

## Talk #5 The Concept of Mind

The [mind-body] problem in a nutshell is that since people are composed of chemicals, they must be physically explicable, but yet since they have consciousness they can't.

– Michael Huemer<sup>1</sup>

The very problem of mind and body suggests division; I do not know of anything so disastrously affected by the habit of division as this particular theme. In its discussion are reflected the splitting off from each other of religion, morals and science; the divorce of philosophy from science and of both from the arts of conduct. The evils which we suffer in education, in religion, in the materialism of business and the aloofness of “intellectuals” from life, in the whole separation of knowledge and practice – all testify to the necessity of seeing mind-body as an integral whole.

– John Dewey

**Thea:** Before we get started this evening, there's a point I'm having trouble with: Your notion of suggestion seems to cut in two directions at once. Sometimes it's a mental event – a communication that prompts a person to think or do something. But sometimes it's a physical event in the brain, like the firing of a neuron that prompts another neuron to fire. Can a scientific concept really have two such different aspects? How can suggestions be mental and physical at the same time?

**Guy:** Why should this be confusing? A suggestion suggests patterned activity of some kind to a system prepared to respond in that way. Typically, such patterns will have both physical and mental components. For example, if you extend your right hand, thumb up, to a stranger you have just met, he will probably take it as a suggestion to shake hands. If he accepts, the physical movement, and its social meaning will blend together, giving rise to further suggestions of amicability and whatever else – depending on the precise situation and the way the handshake is performed. The movement of body parts and the communicative gesture are just different aspects of the same event. I think this spanning of the mind-matter distinction is a real strength of the suggestion concept. Without some such notion, the emergence of mind in a lump of matter seems absurd and impossible. But it need be nothing of the sort. We can overcome the illusion of paradox by shifting our concepts a little.

To describe the workings of a brain, we have to think on several levels at once; and these are always physical and mental at the same time: The emission of various neurotransmitters at a synapse are not just electrochemical events, but also suggestions to their contiguous neurons to fire or hold. Conversely, our ideas and feelings can be shown to correlate with neural patterns of this kind. That is what it means to say that “a mind is what a brain is doing.” Ideas of every kind – feelings, desires, beliefs and so forth – suggest intentions and plans, which in turn suggest actions of the body – movement of the limbs, vocal apparatus, etc. Conversely, body postures and facial expressions can suggest states of mind and appropriate

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<sup>1</sup> See <http://home.sprynet.com/~owl1/mind.htm>

## THE ECO-DARWINIAN PARADIGM

actions to oneself and to others. My words, I hope, suggest ideas in your mind and, simultaneously, electrochemical events in your brain.

There are layers upon layers of complexity in a brain/mind system, and to call it confusing is an understatement. But the basic point – that patterns at various levels are responses of a physical and cognitive system to suggestively meaningful messages – is simple enough. In this way, the notion of suggestion connects the mental and physical levels of discourse, and helps us see these as alternative descriptions of a single process.

**Thea:** So your claim is that the suggestion concept builds a bridge between the languages of brain and mind. The nerve cell is a primitive suggestion processor; the person in whose brain it functions is a very sophisticated one. The nerve cell, like the person, “decides” what to do next by weighing the suggestions it is receiving. Any physical event may have direct, physical consequences and, at the same time, cognitive and emotional ones.

**Guy:** That’s the idea. The firing of a neuron is much more like a suggestion to another neuron, to a muscle fiber or to a gland than like a mere transmission of information. Likewise, the patterns of sensory stimulation to an organism are naturally seen as suggestions to that creature to perceive, feel and/or act in appropriate ways. Likewise for the words of one person to another. In each case, there is a physical event putting meaningful suggestions that may or may not be accepted.

It seems natural to think of suggesters at every level and of whatever kind as systems that “do their thing” more or less autonomously, guided by the suggestions they receive. Doing so, it becomes clear that “mental” and “physical” are just alternative viewpoints or “stances” toward a suggestion-processing system.<sup>2</sup> If I think in a language of feelings, beliefs, desires and intentions, I am talking about that system’s “mind.” If I describe it in a physical language of chemicals, electric charges, and mechanical forces, I am talking about its “body.” But it’s a single system I am speaking of. Minds are found in bodies, and nowhere else.

