How do the microprocesses of cultural transmission affect the macro structure of culture, its content, its evolution? The microprocesses, the small-scale local processes I am talking about are, on the one hand, psychological processes that happen inside people's brains, and on the other hand, changes that people bring about in their common environment — for instance the noise they make when they talk or the paths they unconsciously maintain when they walk — and through which they interact.

Just as the human mind is not a blank slate on which culture would somehow imprint its content, the communication process is not a xerox machine copying contents from one mind to another. This is where I part company not just from your standard semiologists or social scientists who take communication to be a coding-decoding system, a transmission system, biased only by social interests, by power, by intentional or unconscious distortions, but that otherwise could deliver a kind of smooth flow of undistorted information. I also part company from Richard Dawkins who sees cultural transmission as based on a process of replication, and who assume that imitation and communication provide a robust replication system.

AN EPIDEMIOLOGY OF REPRESENTATIONS [7.27.05]
A Talk with Dan Sperber

photo: Leila Pozzo

EdgeVideo

Introduction

Dan Sperber is a French anthropologist who has focused on the more cognitive, more naturalist, approaches linked to evolution. "For a long time," he says, "my ideas were not very well received among anthropologists. They've been discussed a lot, but I found myself spending too much time with my fellow anthropologists arguing the basics of the field rather than moving forward in research. I got involved in linguistics, experimental psychology, philosophy of science, evolutionary biology, and lots of fascinating topics—and continuing also the conversation with anthropologists. Anthropology is a discipline that has been in crisis all my life."

Dan Sperber's parents were both eastern-European Jews; his father, Manes Sperber, a famous novelist, was born in Galicia, grew up in Vienna, then moved to Germany. He met his mother, who came from Latvia, in France in the 30s . Manes Sperber was a Communist, was very active in the party, but left the party at the time of the Moscow trials. Sperber was born in France. "That's my culture," he says. "I am French. Still, there are French people who are much more French than I am. They have roots as they say, but the image of roots has always made me smile. You know, I'm not a plant."

The reason he gives for having become an anthropologist is that he was raised an atheist. There was no god in the family. His father, Manes Sperber, was from a Jewish family, had refused to do his bar mitzvah, and he transmitted zero religion to his son, but at the same time, he had deep respect for religious people. There was no sense that they are somehow inferior. This left the young Sperber with a puzzle: how can people, intelligent decent people, be so badly mistaken?

Sperber is known for his work in developing a naturalistic approach to culture under the name of "epidemiology of representations", and, with British linguist Deirdre Wilson, for developing a cognitive approach to communication known as "Relevance Theory". Both the epidemiology of representations and relevance theory has been influential and controversial.

He is also known for his early work on the anthropology or religion, in which he tried to understand, in a generalist manner and in a positive way (i.e. without making them into idiots), why people could be religious. He took part in classical anthropological studies but he also argued from the start that you have to look at

basic innate mental structures, which, he argued, "played quite an important role in the very possibility of religious beliefs, in the fact that, more generally, beliefs in the supernatural fixate in the way they do in the human mind, are so extraordinarily catching".

Sperber's "catchiness", a theory he has been exploring for a generation, connects with Malcolm Gladwell's idea of a "tipping point". "I've never met Gladwell, " he says, "but when his book came out, many people sent me the book, or told me to read it, telling me that here's the same kind of thing you've been arguing for a long time. Yes, you get the kind of epidemiological process of something gradually, almost invivibly spreading in a population and then indeed reaching a "tipping point." That's the kind of dynamic you may find with epidemiological phenomena. Still, I don't believe that Gladwell or anybody else, myself included, has a satisfactory understanding of the general causes of the dynamics of cultural distribution." " Now, if I could just write with the slickness of Gladwell, and coin one of his best-selling titles such as Blink! or The Tipping Point. . . but I guess I would also have to give up trying to convey much of the hard substance of my work. Oh well..".

Edge is pleased to present "An Epidemiology of Representations: A Talk with Dan Sperber".

— JB

DAN SPERBER, Directeur de Recherche au CNRS, Paris, is a French social and cognitive scientist. He is the author of Rethinking Symbolism, On Anthropological Knowledge, and Explaining Culture. He is also the co-author, (with Deirdre Wilson) of Relevance: Communication and Cognition.

