggling frames all the time. It’s very complicated computation.

Now this is all very informal and descriptive, but let’s ask the question that belongs to cognitive neuroscience: what computational and/or neural mechanisms do we have to posit in order to produce this ability to frame and reframe recursively, and in order to permit the learning of this behavior? Team sports are grasped without effort by ten- to eleven-year-old kids but not by other primates as far as we know. So what’s going on, what’s different about people – what do we have to give them?

Next let’s think about a different aspect of the game: the rules. Rules show up in many different domains and they take a general form, something like I’ve given in the handout: “In frame F of context C you must do X, or you must not do X, or you should do X.” If we spell it out a little more: “If you do it, you’ll get something good happening to you. If you don’t, something bad will happen to you.” But different sorts of rules differ in the kinds of consequences that they promise or threaten. Let’s look at some examples.

- In games, rules give you a temporary space of action in which various rewards or penalties are obtained, and breaking the rules incurs a penalty or breaks out of the frame.

- More basic social cases are things like obligations or contracts (including promises). An obligation specifies certain actions that the holder of the obligation has to perform for the benefit of the person to whom the obligation is made. If I fail to meet my obligation to you, you get the right to do something bad to me. For instance, if I don’t pay off my debt to you – a debt is an obligation to pay money – then you have the right to demand restitution and maybe further punishment.
• A legal code designates certain actions as desired or sanctioned by the authority of the group as a whole, and the consequences of reward or punishment are carried out by designated representatives who act as proxy for the group, the police and the courts.

• A system of moral or ethical rules designates certain courses of action as morally good and others as morally bad, and it looks like the consequences associated with moral rules have to do with approval and trust of the community. If you do something morally good people think more of you and trust you more, and if you do something morally bad the opposite. What’s trust about? Well trust is “am I interested in cooperating with this individual? Am I interested in interacting with this individual? Is it going to work or is this person going to defect and exploit me?” There seems to be some consensus arising on this interpretation of moral rules.

• Then we have religious codes, which replace approval by the community with approval by the deity or deities. In the Judeo-Christian tradition, the bad consequence if you’re bad and the good consequence if you’re good don’t necessarily have to do with now, they might have to do with the afterlife, and Jewish tradition even sees its codes as a legal contract between God and the group.

You can cite many other kinds of rules: parents’ rules for their children, rules of etiquette, and so on. But I think they’re of the same logical form, they only differ in the frames in which they’re applied and in their general form of consequences.

Now the language used to express all these rules is pretty much the same: it always involves the use of modal verbs such as “should” and “must” and “may”, adjectives like “right” and “wrong”, and so they’re not always clearly distinguished in the literature. For example moral and ethical codes are often conflated with religious codes. It’s true that often they do overlap, but more generally they’re not necessarily the same. You can have a moral code that’s independent of religion: I think of examples like honor among thieves, or maybe desert traditions of hospitality. And there are many religious codes, like how you perform a particular ritual, that have no particular ethical status at all, except in the context of what God will think of you.

A lot of the literature on promises that I’ve some across conflates the contractual and ethical domain. They say that what’s the matter with breaking promises is that it’s bad. People will disapprove of you if you break your promises. They miss the contractual part: if you break a promise the person to whom you’ve made the promise has very specific contractual rights, namely that’s the person who gets to say “I want this person punished”, or “I want my money back” or whatever it happens to be. Legal contracts have consequences in both contractual and legal domains. And a particular action can have different consequences in different normative domains. The classical case is the evil landlord in the melodrama who is foreclosing on the poor widow. It’s his contractual right to do that, he’s allowed to do that by contract, but it’s taken to be morally bad. The other direction is non-violent resistance along the lines of Gandhi and Martin Luther
King, which violates the legal code but is in conformance with what’s taken to be a higher moral code. So my sense is that at best legal and religious codes are usually intended as imperfect incarnations of a more inchoate sense of morality. Of course at worst they can be used to legitimize the raw exercise of power and have nothing to do with morality whatsoever.