*what is a mind?*

**Thea:** But not all bodies have minds. People obviously do; stones do not; everything in between is problematic: Many people want to say that chimpanzees and whales and dolphins have minds of a sort. But then what about dogs or mice? What about fish? What about those ants and termites? What about trees?

**Guy:** It will depend on your definition. The ancient vitalists believed that all living things had minds of a sort. Descartes thought that only people had them. Panpsychists extend the concept to inanimate nature. If you define the word too broadly, then everything has a mind. If you make the definition narrow enough, then most people won’t.

My own thought is that the word is most useful when approached through the concept of suggestion: Then we can say that all suggesters, all

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<sup>2</sup> See Talk #7.

environmentally responsive production systems, have minds of a sort – some more complex and interesting than others. The mind you have will depend on the complexity of the suggestions you deal with, the responses you produce, and the evaluation-and-production that happens in between.

**Thea:** That makes you a kind of panpsychist, does it not? Mind is everywhere, and even the humblest creatures have it?

**Guy:** I'm an emergentist.<sup>3</sup> I believe that what we call “mind” emerges bottom-up in primordially mindless, but richly self-organizing Nature. Mind is not endowed or “breathed into” things from the top down. It evolves in systems that have become sufficiently complex, and loosely organized. If it eventually turns out that the cosmos as a whole can fruitfully be thought of as having mind, this will be a remarkable emergent property, not a First Cause.

In the same way, I reject (except as a lovely myth) the Hindu notion that all minds, emptied of content, are of one pure substance, as sparks of a single cosmic conflagration. I think the idea of mind as “substance” is a category error.

**Thea:** So how would you define this four-letter word? What is a mind exactly, according to you?

**Guy:** I'm asking you to drop the notion that minds are *things* in any sense at all. To think them so is a nasty trick of language which can only treat them as nouns, grammatically equivalent to bodies. Minding is a process: the sort of thing that brains do. The word “mind” is a high-level abstraction that helps make sense of our own and other people's behavior, as a locus of feelings, beliefs, desires, and intentions – the whole menagerie of folk psychology. Attributing these abstractions to ourselves and to each other helps us to understand, and even predict each other's actions. Our habit of attributing minds to other people works so well that evolution has probably hard-wired it into our brains. But there is no such *thing* as a mind, in the sense that there are stones and stars.

**Thea:** So that's all mind is for you – a useful concept?

**Guy:** Yes, but a complex and confusing one, because we use the word in at least three senses. It's a locus of mental content, as I was saying. It's also the word we use for our processing of suggestions – what we think of as the stream of consciousness, which now must include the stream of unconsciousness as well. And, to make things even more confusing, we also use this word mind as a synonym for “personality” – for internalized structures of re-suggestion that originate some of the suggestions we deal with, and evaluate all of them.<sup>4</sup>

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<sup>3</sup> See <http://en.wikipedia.org/wiki/Emergentism> and [www.brynmawr.edu/biology/emergence/stephan.pdf](http://www.brynmawr.edu/biology/emergence/stephan.pdf).

<sup>4</sup> To be discussed further in Talk #10.

## THE ECO-DARWINIAN PARADIGM

**Thea:** What will you make of the obvious asymmetry: the fact that we have privileged access to our own minds, but not to the minds of others? I don't know for sure that you have a mind; you don't know for sure that I have one. We treat each other as "minds" because it's useful to do so, as you are pointing out. But this is only a matter of politeness – a social convention. A relatively fragile convention, that's easily dropped when we go to war with other people, or abuse them in some way.

### *other minds*

**Guy:** Full recognition of the minds of others is fragile as you say, but it's something more than a convention. I think it's at least partly instinctual – innate for normal human brains and nervous systems. Except as a philosophical exercise, I don't think there is an "other minds" problem. We tend to see people in two ways: either as subjectivities equivalent to our own, or as objects of our desires and actions. Often as both together. What's clear is that infants come pre-equipped for sociability, able to recognize and relate to other minds and to learn complex skills for doing so. Subject to idiosyncrasies of temperament, they're even more predisposed to relate to other minds than to get up on their hind limbs and walk.