Sperber holds a research professorship at the French Centre National de la Recherche Scientifique (CNRS) in Paris, and has held visiting positions at Cambridge University, the British Academy, the London School of Economics, the Van Leer Institute in Jerusalem, the Institute for Advanced Study in Princeton, Princeton University, the University of Michigan, the University of Bologna, and the University of Hong-Kong.

Dan Sperber's *Edge* Bio Page

Edge Video

AN EPIDEMIOLOGY OF REPRESENTATIONS

[DAN SPERBER:] What I want to know is how, in an evolutionary perspective, social cultural phenomena relate to psychological mental phenomena.

The social and the psychological sciences,when they emerged as properly scholarly disciplines with their own departments in the nineteenth century took quite different approaches, adopted different methodologies, asked different questions. Psychologists lost sight of the fact that what's happening in human minds is always informed by the culture in which individuals grow. Social scientists lost sight of the fact that the transmission, the maintenance, and the transformation of culture takes place not uniquely but in part in these individual psychological processes. This means that if what you're studying is culture, the part played by the psychological moments, or episodes, in the transmission of culture should be seen as crucial. I find it unrealistic to think of culture as

something hovering somehow above individuals — culture goes through them, and through their minds and their bodies and that is, in good part, where culture is being made.

I've been arguing for a very long time now that one should think of the evolved psychological makeup of human beings both as a source of constraints on the way culture can develop, evolve, and also, of course, as what makes culture possible in the first place. I've been arguing against the now discredited "blank slate" view of the human mind—now splendidly laid to rest by Steve Pinker—but it wasn't discredited when I was a student, in fact the "blank slate" view was what we were taught and what most people went on teaching. Against this, I was arguing that there were specific dispositions, capacities, competencies, in the human mind that gave rise to culture, contributed to shaping it, and also constrained the way it can evolve — so that led me to work both in anthropology —and more generally in the social sciences—,which was my original domain, and,more and more, in what was to become cognitive sciences.

In those years, the late 60s, psychology was in the early stags of the "cognitive revolution." It was a domain that really transformed itself in a radical manner. This was, and still is, a very exciting intellectual period in which to live, with, alas, nothing comparable happening in social sciences, (where little that is truly exciting has happened during this period in my opinion). I wanted the social sciences to take advantage of this revolution in the study of cognition and I've tried to suggest how this could be done.

How do the microprocesses of cultural transmission affect the macro structure of culture, its content, its evolution? The microprocesses, the small-scale local processes I am talking about are, on the one hand, psychological processes that happen inside people's brains, and on the other hand, changes that people bring about in their common environment—for instance the noise they make when they talk or the paths they unconsciously maintain when they walk—and through which they interact.

Just as the human mind is not a blank slate on which culture would somehow imprint its content, the communication process is not a xerox machine copying contents from one mind to another. This is where I part company not just from your standard semiologists or social scientists who take communication to be a coding-decoding system, a transmission system, biased only by social interests, by power, by intentional or unconscious distortions, but that otherwise could deliver a kind of smooth flow of undistorted information. I also part company from Richard Dawkins who sees cultural transmission as based on a process of replication, and who assume that imitation and communication provide a robust replication system.

A good part of my work has been to study, in large part with British linguist Deirdre Wilson, the mechanisms of human communication and show that they're much more complex and interesting than is generally assumed, and much less preservative and replicative and more constructive than one might think: understanding involves a lot of construction, and not just reconstruction, and very little by way of simple replication.

When you are told something, the simple view of what happens would be: 'ah! These are words, they have meaning,' and so you decode the meaning of the word and you thereby understand what the speaker meant. A more realistic and, as I said, also a more interesting idea is that the words don't encode the speaker meaning, they just give you evidence of the speaker's meaning. When we speak we want our audience to understand something that's in our mind. And we have no way to fully encode it, and trying at least to encode as much as possible would be absurdly cumbersome. Linguistic utterances, however rich and complex they may be, cannot fully encode our thoughts. But they can give strong richly structured piece of evidence of what our thoughts are.

