

(In John Brockman & Katinka Matson (eds) *How things are: A science toolkit for the mind.* (New York: Morrow, 1995) 191-199)

HOW DO WE COMMUNICATE?

DAN SPERBER

Communicate. We humans do it all the time, and most of the time we do it as a matter of course, without thinking about it. We talk, we listen, we write, we read - as you are doing now - or we draw, we mimic, we nod, we point, we shrug, and, somehow, we manage to make our thoughts known to one another. Of course, there are times when we view communication as something difficult or even impossible to achieve. Yet, compared to other living kinds, we are amazingly good at it. Other species, if they communicate at all, have a narrow repertoire of signals that they use to convey again and again things like: "this is my territory," "danger, run!" or "ready for sex."

To communicate is to attempt to get someone to share your thoughts - well, at least some of them. But how can thoughts be shared? Thoughts aren't things out there in the open, to be sliced like cakes or used collectively like buses. They are strictly private affairs. Thoughts are born, live, and die inside our brains. They never truly come out of our heads (although we talk as if they did, but this is just a metaphor). The only thing that is ever produced by one person for another person to see or hear is behavior and the traces it leaves behind: movement, noise, broken twigs, ink spots, etc. These things aren't thoughts, they don't "contain" thoughts (that is just another metaphor), and yet some of these behaviors or traces serve to convey thoughts.

How is such communication possible? There is an old story - it dates back at least to the ancient Greek philosopher Aristotle - and no doubt you have heard it many times. What makes communication possible, so the story goes, is a common language. A language such as English is a kind of code in which sounds are associated to meanings and meanings to sounds. So, if Jill wants to communicate some meaning to Jack, she looks up in her mental grammar of English the sound associated to that particular meaning, and produces that sound for Jack to hear. Jack then looks up in his mental grammar the meaning associated with that particular sound. In that manner, Jack finds out what Jill had in mind. Of course, all this "looking-up" is automatic and unconscious (except when you can't find your words, and become painfully aware of searching for them). Thanks to this double conversion - the encoding of meaning into sound, and the decoding of sound into meaning - Jill and Jack are now sharing a thought. Well, "sharing" may still be a metaphor, but at least we know now how to make good sense of it. Or do we?

The old 'we-communicate-thanks-to-an-common-language' story is clever and simple. It would make a great explanation if only it were true. Actually, some such story is true of most animal communication. Bees and monkeys have their own rudimentary codes, and whatever they communicate, they do so through encoding and decoding. Not so with us humans. True, we have our rich languages and many minor codes too, but - and this is where the old story breaks down - we manage to communicate much more than we encode and decode, and not just occasionally, but all the time. So, our having language is, at best, a mere part of the true story.

Let me illustrate. Imagine you are killing time at an airport. There is a woman standing nearby and you overhear her say to her companion, "it's late." You have heard and even uttered these very same words many times. Do you know what they mean? Of course. But do you know what the woman meant in uttering these words right now? Think about it. She might have been talking about a plane and meaning that it would arrive - or maybe depart - late. She may as well have been talking about a letter she was expecting, or about spring being late. She need not have been talking about anything in

particular; she might just mean that it's late in the afternoon, or in the day, or in her life. Moreover "late" is always relative to some schedule, or expectation: it might be late for lunch and yet early for supper. So she must have meant late relative to something, but what?

I could go on, but the point should be clear: although you know perfectly well what the words the woman uttered mean, you don't know what *she* meant. Strangely enough, her companion does not seem puzzled. He seems to have understood her. And come to think of it, on the many occasions when you were the person told "it's late," you knew what the speaker meant. You didn't have to think about the many meanings that "it's late" might serve to convey. Is this sentence a special case? Not at all. Any English - or French, or Swahili - sentence may convey different meanings on different occasions, and might have served to illustrate the same point.

Because of such facts, linguists have found it necessary to distinguish "sentence meaning" from "speaker's meaning." Only linguists are interested in sentence meaning for its own sake. For the rest of us, sentence meaning is something we are generally unaware of. It is something we use unconsciously, as a mean towards our true end, which is to understand people, and to make ourselves understood. Speaker's meaning - the stuff we care about - always goes beyond sentence meaning: it is less ambiguous (although it may have ambiguities of its own); it is more precise in some ways, and often less precise in other ways; it has rich implicit content. Sentence meaning is but a sketch. We arrive at speaker's meaning by filling in this sketch.

How do we go from sentence meaning to speaker's meaning? How do we flesh out the sketch? In the past twenty years or so, it has become obvious that, in order to grasp a speaker's meaning we make use of inference. "Inference" is just the psychologists' term for what we ordinarily call "reasoning." Like reasoning, it consists in starting from some initial assumptions and in arriving through a series of steps at some conclusion. Psychologists however are not just being pretentious in using a rarer word: when most of us talk of reasoning, we think of an occasional, conscious, difficult, and rather slow mental activity. What modern psychology has shown is that something like reasoning goes on all the time - unconsciously, painlessly, and fast. When psychologists talk of inference, they are referring first and foremost to this ever present mental activity. Here, then, is how today's linguists and psychologists understand how one person understands what another person says. When you are told something, for instance "it's late," first you *decode* the sentence meaning, and then, you *infer* the speaker's meaning. All this, however, takes place so fast and so easily that it seems immediate and effortless.

