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**ABSTRACT** One of the most basic linguistic *principles* (or *parameters*, according to some) is used to point to a likely necessary (though, probably, not sufficient) condition of human uniqueness (i.e. being able to speak, communicate complex messages, have religious feelings, indulge in art and humour, and so on) which has been conceptualised either as the fact that we have human *souls*, in religious contexts, or human *minds*, in other contexts.

**KEY WORDS** Cognitive principles. Naturalize. Soul. Mind.

#### **Una manera posible de naturalizar el alma humana**

**RESUMEN** Utilizando uno de los *principios* (aunque algunos lo consideran un *parámetro*) básicos que subyacen en la organización de los idiomas naturales se apunta a una de las condiciones necesarias (aunque posiblemente no suficientes) para esa especificidad humana única (la de hablar, comunicar mensajes complejos, tener sentimientos religiosos, experimentar el arte, gozar con el humor, etc) que se ha conceptualizado como *alma* en los contextos religiosos y como *mente* en otros contextos.

**PALABRAS CLAVE** Principios cognitivos. Naturalizar. Alma. Mente.

#### **Une manière possible de naturaliser l'âme humaine**

**RÉSUMÉ** Partant de l'un des *principes* (d'autres les appellent des *paramètres*) fondamentaux de l'organisation linguistique on essaye d'expliquer la condition unique de la spécificité humaine (c'est à dire, la faculté de parler, communiquer des messages très complexes, avoir des sentiments religieux, expérimenter l'art, et être capable d'humour) qui a été conceptualisée soit comme *l'âme* humaine dans des contextes religieux, ou bien comme *l'esprit* dans d'autres contextes.

**MOTS CLÉS** Principes cognitifs. Naturaliser. Âme. Esprit.

## A possible way to naturalize the human soul

José Luis Guijarro Morales

In one of his papers, “Naturaliser l’esprit”(1999), Dan Sperber, in an indirect way, enjoins us to try and naturalize as many aspects as possible of what has been vaguely considered *spiritual* in the human studies until now. This paper, among others, has been for me an intellectual revulsive for a long period of my recent professional history. And now, after my retirement, I somehow managed to find enough time to think about it in a more continuous way. What follows is a collection of hypotheses with which I have tried to follow Sperber’s advice; my hope is that they will eventually set the bases for an articulate natural theory about these matters.

In French, as you may already know, the word *esprit* is somehow ambiguous. It may signal what we call “spirit” and/or “soul”, in English, but also what we call “mind”. I think it is a *good* ambiguity, if I may say so; for it permits me to make use of it, translating the French term as *soul*, at first, although, eventually, the *mind* translation may appear more appropriate.

According to what he says in the entry *soul* of his *Dictionnaire Philosophique*, Voltaire thinks that this term points to a stupid concept which no one has been able to describe accurately. We may intuitively agree with his strong assertion, and yet, we may also start wondering why it is that humans at large have always thought they differed from other animals in precisely this feature. Is it only because they have an unbounded pride and consider themselves somehow part of the divinity? Supposing that this were accepted as an explanation, the question, then, could be rephrased: how come that we are able to feel that immense pride about our soul, in the first place?

In other words, why not try and change our perception of this concept, the human soul, from a mysterious object which hangs from a sky hook, to a biological entity of some sort but with deep roots in our evolutionary history?

As you are aware, skyhooks are, not only inexistent, but absolutely impossible. How is it, then, that there are so many concepts which are somehow viewed as hanging from those unlikely hooks? One explanation is our powerful human tool that scientists analyze in the field called *Semantics*. As we already know from their findings, humans are able to establish all sorts of relationships between mental and real objects by using their *meaning* as a way to link them in mental representations. Let me give you a quick example with the watchmaker argument which is used to support the existence of a supernatural intelligence who designed our complex world:

- *The complex inner-workings of a watch presuppose an intelligent designer.*
- *As with a watch, the complexity of a particular organ or organism, the structure of the solar system, life, the entire universe and whatnot also presuppose a Designer.*

The watch analogy is, then, semantically related to another element in a different field and thereby it establishes the semantic plausibility of a general idea: *you can tell, simply by looking at something, whether or not it was the product of intelligent design*. If you look at the world at large, you must also know without any doubt that it was created purposely by a Great Watchmaker, i.e., God.