From the point of view of the audience, a speaker is providing rich pieces of evidence, which we interpret in a context of shared background knowledge, drawing on the common cultural, on the local situation, on the ongoing conversation, and so on. You construct a complex representation helped by all these different factors. You to end up with something which will have been strongly guided, sometimes guided in an exquisitely detailed manner, by the communication, by the words used by the speaker, but which end up being a thought of your own, relevant to you, a recognition, to begin with, of what the speaker meant, from which you extract what is relevant to you.

We're not that interested when we try to comprehend what others say, in getting in our minds a copy of what they had in mind, we're interested in getting that which is of use and of relevance to us, and we see what others are trying to tell us as a source of insight and information from which we can indeed construct a thought of our own. The same is true of imitation; rarely are you concerned when you imitate other people's behavior in copying them exactly. What you want when you see others doing something that you think is worth doing, for instance, cook a soufflé, it's not to copy the exact gestures and the exact souffle that you saw, with its qualities, and also maybe its defects, your goal is to cook a good soufflé, your good soufflé. The goal of these partly preservative processes of communication and imitation is not to copy per se, but to take advantage of information provided by others in order to build thoughts of our own, knowledge of our own, objects of our own, behaviors of our own, for which we take part of the responsibility. The process is constructive in that sense.

Communication is a very broad notion —one should ask whether it makes sense to look for a general theory of communication, given that the notion covers such a variety of processes — processes of communication among machines;

biologists talk about communication among cells; by “animal communication” biologists mean also unitentional deception as when the viceroy butterfly has wings mimicking the pattern found on the poisonous monarch butterfly, so as not to be eaten by predator birds, and so on.

All these form of communication and many others are communication in a very broad sense where some information—in some broad sense of information too—is provided by one device or organism, and is used by another. There are some commonalities linked to this general definition of communication, and indeed, Shannon and Weaver for instance were interested in such a very basic notion. But if we think of communication in biological terms, it is not clear that we have the subject matter of a useful general theory. Think of locomotion. How much can you get from a general theory of locomotion, even sticking to the biological domain and leaving aside artifacts, airplanes, cars, bicycles. I doubt that there is much to get from a general theory of locomotion that would cover fish swimming, birds flying, snakes crawling, us walking, and so on.

If you're studying human locomotion, then you look at the specific organs, the way, for instance, we do it, why we do it, what evolutionary pressure have selected our particular way of doing it. Even more—much more—than human bipedal upright walking, human communication is very special, it's quite unlike the communication you find in other animals. Not just because of language, which indeed has no real equivalent among other species, but also because of another reason which is also quite remarkable but that has not been stressed, and on which Deirdre Wilson and I have been doing a lot of work, namely that if you look at human languages as codes — which in a sense they undoubtedly are — they are very defective codes! When say, vervet monkeys communicate among themselves, one vervet monkey might spot a leopard and emit an alarm cry that indicates to the other monkeys in his group that there's a leopard around. The other vervet monkeys are informed by this alarm cry of the presence of a leopard, but they're not particularly informed of the mental state of the communicator, and they don't give a damn about it. The signal puts them in a cognitive state of knowledge about the presence of a leopard, similar to that of the communicating monkey — here you really have a smooth coding-decoding system.

In the case of humans, when we speak we're not interested per se in the meaning of the words, we register what the word means as a way to find out what the speaker means. Speaker’s meaning is what's involved. Speaker’s meaning is a mental state of the speaker, an intention he or she has to share with us some content. Human communication is based on the ability we have to attribute mental state to others, to want to change the mental states of others, and to accept that others change ours.

When I communicate with you I am trying to change your mind. I am trying to act on your mental state. I'm not just putting out a kind of signal for you to decode. And I do that by providing you with evidence of a mental state in which I want to put you in and evidence of my intention to do so. The role of what is often known in cognitive science as "theory of mind," that is the uniquely human ability to attribute complex mental states to others, is as much a basis of human communication as is language itself.

I am full of admiration for the mathematical theory of information and communication, the work of Shannon, Weaver, and others, and it does give a kind of very general conceptual framework which we might take advantage of. But if you apply it directly to human communication, what you get is a mistaken picture, because the general model of communication you find is a coding-decoding model of communication, as opposed to this more constructive and inferential form of communication which involves infering the mental stateof others, and that's really characteristic of humans.