**Thea:** That's true enough. Actually, young children seem to discover their own minds in complement to what they encounter in others. They encounter others first, before they recognize themselves.

**Guy:** Right. Various models of infant social development have been proposed, and there is still heated debate. But the infant's cry and smile, her fascination with human faces and voices, her propensity to mimic, her tendency to mold to another body when being carried or nursed and to fall into rhythms of interaction in vocalizing and play are well-known to every parent, and well-documented by child psychologists.

The contagion of positive affects like excitement and joy, and of negative ones like fear and anger is also well known. Our attribution of subjectivity to others must also be confirmed and reinforced by this empathic transference of affect and emotion. Primordially, we experience other minds as givens. Only much later do we rationalize that significant others could not have the beliefs, desires and intentions we confront in them without subjective experience analogous to ours.

**Thea:** In psychopaths or sociopaths (or whatever we decide to call them) that empathy breaks down. There is no agreed label for the disorder, because no one is quite sure what it is.

**Guy:** Well, if we think of empathy as a functional property of the normal human brain, then the psychopath would be someone with a tragic deficiency in that function – tragic for himself and for everyone who becomes involved with him. His disorder may be more a matter of neural architecture and chemistry than of bad parenting and social maladjustment. Of course, there would be that social dimension as well, since relationship with this individual would be difficult from the beginning.

**Thea:** Well, it's a theory. It sounds consistent with the clinical findings, though I don't know enough in this area to say for sure.

Something else is grabbing at me. One assumption of traditional psychology as of most religions, has been that all minds, emptied of content, are fundamentally the same. But for you, there can be no such thing as pure mind, emptied of content. Instead, there will be temperament – the congenital pre-dispositions of a brain. You would expect each baby to be born with its own neural configuration of strengths and weaknesses, and to weave its mind accordingly – pursuant to, or in reaction against the suggestions of its genetic and physiological temperament.

**Guy:** Well, psychiatry has been going in that direction, hasn't it?

**Thea:** Psychiatry yes. But the talking cure psychology of shrinks like me has a built-in reluctance to re-adjust our client's brains with drugs. Such interventions strike us as de-humanizing, however necessary sometimes. Though we accept that there are differences of temperament, our bias is that people have common human needs, and can be reached in the same ways – through empathy, genuineness and positive regard.<sup>5</sup>

**Guy:** I think you're right to be concerned. A potential for abuse of psycho-active chemicals and other direct neural intervention certainly exists. As you agree, though, such interventions clearly have legitimate medical uses. This controversy will play itself out eventually.

**Thea:** Yes, I think it will. The problem lies mostly with the health insurance schemes that favor a quick fix for all mental health problems, and would much rather pay a psychiatrist to prescribe some pills than pay a therapist to spend many hours listening to a client get his head together.

But the linking of mind to neurophysiology and brain chemistry does have theoretical implications for our work. As soon as one gets serious about the idea of temperament, it becomes impossible to think of all minds as fundamentally the same – made in the image of God, the Atman, or whatever. We can no longer think of all minds as having the same emotional needs. We can no longer believe that mental health is basically the same for everyone.

#### *kinds of minds*

**Guy:** I'd say the theoretical problem goes even deeper: When you take seriously that minding is what brains are doing, and that different brains do their minding differently, you can no longer justify the prejudice that only human beings have minds. You must then consider seriously that even dogs and cockroaches and paramecia have minds of a sort – that even our present-day computers do. You can no longer think of mind as an all-or-nothing proposition. You have to recognize that it comes in different degrees . . . in different flavors.

**Thea:** It still bothers me that mind, for you, has nothing to do with consciousness. In discussing mind, you make no mention of consciousness at all!

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<sup>5</sup> The triad of client-centered therapy, articulated by Carl Rogers.