How, then, should we revise our understanding of human communication? The first response is to stay as close as possible to the old coding-decoding theory. The updated story might go like this. What makes communication possible is the possession of a common language, as we always said. However, given human intelligence, you don't need to encode all your meaning, or to encode it exactly, in order to be understood. You can trust your audience to infer your full meaning from their knowledge of the situation, taken together with what you actually said. Why indeed say, "The plane on which your mother is coming is late, so late that we cannot wait for her any longer. I told you, we should have stayed at home," when saying "it's late!" with the right tone of voice can convey all this and more. The role of inference in communication is that of an optional add-on. All that is really needed for communication is a common language, but inference provides fast routines and shortcuts that are too effective to do without.

Many psychologists and linguists accept this updated version of the old story. Others don't. Trying to understand the kind of inference involved in communication has led some of us to turn the old story upside down. We now think that human communication is first and foremost a matter of inference and that language is the add-on. Here is the new story.

A million years ago, let's assume, our ancestors had no language at all. One of our ancestors, call him Jack, was watching an ancestress - call her Jill - picking berries. What did Jack understand of what Jill was doing? He might have seen her behavior as a mere sequence of bodily movements, or he

might have seen it as the carrying out of an intention, perhaps the intention to gather berries for eating. Understanding the behavior of an intelligent animal as the carrying out of an intention is, in general, much more insightful and useful than seeing it as mere movement. But, were our ancestors capable of recognizing intentions in one another's behavior?

You have to be doubly intelligent to see the intelligence in others. You need the ability to represent in your own mind the mental representations of other creatures. You need, that is, the ability to entertain representations of representations, what, in our jargon, we call "meta-representations." Most animals have no meta-representational capacity whatsoever. In the world as they see it, there are no minds, only bodies. Chimpanzees and other close relatives of ours seem to have some rudimentary meta-representational capacity. As for Jack, I bet he did perceive Jill's intention, and not just her movements. In fact, he was probably gifted enough to infer from her behavior not just her intention, but also one of her beliefs: that those berries were edible.

If you are able to infer other people's beliefs from their behavior, you can benefit from their knowledge and discover facts of which you yourself have no direct experience. Jack might not have known that these berries were edible, but seeing Jill pick them gave him Even without the use of language or of communication, it may be possible to discover other people's thoughts and to make them one's own.

Now, Jill was just as smart as Jack. She had noticed that Jack was watching her, and she knew what he would infer from her behavior. She may have liked Jack and felt glad that her picking berries would serve two purposes instead of one: providing her with food, and providing Jack with information. In fact, it could be that Jill didn't really need the berries, and that her main purpose in picking them was to let Jack know that they were good to eat. Mind you, it could also be that she hated Jack, and, knowing that these particular berries were poisonous, she was trying to mislead him! We are coming closer to true communication with its tricks, but language is not yet in the picture. There is another big difference between Jill's attempt at informing or misinforming Jack and ordinary human communication. Ordinary communication is pursued openly. Here, on the other hand, Jack is not meant to realize that Jill is trying to alter his thoughts.

What if Jack understands that Jill's true intention in picking berries is to make him believe that they are edible? If he trusts Jill, he will believe her; if he doesn't, he won't. Now what if Jill understands that Jack grasps her real purpose? Well then, lo and behold, a world of possibilities opens! If Jack is capable of understanding that her purpose is to inform him, she might as well be open about it. Jill does not have to actually pick the berries anymore. All she must do is show Jack that she wants him to know that they are edible. She may, for that, resort to symbolic means.

Jill might, for instance, stare at the berries and then move her mouth, or she might mimic eating the berries. Jack would ask himself: why does she do that? Once he recognized that she was doing that for his benefit, he wouldn't find it hard to infer her intention, or, in other words, her meaning. This is true overt communication, although still without language. All Jill does is give evidence of her intention, and all Jack does is infer what her intention is from the evidence she has given him. None of that evidence is linguistic or even code-like.

For creatures capable of communicating in this inferential manner, a language would be tremendously useful. Words are even better than mimicry for putting ideas in people's mind. If Jill had been able to utter just "eat," or "good," Jack could have inferred her intention, her full meaning, from her verbal behavior as easily as he did from her miming. With a richer language, Jill would have been able to give evidence of more complex meanings. Actually, in those days our ancestors did not speak. However, their capacity for inferential communication created an environment in which language would come as a major advantage, and sure enough, a capacity for language evolved in the human species.

The new story, then, is that human communication is a by-product of human meta-representational

capacities. The ability to perform sophisticated inferences about each other's states of mind evolved in our ancestors as a means of understanding and predicting each other's behavior. This in turn gave rise to the possibility of acting openly so as to reveal one's thoughts to others. As a consequence, the conditions were created for the evolution of language. Language made inferential communication immensely more effective. It did not change its character. All human communication, linguistic or non-linguistic, is essentially inferential. Whether we give evidence of our thoughts by picking berries, by mimicry, by speaking, or by writing - as I have just done - , we rely first and foremost on our audience's ability to infer our meaning.