On the other hand, it might be important not to push these distinctions too hard. I mean to say yes, we can separate them out, but we don’t want to say “okay now we’re just going to look at morality”, which is a line that people are beginning to take, I think, in cognitive science. Let’s look at the cognitive science of morality especially. There are these studies by Turiel probably now about twenty years ago, which show that young children readily distinguish the norms that we could decide to change, social conventions, from the ones that we couldn’t change, which he takes to be genuine morality. If you say to little kids, “Suppose when you go out to recess you take all your clothes off, would that be good?” They say “No, that wouldn’t be good”. And you say “Well, could we change the rules and say it was okay to take off your clothes?” and a lot of them will say yes, that’s okay. I think by six or seven this is how it goes. Does anybody remember what the ages are? On the other hand if you say “Okay how about if you beat up a kid and hit him with sticks and things. Is that good or bad?” They’ll say it’s bad. You say “Suppose we change the rules and said it was okay?” No, it’s still bad. So they make a distinction between things that are social conventions and things that are really morally bad. And on that basis, taking the lead of standard moral philosophy, which says we want to see what’s really moral and what’s just culture, they say we should be looking at morality in isolation: to get at the root of human nature we ought to strip away the social conventions.

I think that’s a mistake for four reasons. First of all, I think cultures differ in how they themselves distinguish morality from social convention, especially with respect to issues like sexual mores and slavery. Is slavery good or bad? Well some people say that’s a matter of convention and in some cultures it’s okay. We think it’s morally terrible. So obviously different cultures have different takes on whether it’s social or moral. Second, if we look at a culture from the outside, what looks to us like social convention and what looks to us like morality are all mixed up with each other. I think a standard case is the Ten Commandments, where on one hand we have “Thou shalt not kill”, which we would take to be purely moral. That’s the eighth commandment or something, or the seventh. But then the third one is “Keep the Sabbath.” Well, you say, that’s a social convention. But if you look at the book of Exodus in the next few chapters it says if you kill someone, you’re punished by death, and if you don’t keep Sabbath you’re punished by death. It’s the same. So the culture itself doesn’t make the distinction.

The third thing is that morality is deeply tied up with the logic of groups. Think about killing again. If you’re killing the enemy in a war, that’s good, not bad. So killing is not the sort of absolute moral bad, there are situations when it is the right thing to do, unless you happen to be the enemy. In fact, the sociologist Jane Jacobs has proposed that human societies universally have two independent systems of morality with partly contradictory tenets. One she calls the Guardian Syndrome, which has to do with keeping the group cohesive and defending it against aggression from other groups. The other one she calls
the Commercial Syndrome, and it concerns how to participate in trade with other groups. So one has to do with competition and the other one with cooperation, and they give you conflicting answers. But they have to coexist in any successful society. The trick is to know when to apply which one.

Now there’s a fourth reason, sort of a theoretical reason not to isolate morality from social convention. One of the motives for such a move is to discover genuine human nature beneath the variations of culture. But that move takes the variations of culture to be superficial and uninteresting. But let’s go back to the study of language. Universal Grammar is not a study of what’s universal in language. It’s a theory of the child’s ability to learn language. Universals of language might be one symptom of that, but it’s not the only one. What we have to take into account in discovering it is the range of variation among languages, what happens frequently, what never happens; what is easy for children to learn and what is difficult. Similarly, in looking at the aspects of human nature underlying society we can’t just insist on universals of culture, we should be looking at the range of variation and how the common issues of humanity play out cross-culturally. So the system of norms as a whole seems a more ecologically appropriate object of study, particularly given the empirical considerations that I’ve just raised.

One of the things that I find really interesting is the way that all these normative rules are taken to be objective - abstract entities in the world but objective. They’re really there. There’s a certain cognitive dissonance. On the one hand we know that norms are made up by people, on the other hand they’re not imaginary. Within a game, I objectively win or lose. If I break a promise or fail to pay my taxes, the consequences are real consequences. So the rules, once they’re established, either as consensual or as “here I am and here are the rules where I live”, they’re practically as irresistible as the rules of physical causality.