## THE ECO-DARWINIAN PARADIGM

**Guy:** We'll get there. I surely agree that the role of consciousness is crucial for us humans. We have no argument about that. But I keep postponing the issue for several reasons: First, we now know that consciousness is not a simple property, like a beam of light that goes on or off when you flick the switch. It seems to involve several distinct faculties that may be present in varying degrees, and are at least partially independent of one another. We need to get a little further along before we'll be ready to talk about them. Before doing so, we need to develop a notion of mind distinct from mechanical computation on one hand but from consciousness on the other. The mind of a hungry cheetah chasing a gazelle (or of the frightened gazelle fleeing the cheetah) is clearly of a different order than any computing device we can build today, but it neither needs nor has the consciousness of a human poet or philosopher or four-year-old child. For that matter, as we know, most of an adult human's mental processes are unconscious. It seems urgent to develop a concept of mind that's able to capture these distinctions.

**Thea:** So for you, the low priority this psychology assigns to consciousness is actually one of its virtues?

**Guy:** At this stage, yes. Very much so. We need to grasp the full capabilities of unconscious mind before we can be in a position to see what consciousness contributes. Above all, we must stop imagining consciousness as a magical entity that runs the mind from some imaginary corner office on the top floor. There is no chief executive in the brain/mind system. That bit of folk-psychology is at odds with everything we've learned.

**Thea:** But mind without consciousness is just information-processing – or suggestion processing, if you prefer. It isn't what we mean by mind. It isn't what we want to mean.

**Guy:** And that's just where folk psychology goes wrong. It thinks of consciousness as driving the mind and forgets how much a mind can do when consciousness is asleep, or focused elsewhere. It insists that human minds are basically all alike, and the only minds there are. And it refuses to see that consciousness is not the mind's boss, or commander-in-chief, but rather more like a Quaker clerk who articulates, records and seeks implementation for a consensus already reached.

But I still want to postpone this discussion a little longer. We've still got some ground to cover before we're ready for it.

**Thea:** Fine. Then let me ask this: If humans and dogs have minds, and even cockroaches have minds – if even single cells have minds of a sort, then there's a tremendous range of mental sophistication. Do you have some way to grade these minds, or classify them?

**Guy:** Not yet. Dennett wrote a book called *Kinds of Minds* that distinguishes several levels of cognitive sophistication in the animal kingdom, but it's very far from a complete taxonomy.

**Thea:** How does Dennett's scheme work?

- Guy:** It's based on the creature's aptitude for learning and abstraction. The very simplest minds are just organic mechanisms. They have a repertoire of behaviors available to them and the ability to trigger those behaviors when appropriate.
- Thea:** Like eye blinks.
- Guy:** Right. Even brains as sophisticated as ours use "reflexes" of this kind, when a correct response is needed quickly and reliably.
- Thea:** But why think of such reflexes as acts of "mind"?
- Guy:** Because the important word in my last sentence was "correct." Simple as these judgments are, it takes a lot of evolution (many deaths, to say it bluntly) to tailor an accurate response and correctly recognize the situations where it is needed. This evolution should be understood as a kind of learning – of the whole gene pool, to be sure. Its outcome is a primitive mind.
- Thea:** Not a mind – only a suggestion processor, I still want say.
- Guy:** Indeed. But if you don't want to call this a simple mind, you will have to say exactly where mind appears as the suggests grow more complex. You must remember that as behaviors grow more complex, so does the problem of coordinating them properly. For example, a kind of mind is needed not merely to trigger a frog's fly-catching behavior, but to match it precisely to the trajectory of the fly. Even a paramecium already has its version of the same problem. At what point in evolutionary history did mind first appear?
- Thea:** All right. We've been around that loop already. What other kinds of minds are there?
- Guy:** Dennett refers to the very simplest suggests – living mechanisms, really - as Darwinian creatures. The next step is a capability for personal learning. The suggester can learn to trigger its response more promptly and control them more accurately by keying it to situations which it has learned to associate with the automatic trigger. Like Pavlov's dog, it begins to salivate before the meat is in its mouth, before it even smells the meat, because the bell's sound has become a sufficient trigger. Dennett calls these "Skinnerian creatures," after B.F. Skinner who explored the possibilities of this type of learning – which he labeled "operant conditioning."
- Thea:** Skinner and his behaviorists thought that operant conditioning could explain any kind of learning.
- Guy:** That was a mistake. Operant conditioning is an important mode of learning in all creatures above the Skinnerian level, including us. So it was tempting to speculate that it could account for any type of learning. But adaptive intelligence can get much fancier than that. More sophisticated than the creatures that learn only through operant conditioning are (what Dennett