I don't want to imply that this semantic way of relating concepts is vacuous or useless. After all, it is a well developed faculty in the human species and it surely gives us a sense of tranquillity by allowing different aspects of our environment fit into mental structures that do not depend solely on our perceptive abilities but also on our hopes and fears. This very same paper is naturally full of those semantic links which will help you, I hope, into building an accurate mental representation of what I am going to say hereafter.

I do believe, however, that in order to attain a well founded understanding of things we must adopt the *scientific way of thinking*, i.e., a very constrained way of processing information which establishes causal explanatory chains of a material (or materializing) sort. It is only by so doing that one is able to predict what type of effect will follow from what cause. And, as you all know, to be able to predict is one of the aims of the scientific endeavour.

To illustrate what I have just said, let me start now by proposing semantic relationships which may turn up as material causal relationships afterwards. You surely remember Archimedes boasting: "give me a place to stand and I will move the earth". As you know, he was talking about levers, and levers, without any shadow of doubt, are physical entities that do physical movements. Now, let me relate semantically the functioning of these levers to what Charles Darwin did with his Natural Selection Theory. In other words., if we imagine some of the concepts now hanging from those impossible skyhooks and view them as the result of a process that could be metaphorically compared to a chain of tiny levers each representing a very small step in evolution, we may get an idea of what it really (i.e., physically) amounts to. So, instead of hanging concepts from skyhooks and deriving all sorts of ideas from them, we may be able to visualize casual (materialistic) chain of events that, starting from the beginning (say, the *Big-Bang*), will end up, if properly understood, by reaching concepts that have been hung on skyhooks until nowadays. If such be the case, those concepts will have, from now on, solid material scaffolding and can, therefore, be unhooked, without danger of letting them crash into nothingness<sup>1</sup>.

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1 Cfr. Dennett, 1995, for a fuller account of this procedure

This is the present challenge we are facing, the one that Sperber told us to solve and which I will now try to sketch here. How can we unhook the concept *soul* from the sky of our minds by finding a likely material scaffold to make it stand firmly on it? The first thing I will propose, though, is to change the term “soul” (full of heavenly implications) by the more accurate expression “human mind”. The second consideration I would like you to accept is to have the patience to follow my train of reasoning from where I started wondering about these matters: from the world of Linguistics and human communication.

There are very few things to which human beings agree universally. Language, for instance, has been considered from very different points of view. And yet, as far as I know, almost everybody believes that our human language, and the way we use it for communication, is one of the clearest faculties which separate us from the so-called animal kingdom. Even if we accept that some of its species have languages to communicate, we see in our own linguistic tool so many radical differences from those used by other animals that we readily accept that it is *the* feature which distinguishes humanity from the rest of living beings.

Let me point to a curious characteristic of our language with an example from English (based on Radford), for the benefit of the non-conversant in Linguistics:

- (i) *All researchers in Linguistics (are here).*
- (ii) *All researchers from France (are here).*
- (iii) *All researchers in Linguistics from France (are here).*
- (iv) *\* All researchers from France in Linguistics (are here).*
- (v) *\* All researchers in Linguistics in Pragmatics (are here).*
- (vi) *All researchers from France in Spain (are here).*

It seems strange at first glance that some of the noun phrases of the above sentences are impossible in English, whereas the rest are perfectly acceptable. Apparently, they are all formed by a determiner a noun and one or two prepositional phrases, and yet, no English speaking native would admit (iv) or (v) as correct.