Particularly the rules we call moral rules are conceptualized as timeless and universal. Killing is bad no matter who you are, where you are, when you are - how could it be otherwise? Slavery is bad - how could it be otherwise? The fact that moral rules are conceptualized as timeless and universal is what makes the notion of moral relativism so repugnant to many people. People reason that if a rule is relative, it can’t be a moral rule. There are no morals then. And this is a problem now in secular humanist society, which I’ll come back to in a moment. So again we should be exploring what children know about rules. How do rules differ from principles of associated stimulus and response, do children understand them in every normative domain the same way, how do they learn them? You can see where this goes.

Now this is all getting very tricky. Not just scientifically tricky either, because these issues have run beneath the surface of a lot of intensive public debate, not to mention thousands of years of philosophical and religious discourse. The question is: What are the sources of our norms, the moral and ethical values, particularly those that we conceptualize as universal and timeless? When I was speaking of efforts to teach tolerance, well, what justified that? Why shouldn’t we instead applaud efforts to teach xenophobia and male supremacy? A great deal of western and especially American tradition regards moral values as given by God, for instance in Jefferson’s phrase
“Endowed by the Creator with unalienable rights”. I’m given to understand that Islam takes a similar stance: that values come from God.

Now immediately when Darwin published *Origin of Species*, the threat to this position was sensed by all participants in the debate, and certainly in the United States it’s connected with the rise of religious fundamentalism and its continuing hostility to evolutionary theory. The basic argument: we can’t have evolution because otherwise we won’t have morals. That’s the chain of reasoning. And if morals are not given by God then where do they come from? If they’re relative or subjective, just made up by people, why can’t you make them up any way you want? How can you argue against Nazism or communism or secular humanism or drugs or free love or gay marriage or whatever? It’s better to trust in God and use what God says to get what you want. Now this would be funny if it weren’t so serious. The consequences for education, public discourse, funding for science, and especially the humanities are obvious to anyone today. Today we see the United States at loggerheads with much of the Islamic world, with both sides invoking absolute morality in defense of their cause.

How do we deal with this? Well to my knowledge no one has offered a coherent answer to the question of how moral values are to be grounded in a society that doesn’t rely on a particular God’s authority – that is, within today’s global society. And I don’t think people opposing the religious fundamentalists and the economic Darwinists really try to answer the question. They just assert their own moral codes, probably pretty inchoately, and point out the contradictions and vast helpings of self-interest in the right wing position.

One folk theory that’s taken up by philosophers like Locke, Rousseau and Kant has it that at some point people agreed on a social contract. This does explain the sense of social codes as joint commitments. Rawls also takes up this idea – he makes it sort of fictional – the idea that we should think about justice from an “as-if” position, where you’re hypothetically devising a social contract. Now formal legal systems are in fact developed by people sitting down and making them up by sometimes rather incoherent processes. I guess we’ll see one develop in Iraq pretty soon under really dubious circumstances, but that will be the legal code. This is probably the case with most elements of codes of conduct in most societies. But if you think about it at a deeper level, the parallel in the very robust folk theory of language, the idea that people sat down and decided how to say things is totally implausible. This is not how language came into existence. My suspicion is that aside from legal codes, which are indeed written down, most normative codes come in some more dynamic system like language does. I don’t know what that is.

I’m not so sure that evolutionary psychology can provide a proper grounding for values either. It may give us some boundary conditions but I don’t see it deciding for us what views we should take on most kinds of moral issues.

But it’s important to remember that these issues are part of the territory. If you’re going to be working on social cognition you ought to be prepared to discuss these issues openly and thoughtfully and bring to bear our growing understanding of what sort of cognitive
entities moral codes are, of the roles that moral codes play in the functioning of society, and of the innate underpinnings of social understanding that help shape moral codes in every culture. I think our politics shouldn’t infect our science, and vice-versa, but we can’t just be innocent objective scholars, either. We have to live in the real world. I think the best we can say at the moment is to be alert to the potential political consequences and particularly be concerned that work like this is not taken up by demagogues that are eager to make pernicious political points.