## THE ECO-DARWINIAN PARADIGM

calls) “Popperian creatures”<sup>6</sup> who learn by forming conjectures (hypotheses of a sort) and refining these through experience. Most of the higher mammals must be Popperian to some extent.

**Thea:** What makes us think so?

**Guy:** A Skinnerian mind learns by pure trial-and-error, but a Popperian can generalize from its experience, and jump to conclusions. These may or may not turn out to be correct, but they are not merely random. A cat prowls its neighborhood, and makes informed guesses as she does so. Much more than a pigeon can, probably.

**Thea:** Then what kind of creature are we? Obviously we are Popperian – much more so than a cat, or even a chimpanzee. But there must be something else as well. What distinguishes us from the other Popperian mammals?

**Guy:** Our minds make extensive use of Darwinian reflexes, Skinnerian operant conditioning and Popperian abduction. But we are also what Dennett calls “Gregorian creatures,”<sup>7</sup> who offload much of our learning onto symbols, tools and other artifacts. We learn as individuals, of course – but our cultures also learn, and carry us along with them.

**Thea:** Stigmergically, with all those suggestive artifacts that we build up around us?

**Guy:** Yes, with a special role for language – a unique artifact that we’ll save for another time.<sup>8</sup>

**Thea:** This scheme seems to identify mind with learning. That’s a scientist’s view of things, and may be a little too simple. Some might say that other faculties are at least as important.

**Guy:** Admittedly. Dennett’s scheme is a very preliminary effort. No one would give it more importance than that. We are years away from having a generally accepted taxonomy of mind. We may never have one, because the problem is so complex and the issues at stake so controversial. But his scheme is interesting nonetheless. It breaks the spell of consciousness – a late development in the evolution of mind, as we now know. It helps us see that any production system capable of evaluating and responding to suggestions already has mind of sorts.

**Thea:** I’d like to push that issue a little further, if you’ll let me. What do you mean

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<sup>6</sup> After Sir Karl Popper, and his concept of science as a process of falsification. See Popper’s book, *The Logic of Scientific Discovery*.

<sup>7</sup> After psychologist Richard Gregory, the author of *Mind in Science: A History of Explanations in Psychology*.

<sup>8</sup> See Talk #8.



by learning?

- Guy:** It's much the same as the "adaptive intelligence" that we discussed the other day. We can see learning as progressive improvement – through a kind of evolution – in a system's capability to recognize, evaluate and respond to suggestions. Do you have a problem with that?
- Thea:** I do, actually. Consistent with your whole approach, you seem to define learning in strictly operational terms, as an evolving capability to handle suggestions. Others might define it differently – as a heightening of sensitivity and consciousness, for example. I detect a circularity in your argument. By defining mind and learning as you do, you make the whole discussion come out a certain way.
- Guy:** I won't dispute that charge. You can argue, if you like, that the end of any project is implicit in its beginning. I could reply that the scientific project has a special intellectual authority because it is open-ended and reflexively self-critical, and because it's grounded in publicly verifiable and replicable procedures. You would answer that I am doing more of the same: choosing self-serving criteria that tend to validate my project at the expense of others. I say that everyone else does this too – more flagrantly, and with less tangible fruit. You will say, "There you go again . . ." And at that point, the argument becomes a stand off – a waste of time for all parties. No one can win. Everyone might lose, if this argument gets bitter enough. We would all do better to get on with our respective projects leaving others to do the same.
- Thea:** You are consistent, at least. I'll give you that. You don't believe in truth at all – only in better and poorer suggestions. When you say a statement is true, all you mean is that it should be relied upon provisionally until a better suggestion comes along.
- Guy:** True. That's exactly what I mean.
- Thea:** But if mind is just a processing of competing suggestions that never settle down to any definitive truth, how do you account for the relative stability and coherence of our activities – for the activities of any organism, let alone for a human creature who believes as you do? You said the other evening that it's the mind's coherence, not its conflicts, that call for explanation. I know you're going to talk about ecology and self-organization, but those notions sound as mystical as the Holy Spirit. Just waving them at the problem of coherence doesn't really solve it.
- Guy:** You're surely right that "self-organization" isn't a magic wand. But that is just the point: it's not supernatural. We can admit that a system is too complex and unstable to be predicted or understood in detail, and still have a general understanding of how it works.
- Thea:** OK then. Show me what you can do with that issue of stability. How do all those competing suggestions and impulses amount to a coherent life?