Let us consider these sentences in reverse: the reason why (v) is impossible while (vi) is absolutely correct lies in the fact that in (v), both prepositional sentences are cases of phrase recursion, while in (vi) they are not embedded but modifier elements of *researchers*, and there is no way that a Noun in English may have more than one adjunct. This is reinforced by the possibility of (iii) and the impossibility of (iv). In (iii), the prepositional phrase (*in Linguistics*) stands near the N it *modifies*, while the embedded prepositional phrase (*from France*) is further away showing thereby that it modifies the whole phrase (*all researchers in Linguistics*). Whereas (iv) is impossible, because the order in which both prepositional phrases appear is not correct. That means that, while looking alike in their lineal appearance, (i) and (ii) have different

structures with correspondently different meanings. In (i) the sentence implies that “researchers in Linguistics research linguistic (topics)”, while (ii) does not imply that “researchers form France research France (aspects)”, but rather that 1) they are researchers **and** 2) they come from France<sup>2</sup>.

This linguistic feature is called *recursion* at it has been considered the central characteristic of the human linguistic process<sup>3</sup>. It is indeed the faculty that allows linguistic expressions to be infinite. However, it has recently been pointed to my attention that in the web page of the *Edge Foundation*<sup>4</sup>, there is a heated debate about this particular feature in some so-called primitive languages. As far as I understand from the documents in this web page, what started the debate was a talk with Daniel L. Everett, *Recursion and Human Thought: Why the Pirahã Don't Have Numbers*, published in 2007(?) with the following debate which certainly dates from 2007. However, what Everett claims is, in short, that recursion may indeed be a fundamental feature of the human mind computational power, but instead of being what Chomsky calls a linguistic *principle* (a universal characteristic of language), it would better be considered just a *parameter* (a feature that might appear in some languages and not in others). I don't want to enter into the details of the debate which you may anyway find in the quoted page if you wish. And although I tend on the whole to agree more with his critics than with Everett's claim, let me proceed here as if this possibility had some substance. I will propose, then, that the recursive faculty is deeply rooted in our species, the linguistic being only one of the manifestations of its functioning.

According to Sperber & Wilson (1995), our process of communication must be understood in the frame of recursion. We may no longer maintain the fiction that human communication is a simple question of an interlocutor coding a message and another decoding it. This would be mighty straightforward, indeed, but alas! It does no do full justice to the complexity of the communicative process. Sperber & Wilson rightly distinguish the desire to inform that something is the case, and the desire to communicate that information. We may schematize that idea like this:

[*I wish to communicate (that I wish to inform about “this and that”)*]

In this manner, we are able to realize right away that there are two wishes here, one of which is embedded in the other, *i.e.*, they are recursive. This may seem a bit outstretched to some of you, but a simple example, will show that it is precisely in this way that we humans communicate with each other. Imagine the expression,

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<sup>2</sup> Cfr. Hornstein, 1981

<sup>3</sup> See, for instance, Hauser, Chomsky & Fitch (2002)

<sup>4</sup> <<http://www.edge.org/discourse/recursion.html>>.

*Nicephorus has always been very intelligent.*

It is quite obvious that the linguistic expression predicates a positive characteristic of Nicephorus. If we would stick to the mystifying idea that human verbal communication is a simple question of decoding sentences, the explanation of the following situation would be a mighty hard bone to chew:

- (A) *Nicephorus, who is forty, still believes in Santa Claus!*
- (B) *Nicephorus has always been very intelligent.*

How come that, in this case, B is meaning exactly the opposite of the linguistic expression he has encoded in his utterance? Only by using the idea of a recursive process, may one describe what is going on here. Sperber and Wilson propose that the communicative act should be characterized by two such processes, i.e.,

- (1) *By starting talking at this precise moment, B wants to communicate that*
- (2) *B wants to inform that he detaches himself from the potential idea codified in his utterance of the expression "Nicephorus has always being very intelligent".*

I am not going to enter now into the mental processes that make us interpret B's utterance in the opposite *sense* of what it *means* if it were decoded without the frame of (1) above. This frame allows us to describe how we build up a *context* which acts as a set of premises that, processed in relation to the premise coded in the linguistic expression, allows us to interpret the utterance as an *ironic* one.