Okay, this has been an extended riff on big issues for a field of inquiry whose parameters are just beginning to fall into place. Most of these issues have been discussed by everyone from the Greeks through all the great religious thinkers and social and political philosophers. What I think is different here is we now have contemporary tools of cognitive science at our disposal which might provide a more comprehensive view of what it means to say there really is a human nature. And maybe it’s unfashionably romantic, but I do think that understanding human nature is the largest and most noble goal we can aspire to and I look forward to continuing to work on it with many of you in the future. Thank you.

Questions and Answers

Q: I think I’d better stand up. Ray, thank you for this really interesting talk. I took a lot of notes and I’m going to try to read what my notes are so I can get my question to be almost as coherent as your talk was. (Jackendoff: I had more time to work on it!) No, it was very interesting, and I thank you. My training and background are in anthropology and so I have a history of having thought about and looked at some of these questions from a little bit different perspective and trying to reconcile them in various ways. My question goes as follows: I think that a lot of the concrete social phenomena that you’ve referred to have, as you said, been the subject of intensive and extensive study by people mostly in the social sciences. I’m thinking of Adam Kendon, here present, who has done so much work on what you’ve called body language and physical relations of people to each other; I’m thinking about the work of people who do language socialization where they are looking at how children learn, create, are taught, [-] their social world while they are learning language. There’s all kind of bodies of literature including human ecology and so forth. Now it’s certainly not the case either that the people who have done this research have actually neglected or sort of not realized the fact that the human actors who participate in the relevant behaviors must have acquired the knowledge that permits them to make the mental computations that must be involved in figuring out how to act. So this is the cognitive side that you’re rightly focusing on. Yet, you refer to this major ideological gulf in which you characterize the zeitgeist of these social science disciplines as being anti-cognitive if you will or you say you can use the data from the social sciences in making inferences about the innate social cognition that people bring to this task. But I wonder how it is that the people who know this data best and who’ve done this work sort of take a different view, which is the cultural view, so there’s this divide about how to see this behavior. You refer to the work of Erving Goffman and I know that if he were alive today he would have been in this room and he would have really enjoyed your talk. He would have probably jumped up and said “well wait a minute you have to worry
a little about the danger of reducing social facts to cognitive facts”. I think he would have been able to carry on this debate much better than I can, but I’ll at least mention it. So are the people who do these kinds of studies in the social sciences that I’ve referred to just misguided? I would say not. I would say they you have correctly identified this ideological gulf and that if we want to make progress I think we have to have cooperation across that. So my question, and I apologize for taking all this time (I’m trying to represent a whole bunch of people, I think most of our anthropology colleagues aren’t here today so I’m putting myself in that chair): so how can people come across the different sides of this gulf to cooperate to make progress? That’s what I’d like to sort of look to for the future.

Jackendoff: I’m totally on your side. I’d like to know how to do that too. I have been talking a lot in the last few years with a colleague of mine, Janet McIntosh, who comes out of Larry Hirschfeld’s shop in Michigan, who thinks about these things cognitively also. From my point of view as a linguist of course, everybody thought a few years ago that language was all cultural. And I think anthropology is sort of at that stage without a formal theory of the knowledge. It’s the formal theory of the knowledge that has made us realize how much there is in language that has to be learned, or that has to be acquired one way or the other. And so I guess my brief is that we should be trying to create formal models of social cognition to see, even more than in language, how these are deployed in real time. Then you need a dynamic theory of the use of these cognitive structures, and then we’ll really see the scope of the learning problem a lot more clearly than just saying “oh, yes they must learn it” and “well, they watch other people and they realize other people are like them, and then therefore ...” – well you know, what are all the things they’re realizing about other people? What I’m trying to point to here with these examples, and I’ve begun to work some of them out formally, is: What is the logic? And it’s quite different from any sort of logic we know from standard formal logic, formal semantics. Each of these concepts has its own peculiar things. I think Tooby and Cosmides are pointing in this direction but again they don’t do a formal theory of the logic, they just make predictions about ‘you interpret it as a social situation and therefore ...’ - but what’s that interpretation? What’s it embedded in? What’s the larger framework? So I’m trying to ask: What is the big frame in which we can localize all these problems, and what is the problem of integration, of formal integration? I really hope I can get anthropologists interested in this because I can’t do it myself.