*how a mind makes itself up*

## THE ECO-DARWINIAN PARADIGM

- Guy:** The short answer is that even bottom-up structures can achieve a type of order that sustains itself from the top down. In discourse, we call this context. In Nature we call it ecology. In society, we call it government policy. In ourselves, we call it taking a decision and sticking to it. The same principle is at work in all these cases.
- Thea:** Can you spell this out for me please. You've got four different concepts here. I don't see the connection yet.
- Guy:** It's a well-known principle of literary interpretation that words and texts take much of their meaning from the contexts in which they appear. A famous example is the saying "Time flies like an arrow"<sup>9</sup> whose meaning is clear although its first three words carry multiple meanings, while the last makes a fancy metaphor. Obviously, the meaning of the whole sentence depends on our understanding of its individual words, yet the meaning of each word is stabilized only in our understanding of the sentence. In literary theory, this mutual interdependence of whole on parts, and of parts on the whole is called "the hermeneutic circle." In the biosphere, the same effect is called "ecology."
- Thea:** The same effect? That I don't see.
- Guy:** Yes, the same. Because the "fitness" of the individual organism is depends on its ecological niche within the system as a whole, just as the meaning of a word depends on the text that surrounds it. That is why we so often have to speak of co-evolution – of two or more species evolving together – sometimes symbiotically, sometimes in a kind of arms-race. Similarly, if you imagine the alternative meanings of a word as so many competing suggestions, then the meaning they make together represents a kind of equilibrium amongst them – a kind of ecological balance.
- Thea:** Yes, I see where you're going now: In an eco-system, the competition for survival amongst the individual species translates into stable anatomical structures in the various species, and into patterns of relationship amongst different species at the higher level. Similarly, the alternative meanings of words in a text compete as suggestions, but quickly stabilize – most of the time – as we discover a meaning in the whole.
- Guy:** Most of the time. Yes. Exactly. A coherent meaning jumps out at you and dominates your understanding – but not always. Only most of the time. Puns, jokes, literary criticism and law suits are possible because the competition of meanings never settles down once and for all. As with these verbal suggestions, so with others: Beneath the apparent coherence of a personality, or a life, or a whole society, the competition of suggestions continues, usually in rough balance – a working equilibrium. But swerves, leaps, breakthroughs and breakdowns are always possible.

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<sup>9</sup> Twisted by Groucho Marx to "Fruit flies like a banana."