I have been developing my own approach to culture under the general heading of "epidemiology of representations". The first thing to do, of course, is to take away the negative connotation of epidemiology — it's not the epidemiology of diseases — epidemiology is the study of the distribution of certain items or conditions in the population. One can study the distribution of particular pathological conditions, but you can also study the distribution of good habits, or thoughts, or representations, artifacts, or forms of knowledge.

I'm not assuming that culture is good — I don't want to have a cultural epidemiology to be on the side of the angels, as opposed to medical anthropology on the side of the demons. What's I like about epidemiology is that it's the one social science that is truly naturalistic in studying what happens in populations, typically in human populations, and it explains the macro phenomena at the level of population such as epidemics, by the aggregation of the micro processes both inside individuals and in their interaction. I believe that the cultural and the social in general should be approached in the same manner.

Of course I'm not the only one to do that, a number of people, mostly coming from biology, like Luigi Cavalli-Sforza, Marcus W. Feldman, E.O Wilson and Xharles Lumsden, Richard Dawkins, Bill Durham, Robert Boyd, and Peter Richerson, have developed different conceptions which in this broad sense are epidemiological, or, another way to put it: they are forms of "population-thinking" applied to culture. You take what happens at the population level to results from the microprocesses affecting individuals in the population. Dawkins, who is particularly clear and simple in a good way in his approach, offers a contrast to my approach.

For Dawkins, you can take the Darwinian model of selection and apply it almost as is to culture. Why? Because the basic idea is that, just as genes are

replicators, bits of culture that Dawkins called “memes” are replicators too.

If you take the case of population genetics, the causal mechanisms involved split into two subsets. You have the genes, which are extremely reliable mechanisms of replication. On the other hand, you have a great variety of environmental factors — including organisms which are both expression of genes and part of their environment —, environmental factors that affect the relative reproductive success of the genes. You have then on one side this extremely robust replication mechanism, and on the other side a huge variety of other factors that make these competing replication devices more or less successful.

Translate this into the cultural domain, and you'll view memes, bits of culture, as again very strong replication devices, and all the other factors, historical, ecological, and so on, as contributing to the relative success of the memes.

What I'm denying, and I've mentioned this before, is that there is a basis for a strong replication mechanism either in cognition or in communication. It's much weaker than that. As I said, preservative processes are always partly constructive processes. When they don’t replicate, this does not mean that they make an error of copying. Their goal is not to copy. There are transformation in the process of transmission all the time, and also in the process of remembering and retrieving past, stored information, and these transformations are part of the efficient working of these mechanisms.

In the case of cultural evolution, this yields a kind of paradox. On the one hand, of course, we have macro cultural stability — we do see the same dish being cooked, the same ideologies being adopted, the same words being used, the same song being sung. Without some relatively high degree of cultural stability— which was even exaggerated in classical anthropology—, the very notion of culture wouldn't make sense.

How then do we reconcile this relative macro stability at the cultural level, with a lack of fidelity at the micro level? You might think: if it's stable at the macro level, what else could provide you this macro stability apart from the faithful copying at the micro level? It's the only possible explanation that most people think of. But that's not the only one, and it’s not even a plausible one.

Dawkins himself has pointed out that each act of of cultural transmission may involve some mistakes in copying, some mutation. But if that is the case, then the Darwinian selection model isunlikely to apply, at least in its basic form. The problem is reconciling this macro stability with the micro lack of sufficient fidelity. The answer, I believe, is linked precisely to the fact that in human, transmission is achieved not just by replication, but also by construction.

If it were just replication, copying, and there were lots of errors of copy all the time, then nothing would stabilize and it’s unlikely that the selective pressures would be strong enough to produce a real selection comparable to the one you see in biology. On the other hand, if you have constructive processes, they can compensate the limits of the copying processes.

What happens is this. Although indeed when things get transmitted they tend to vary with each episode of transmission, these variations tend to gravitate around what I call "cultural attractors", which are, if you look at the dynamics of cultural transmission, points or regions in the space of possibilities, towards which transformations tend to go. The stability of cultural phenomena is not provided by a robust mechanism of replication. It's given in part, yes, by a mechanism of preservation which is not very robust, not very faithful, (and it's not its goal to be so). And it’s given in part by a strong tendency for the construction — in every mind at every moment— of new ideas, new uses of words, new artifacts, new behaviors, to go not in a random direction, but towards attractors. And, by the way, these cultural attractors themselves have a history.