Q: I like your project a whole lot and I certainly think that there is a cognitive science of social cognition to be done. I think more particularly that there is a cognitive science of morality to be done, that there are distinctive cognitive processes that underlie moral thinking and moral judgments and I’d love to know more about them. I’d like to pick a little bit of a bone with you about this question, however. Because I wonder if you’re not running three different projects together a bit. One would be the project of understanding what the cognitive processes involved in moral thinking are, a second would be understanding how moral thinking develops both in the child and in the species, and the third, and this is the distinctively philosophical project, is the project of understanding what moral positions are justifiable, what bases for what groups and in what contexts. For example, the social contract: that is, generally speaking, not invoked as a story about
origins; nor, except in certain ‘contractarian’ people, as a story about the nature of the cognitive processes. It’s usually invoked as it is in Rawls: as a foundation for justification. And so there are three different projects there and I think you’re tending to run them together a bit.

Jackendoff: Yeah I think you’re right. In the case of what the rules are and the acquisition problem, though, those are as intimately intertwined as they are in language. If it turns out that the rules are really very simple then the learning problem is much less. In the study of language, the dialectic is inevitably that the linguist will say “this is really complicated!” And so you have to put in a lot of innate knowledge to allow learning to take place. And then the other people say “no, it’s not complicated at all, it’s really just dadada” and they give some story and so you don’t need to build much in that’s innate. Chomsky recently has said it’s actually very simple, its just recursion, so you don’t need to build in anything special for language, and Pinker and I are writing a reply to that at the moment that says no, there’s really some special stuff about language. You need words for example, you need phonology, you need some other things. So that’s how the dialectic goes. I think in the issue of culture and society the complexity of the knowledge has been sort of seat-of-the-pants. Nobody has formalized it and so nobody has really realized how complex it is - and therefore nobody has realized what the acquisition problem is. People are studying acquisition but it’s sort of in the stage of developmental psycholinguistics fifty years ago: ‘when do kids learn words’ kind of things.

As far as the justification issue, I agree with you, I think it’s separate, and that’s sort of the point I was trying to make at the end. But on the other hand you want to justify a position, it seems to me, within the constraints posed by the human apparatus. So you don’t want to come up with a position on morals that people could not maintain. Or you might decide that the position that you want to maintain for whatever reason is going to be really difficult for people to maintain, so you have to work damn hard at it. I think that’s the case with tolerance, for example, and multiculturalism. From my heart I say that’s the right moral position, but it is so hard to build up tolerance and so easy to revert to xenophobia that my conclusion is that to get the morally right position has to be really difficult to maintain over time. So I think all those issues are part of my story and they interact in interesting ways, and it’s bigger than I can do in what’s remaining of my lifetime so I hope I can persuade other people to get on some sort of a parallel bandwagon, in areas that they know something. I mean these are areas that I don’t even know much about, so it’s even harder.

Q: Thank you. I thought the talk was very interesting, but I have a nagging sort of, something that’s nagging on me and it’s the radical individualism which is presupposed in the methodology and in the projection of ontology that is involved. And so my question is if the presupposition is that thought and culture and social actions can at the end of the day be reduced to cognitive phenomena that are themselves radical and individual, I feel that you end up with a methodological individualism which systematically distorts the data. My particular concern is what is the ontology of the heuristic that you’re developing to explain these things from an individual point of view, which takes the typically [-] of abstraction and then projection of ontology onto
something that’s independent of the behavior. So you project the social plane, that itself is independent, and comes before that behavior in some method, in some way that you have no independent access to. So my question is what is the status of this ontology and what is sort of methodologically your ability to access it? If you could sort of speak to that problem, which I find in linguistics also.