The example could give the false impression that this recursive representation of the human communicative process is appropriate only in non-literal uses of the linguistic code. But Sperber and Wilson rightly claim that this is *always* the way we communicate. As it happens, in human communication, language does not fully determine the information we want our interlocutors to access. We use language as a tool to point to some of our thoughts, but we use it economically, taking whatever other means available to this end as possible (i.e, tone of voice, gestures, aspects of the environment that are manifest –in one word, *context*). So, the following coded expression:

*I am too tired*

has a different interpretation if presented like this:

*In this situation (X has proposed to go out to dance) A says:  
I'm too tired*

Or, like this:

*In this situation (A has just quit a marathon race) A says:  
I'm too tired*

Or in any other situation you may imagine.

Let me point out that, accurately speaking, we may need to posit a *three* layer recursive process to describe simple human communication:

*{When A starts talking she wishes to communicate that  
[in this situation A wants to inform that  
(she is too tired)]}*

If this is, indeed, the crucial representation of how we communicate with each other in a most simplified description, imagine the recursive depth of some more complex cases of communication. To illustrate that potential complexity, let me use the example of one of Dr. Wilson's ex-students, the Mexican researcher, Carmen Curçó (1995 and 1996).

Imagine that, after watching the German movie *Der Untertan* (on the last hours of Hitler and his regime), A says to B:

*Hitler was a good guy*

B, as described above, would start her interpretation by using the recursive structure:

*{When A has started talking she wishes to communicate that  
[in this situation A wants to inform me that  
(Hitler was a good guy)]}*

Her interpretation may be processed in the following ways:

### **Case A**

FIRST PREMISE: *A tries that  
I come to know that  
A believes that  
Hitler was a good guy*

SECOND PREMISE: *I believe that  
Hitler was NOT a good guy*

CONCLUSION: *I think B is mistaken.*

**Case B**

FIRST PREMISE: A tries that  
                    I come to know that  
                    A tries that  
                    I believe that  
                    Hitler was a good guy  
SECOND PREMISE: I believe that  
                    A believes that  
                    Hitler was NOT a good guy  
CONCLUSION: I believe that A is lying.

**Case C**

FIRST PREMISE: A tries that  
                    I come to know that  
                    A tries that  
                    I believe that  
                    Hitler was a good guy  
SECOND PREMISE: I believe that  
                    A believes that  
                    I believe that  
                    Hitler was NOT a good guy  
CONCLUSION: I believe that A is trying to convince me of something I don't think is the case

**Case D**

FIRST PREMISE: A tries that  
                    I come to know that  
                    A tries that  
                    I believe that  
                    Hitler was a good guy  
SECOND PREMISE: I believe that  
                    A believes that  
                    I believe that  
                    A believes that  
                    Hitler was NOT a good guy  
CONCLUSION: I believe that A is being ironical

Supposing that you have followed me so far, it is clear now that recursion, on top of being a communicative tool, allows humanity to have false ideas, lie, convince and be ironic. Are all these features part of what, for example, Antonio Damasio (1994) calls cognitive processes? Let us see how he figures out the evolution of these cognitive processes:



Many simple organisms, even those with only a single cell and no brain, *perform actions spontaneously or in response to stimuli in the environment*; that is, they produce behaviour. Some of these actions are contained in the organisms themselves, and can be either hidden to observers (for instance, a contraction in an interior organ), or externally observable (a twitch, or the extension of a limb). Other actions (crawling, walking, holding an object) are directed at the environment. But *in some simple organisms and in all complex organisms, actions, whether spontaneous or reactive, are caused by commands from a brain*. (Organisms with a body and no brain, but capable of movement, it should be noted, preceded and then coexisted with organisms that have both body and brain.)

Not all actions commanded by a brain are caused by deliberation.

On the contrary, it is a fair assumption that most so-called brain caused actions being taken at this very moment in the world are not deliberated at all. They are simple responses of which a reflex is an example: a stimulus conveyed by one neuron leading another neuron to act.