- Thea:** How does this balance in the mind emerge? As you say, it doesn't always happen. Some minds are pretty unstable.
- Guy:** Will you accept (just for now) what I am aware is still to demonstrate: that "mind" is the word we have for what our brains are doing? Then I can answer that the stability of a mind emerges from a corresponding stability of its brain, which we now begin to understand as a network of nerve cells passing suggestions to one another, loosely coordinated by swarm effects and stigmergy as outlined the other evening.
- Thea:** All right. Suppose I grant your case – just for now.
- Guy:** Then I can point out that the stability of a such a network is conceptually similar to, but somewhat different from the stability of the more familiar cybernetic systems governed by negative feedback.<sup>10</sup> A cybernetic system is stable because displacements from its attractor point give rise to forces pushing it back toward that point. The existence of such forces is what make that an "attractor."  
In a distributed network of suggests the situation is analogous, but slightly different. The network as a whole is stable because it has found a self-consistent pattern with the remarkable property that deviations by individual suggests give rise to compensating suggestions (rather than forces) to restore the pattern. The deviant ones are prodded back into line because their neighbors tender suggestions to that effect.
- Thea:** As deviant individuals in society are made to feel the disapproval of others around them.
- Guy:** The Japanese have a saying, "The nail that sticks out will get hammered in!" Take away the idea of disapproval or punishment, and the over-all coherence in a brain is achieved in much the same way: Neurons that depart from pattern pass suggestions to other neurons leading to counter-suggestions to revert.
- Thea:** OK. I can see how that might result in a loose over-all stability, like the ecologies we've been discussing. But you are speaking brain language now. How does this relate to mind?
- Guy:** Actually, I am speaking both languages at once because suggestions, as we were just discussing, are mental events as well as physical ones.
- Thea:** How do we take decisions then? How do we commit to one particular intention out of the possibilities suggested to us? Your point (if I understood) was that an emergent pattern sometimes becomes strong or stable enough to sustain itself top down by blocking alternative patterns. How would that work?
- Guy:** Take an example. Suppose you and I are talking about going out for dinner

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<sup>10</sup> See [http://en.wikipedia.org/wiki/Negative\\_feedback](http://en.wikipedia.org/wiki/Negative_feedback).

## THE ECO-DARWINIAN PARADIGM

tomorrow evening. There are half-a-dozen restaurants that we often go to, we could try a new one, or we could eat at home. How does that decision get taken? We discuss it, maybe argue if there is disagreement; but how does a choice finally emerge?

**Thea:** It's your example. That's what you're going to tell me.

**Guy:** I see three stages to the process: First, we make suggestions and talk about them. Eventually, we come to a tentative agreement, but remain open to further suggestions (out of left field, as it were), and further discussion. But finally, we are committed. We have our hats and coats on and are in the car, or walking to that Thai place that we both like. Or we are taking food out of the fridge. Barring some real upset, a decision has been taken, and we feel locked into it. And the most common reason we feel so is that neither of us want to disturb the other's expectations or nullify some moves that have already been made.

**Thea:** So you want to draw a distinction between tentative decisions that might still be altered and relatively firm ones that might still be changed, but only at some cost that people are reluctant even to propose. But clearly, that is a matter of degree. Any such cost will be proposed and eventually paid when the costs of persistence become unbearable.

**Guy:** Yes. But once locked into a decision, we persist in it – keep throwing in good effort and money – for a long time before we are willing to call it quits. We get locked in too because some actions are irreversible, but for my purpose, a quantitative commitment is good enough. I think most decisions get taken because one option comes to dominate all others to a point where the others get locked out, even as possibilities.

**Thea:** For individuals as for groups.

**Guy:** Exactly. What I'm suggesting is that the brain/mind system works much like a married couple or committee in this respect. Up to a certain point, alternative patterns compete for dominance in the neural circuits. Then a tentative winner emerges. Finally, this tentative dominance gets sufficiently established to block other patterns as contenders. Only at that point has the solid decision been made; but, once made, it can be very stable. Many people lead lives which are not merely coherent, but downright stagnant – barring drastic disruption from outside.

**Thea:** Hmmm . . . Interesting. So that in the brain as in an organization, we have the illusion, and some of the functionality of top-down decision making although the reality is quite different. The patterns of perception and activity re-combine and agglomerate from the bottom up, as much or more than they are mandated and implemented top down.

**Guy:** That's the idea: an on-going cycle of local initiatives and happenings pruned by an over-all demand for coherence. It seems that in the brain, as in human organizations, there's this perennial tension: A degree of local

autonomy amongst competing values and options contributes flexibility. Stable exclusion of weak contenders makes for relative coherence around the dominant patterns. Hopefully, the result will be a viable system.

**Thea:** All right. I can see how such a system might be capable of mind-like suggestion processing, with consciousness as an emergent “extra” that most creatures can do without. But mind-like suggestion processing isn’t the same as mind.