Jackendoff Yeah it’s a problem in linguistics as well. Well it’s something that I’m wrestling with, in a sense. We act as though society is out there and we have to conform to it when in fact we are participant in the making of it. And that’s the fundamental duality. On the other hand we’re trapped in our own heads, okay? So for example my participation with you in a social act has to do with something going on in my head and something going on in your head, and we can only share it through visible signals. Yet we act as though there’s something out there. So part of the theory of the knowledge has to be how do we project society, language, whatever, out into the world as though that is an objective thing that’s constraining our action, or enabling our action. And that’s a fundamental puzzle: how we get those lined up. I think that part of the learning procedure has to be, I have to try to get myself in tune with what’s going on around me. And what’s going on around me is probably some sort of an average over the interactions I see among different individuals. Just the simplest way in which the concept could be derived is to say it’s objective and they’re all conforming to this ideal and therefore I should, too. But in fact operationally it’s done as a sort of average, I don’t know, a Bayesian average or something over the observed interactions. But you’re quite right. There are very difficult conceptual problems to get this to work out properly. And there may be certain effects that depend on sort of the dynamic interaction of individuals. If you think about how ants create anthills, they don’t know anything about what they’re trying to create, right? It’s just a result of the interactions of all these guys that are doing these very local things. I’m sure there are going to be effects in social organization that have the same genesis, that we don’t know what we’re creating but we create it and then we perceive it as though it’s there. Again, without going into the formal details you can’t know in advance what those will be. And I think it’s worth raising the issues but it’s not a reason to stop working this way.

And you’re quite right; the same issues arise in language: when we talk about the English language, what is that? You know hundreds of millions of people, each with a grammar in their heads that is close enough to the other ones that they think they understand each other. And we call that the language, but there is no the language out there. Nevertheless, we think there is the language, so why do we conceptualize it that way? It’s the same thing.

Q: So you’re connecting up a proposal for what to do in the study of social cognition to ideas in linguistics that are originally I think due to Chomsky about thinking about language in terms of knowledge about language. And then that’s connected to the learning problem: how do you learn this knowledge, and then that raises issues of innateness. But the fundamental analytical techniques and analytical units that we use in linguistics were actually developed in the period before those proposals of Chomsky’s. So notions like the morpheme and the phoneme, even the notion of constituent structure,
right? And the mathematical foundations of the modern study of syntax and the foundations in logic for the study of semantics, all that was done by people who weren’t thinking this way, right? And they provided us with tools, and with units of analysis that allow us to do what we do in linguistics. So one could be a little skeptical about the prospect of your program because the preparatory work, which may be the most important part of the work, which allows to say what a piece of knowledge would even look like, hasn’t been done in this domain. And so even if I believe everything you said, and I believe a lot of it, I’m still at a bit of a loss because I don’t know how to proceed concretely because too much of what’s needed is just missing.

**Jackendoff:** Well, we’re in the domain of social concepts, and as I said, I came to this from doing lexical semantics, where I’m trying to do lexical semantics in a way that is true to the psychology, which is quite different from the program of formal logic. My approach worked pretty well for the spatial stuff, and certain extensions of the spatial stuff where you can begin to see how it connected to the visual system and all that stuff. So the formal work here, at least on my part, is to say: let’s now take these kinds of social domains like groups and norms and frames and so on, and see what kinds of formal devices we have to build up that are compatible with the formal devices for spatial concepts that we can integrate into this parallel train of things running along. Yes, you do have to invent the formalisms as you go along and that makes it harder. Maybe I’m just being foolhardy because I did it for music and I’ve done it for semantics, but what the hell! Who was it, Edwin Land said, you know you get to a certain age and you say “if I don’t work on hard problems, what’s the point?”