Dawkins, of course, is only one of the people who have proposed new ways of modeling cultural evolution. He's important because he brings it down to the simplest possible version — there's a great merit in simplicity. He sees cultural evolution at the same time as being analogous to biological evolution, and as being an evolution almost independent from biological evolution: it has just been made possible by the biological evolution of homo sapiens, which has given us the mind we have, and which, so the story goes, makes us capable indeed of endlessly copying contents. We are supposed to be imitation machines, “meme machines” to use Susan Blakemore's phrase, and this explains that.

Dawkins, in a strange way, presents something very similar to the blank slate view of the mind. The blank slate view, as I was taught it in anthropology, says the human mind is capable of learning anything — whatever content would be provided by culture can be written on the blank slate. Well, the general imitating machine does more or less the same thing. It's capable of imitating just whatever type of content it is presented with, and the relative success of some contents against others, has to do with the selective forces. The idea that the human mind is such a kind of universal imitation machine is hardly better psychology, in my view, than the blank slate story.

Others, E.O Wilson and Charles Lumsden, Rob Boyd and Pete Richerson, have asked to what extent the evolved dispositions that both constrain and make possible culture are, in return, affected by cultural evolution itself so as to yield a kind of gene-culture coevolution. Instead of having two evolutionary scenarios running in parallel, one biological evolution, the other cultural evolution, you get some degree of interaction, possibly a strong interaction, between gene and culture. The general idea has got to be correct. The details, in my opinion, are still very poorly understood.

For a variety of reasons, I believe that memes are not the right story about cultural evolution. This is because in the cultural case, replication is not very successful in explaining cultural stability. I also believe that among the factors we need to take into account to explain cultural attraction of which I was talking before, are evolved aspect of the human psychology. The one type of scholarship and research that has to be brought into the picture, in my view, is evolutionary psychology, as defended in particular in the work of Leda Cosmides, John Tooby, Steve Pinker and taken up in more critical ways by a growing number of developmental psychologists and of philosophers. To understand culture, we have to understand the complexity of the psychological makeup of human beings. We have to go to really deep psychology, understood both in a richly cognitive manner and with a proper evolutionary perspective, to put start explaining cultural evolution. We need a representation of a human mind that's complex in an appropriate manner, true to the empirical data, and rich enough indeed to explain the regularities the, stability, and the variability of culture.

This is them a different story, but it’s still a Darwinian story. It's a Darwinian story in the sense that it's an application of population thinking, which tries to explains the macro phenomena in terms of a micro processes and properties, and which doesn’t assume that there are types or essences of macro cultural and social things. Macro regularities are always the outcome of distribution of micro features, evolving all the time.

In this Darwinian story however, instead of causal processes in culture as split between robust replication devices and a variety of selection factor, we have a much more promiscuous form of causality. Cultural causality is promiscuous. Constructive processes always interfere with preservation processes. So we need to build models different from standard Darwinian models of selection, in order to arrive at the right way to draw on Darwinian inspiration with regard to culture, that is, we must generalize Darwin to the cultural case, rather than adjust it in a way which twists the data well beyond what is empirically plausible.

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The idea of God isn't a supernatural idea. If the idea of God were supernatural, then religion would be true. The idea of God, the idea, the representation of something supernatural is not itself supernatural. If it were, then we would be out of business. Precisely what we're trying to explain is, to quote the title of a book by Pascal Boyer, the “naturalness of religious ideas,” explain, in other terms, how these ideas of the supernatural can occur in the natural beings we are, in human brains and minds and culture, and have the kind of success that they have, in spite of the fact that you can't explain them in the way that you explain so many human ideas, such as ideas that are acquired through experience of the things they are about.

We humans have ideas about plants and animals because we experience plants and animals in a special way with the brain we have. We don't experience God, or goblins or witches, because there are no such things. Nevertheless, we have rich complex ideas about them, a richness in many ways comparable to the ideas we have about plants, animals and the natural things around them.