**Guy:** Why not? What have I left out?

**Thea:** Only the most important thing of all: our subjectivity: our sense of being minds who deal with other minds.

**Guy:** I’ll discuss subjectivity a bit further on<sup>11</sup> when we finally get around to consciousness. I haven’t forgotten it, I promise you.

**Thea:** Very well. I can’t say that I’m happy with all this, but at least I see where you are coming from. This approach to “mind” obviously raises many questions and suggests many lines of research. One can see why scientists are excited by it. What it offers to ordinary people, or to therapists like me still isn’t obvious.

**Guy:** It’s not obvious to me either, though I have some ideas on the subject. That’s why these talks with you may be useful.

*looking ahead*

**Thea:** Can you offer a bit of preview now? Of where these talks are going? I must admit, I’m starting to feel lost. You’re throwing a great many unfamiliar ideas at me, and it’s hard to see how they fit together.

**Guy:** Well, here’s how they fit for me: I know I seem to be rambling all over the map, but my aim is simply to unpack Bateson’s notion of an ecology of mind in the light of current science – to understand where it comes from, and where it leads.

In our last talk, I showed you how a termite colony achieves collective intelligence far surpassing that of any individual termite, and I suggested several ways in which complex minds might be built from relatively simple ones. In principle, this shows how it might be possible for a human nervous system to achieve collective intelligence far surpassing that of any individual cell.

In this talk, I offered you a definition of mind as suggestion processing, well suited to the program of explaining how conscious minds could evolve, and finally emerge as features of inanimate Nature.

**Thea:** I don’t know that I accept your definition.

**Guy:** Perhaps you never will. But if you don’t, I invite you to find a comparably fruitful one of your own. What you’ll discover, I think, is that in order to

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<sup>11</sup> In Talk #9.

## THE ECO-DARWINIAN PARADIGM

make progress in explaining consciousness, you must start with a concept of mind that does not depend on consciousness. As the neuropsychologists have been doing, and as I am doing here.

In our next talk, I need to introduce some general ideas about pattern, in relation to the concepts of suggestion and information, since what we ultimately hope to understand is the relationship between the firing patterns in our brains and our experienced world.

Then we'll have to spend at least one evening on what we now know – and do not know – about the brain as an organ of adaptive intelligence and cognition. Before we can say much about consciousness and personality from an ecoDarwinian perspective, we'll need some facts about the brain's architecture. And then, we have to say something about the features of human brains that make language possible.

**Thea:** Do we know what these are? Do we know what makes language possible?

**Guy:** Again, I'd say we are beginning to know. We're beginning to understand what distinguishes human brains (which acquire language irrepressibly) from chimpanzee brains, so similar to ours in many ways, that can be trained in the rudiments of language, but only with great difficulty. We mostly know what to look for in the laboratories. brain/mind research today has a new sureness to it – a sureness it lacked only a couple of decades ago.

**Thea:** At a guess, the features of the brain that make language possible will turn out to be what makes human consciousness possible.

**Guy:** In fact, much of what we call consciousness may be a by-product of language. Consciousness and personality will surface on our agenda after I explain what we know of how the brain and language work.

**Thea:** And that will bring our talks to a close?

**Guy:** It could. Perhaps it ought to, because what comes after goes beyond currently accepted science. But to do justice to Bateson's notion of cognitive ecology, we must take the discussion to another level, and use the concepts of swarm and stigmergy to talk about culture – how the contents of human minds are configured and re-suggested outside of brains and individual minds. For that purpose, it's fruitful to deploy the notion of suggestion yet again, and think of human individuals as nodes of suggestion processing in the vast self-organizing system called society.

**Thea:** You're going to tell me that individuals play a role in society analogous to that of ants in an ant hill or neurons in a brain.

**Guy:** The analogy isn't perfect, but in general terms . . . yes, that is where I am going. It would be better to say simply that the concept of suggestion and of entities responsive to suggestion applies at all levels, and that at every level, the same general principles of co-evolution and ecology can be observed. Human societies are no more exceptions than individual humans

are. The same principles of self-organization apply throughout the natural world – in particular, to individual human minds, to groups and organizations, and to whole societies. That’s why “ecology of mind” is such a powerful notion.