How is that possible? The issue is what makes these kind of ideas psychologically, cognitively attractive — "catching", such that they stay with you in your head and you may want to communicate them and to guide your behavior on their basis. And also: which of them, among all the unrealistic unsupported ideas that are possible in infinite variety, are going to be so "catching" as to achieve cultural success, in the manner of the many religious ideas that has been around for centuries?

It's not like any blatantly false idea will somehow make it to a cultural success — far from it. Most of them don't stand a chance. What's special about ideas of the supernatural? I argued long ago that it had to do with the fact that they are rooted in our cognitive dispositions, in the way we approach the natural world. Instead of departing from our commonsense ideas so to speak at random, they're like direct provocation — they have always an aspect of going directly against what should be the most intuitively obvious.

So for instance it's part of our common sense knowledge of of living forms, that an animal can’t be both a dog and a cat, but the supernatural is full of creatures like dragons that typically belong to several species simultaneously. It's part of our common sense knowledge of the physical world that an entity cannot be in two places simultaneously, but ubiquity is a distinctive trait of supernatural beings. It's kind of again commonsense, in our commonsense psychology which we deploy in everyday interaction with one another, that one's visual perceptions are limited to what's present in front of one's eyes. Supernatural beings typically can see the past, the future, and things on the other side of earth. So supernatural beings are kind of provocations to commonsense. They are really deeply counterintuitive. That's an idea I suggested a long time ago and that Pascal Boyer has developed and enriched in a remarkable fashion, and which I think is one of the cognitive ingredients that helps explain the success of religious ideas. Of course, it's only one little fragment of a kind of complex picture.

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I started as an anthropologist. Precisely because they were more cognitive, more naturalist, more linked also to evolution than most, for a long time, my ideas were not very well received among anthropologists. They’ve been discussed a lot, but I found myself spending too much time with my fellow anthropologists arguing the basics of the field rather than moving forward in research. I got involved in linguistics, experimental psychology, philosophy of science,

evolutionary biology, and lots of fascinating topics—and continuing also the conversation with anthropologists. Anthropology is a discipline that has been in crisis all my life.

When I started the crisis was linked to the end of the colonization. Anthropology had developed during the period of colonization, as a kind of ancillary science for colonial enterprise. At the same time so many anthropologists were actually active in anti-colonialist movement, and that was also one of the reasons I came to anthropology. But, the decolonisation, anthropology lost this kind of historical and sociological context. Anthropologists in the 60s, 70s, were asking about their political role, about whether or not we were on the right side.

Anthropologists started studying themselves and trying to reflect on their own situation. It was a kind of reflective anthropology, which had a number of interesting aspects. I certainly don't think it was useless although it became a bit obsessive. Parallel to these developments, were the post-structuralist and then post-modernist movements in the humanities and the social sciences, the development of "cultural studies," and many anthropologists felt at ease in these movements.

This produced a new kind of discourse, taking the study of other cultures as much as a pretext as a subject matter to be investigated in a standard scholarly manner. Again, some of the products of this appraoch are of genuine interest, but on the whole more harm has been done than good. While this was happening, others, in part in reaction against this turn toward the literary in anthropology, moved on the contrary toward a more naturalistic anthropology. They became interested in social biology, in biological anthropology.

What you find now in anthropology departments is that people can't talk to each other. Some universities have now had two anthropology departments. So anthropology is stilll in crisis, even if it is not the same crisis. You can look at such a crisis from an institutional or from an intellectual point of view.

Universities as we know them emerged in the nineteenth century and unerwent major changes, in particular after World War II. It does not make sense to project this short past into an indefinite future. In fact, universities are evolving, transforming themselves beyond recognition. The biggest changes are will be due to new communication technology. There is also now a big and blatant gap between the structure of departments in universities, which have to do with institution of transmission of knowledge, and which seem to define stable domains such as psychology, anthropology, sociology, and the real ongoing research which is structured in new ways — in the form of creative, or dynamic, research programs, that may fall within a traditional discipline, or, more often, across several traditional disciplines. Depending on the productivity of such dynamic programs, they are can go on for ten years, 20 years, 30 years, or more.

It is these dynamic research programs that interest me; I've been involved in several, and that's what I find to be intellectually exciting. When we say anthropology is in crisis we're talking about anthropology as defined by academic institutions. And it doesn't matter. It deserves to be in crisis; it deserves to explode, let it do so.

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