As organisms acquired greater complexity, “brain-caused” actions required more intermediate processing. Other neurons were interpolated between the stimulus neuron and the response neuron, and varied parallel circuits were thus set up, but it did not follow that the organism with that more complicated brain necessarily had a mind. *Brains can have many intervening steps in the circuits mediating between stimulus and response, and still have no mind, if they do not meet an essential condition: the ability to display images internally and to order those images in a process called thought*. (The images are not solely visual; there are also “sound images,” “olfactory images,” and so on.) My statement about *behaving organisms* can now be completed by saying that *not all have minds, that is, not all have mental phenomena (which is the same as saying that not all have cognition or cognitive processes)*. *Some organisms have both behavior and cognition. Some have intelligent actions but no mind. No organism seems to have mind but no action.*

(89-90; emphasis added)

Being no biologist, it is not clear to me what Damasio’s “intervening steps” might be. I suppose there to be an evolutive story for the architecture of each or, at least, *some of them*. However, I am almost sure the human soul lacks such an architecture, and therefore I will stick to Fodor’s (1983) advice and concentrate in the functioning of the relevant cognitive processes that may be involved –not their neurophysiologic characteristics which, after all, have organized themselves the way they appear to us now so as permit them to perform those cognitive functions (and not the other way around, as some people seem to think). Or, to say it more clearly, in evolution, functional needs urged physiological ones.

Staying in the cognitive field, then, there seems to be a very small processing mutation that may be envisaged as the crucial step that allowed us to have “minds”, in Damasio’s sense. We have seen it at work in linguistic and communicative processes, which everybody will agree are a specific trait of human beings. Recursion or, at least, massive recursion is something that happens only in the human

processing of information. Not only that: it is also widely used in the storing of mental representations. Dan Sperber (1977), among others, clearly distinguishes between representations which are directly kept in our mental box of representations, and those that are inside some other representation(s). He stresses that both types of storage do not alter the cognitive nature of the representations thus kept, but *only* cause us to react differently towards them. I can't resist telling you one of his examples (*cfr.*, Sperber, 1974).

People, who belong to the African ethnic group of the *Dorze*, apparently have two very strong beliefs which they will accept as self-evident in any conversation: (1) jaguars do not like the presence of humans and so there is no risk to find them lurking in their villages. (2) Jaguars are good Muslims and therefore do not fancy eating meat on Fridays. However, although the *Dorze* let their children play alone inside the village boundaries, they insist in that some well armed adult accompanies them if they are leaving the premises, ... even on Fridays! Sperber argues that the first belief is kept directly in the box of beliefs while the second one is kept inside another factual (that is., it is a provable fact) belief of the type, [wise people say that [jaguars are good Muslims]] or any similar frame. In other words, it is a recursive belief. And although we may accept them as equally evident, the fact is that embedded beliefs do not guarantee the same behavioural effects in all cases. Embedded beliefs seem to be less coherently bound with our potential consequent actions; they permit, as it were, a certain distance between belief and behaviour; a distance that may help us to have a vantage point to observe and ponder about it. This might be thought as a possible trait of conscious thinking, might it not?

There are more curious (and important) results of some recursive processes that seem to strengthen my hypothesis about their crucial import in describing the human mind (or soul). Let me turn to four such results which would otherwise be inexplicable without resorting to recursion and which, as humour is, are also considered central to human spiritual condition: religion, art, and science.

We will start with *religion*. Although there is no scientific proof that supernatural entities do indeed exist, most, if not all, human cultures insist on some godly worshipping of one kind or another. Why should that be? Let me propose that these supernatural entities (one or many gods) have to do with the recursive disposition to assign intentions to interlocutors which we have seen at work in language analysis. If, when hearing Mary say that John has always been very intelligent, we somehow deduce from different stimuli in the environment that the intention of Mary is ironical, we are attributing her an intention which is at odds with her expression which could be schematized like this [Mary is saying ironically that (John has always been very intelligent)]. Attributing intentions then is the result of a recursive process. Now, when humans do not understand some events that seem dangerous to them, they resort to attribute intention to them. It is what Dennet (1996) argues, indeed: that humans adopt the *intentional stance* when they don't understand the functioning of some threat or another. Now, if we don't understand the physical

mechanisms of, say, a tempest, when we are at sea way out from the coast, and this tempest makes us fear the worst, we attribute intentions to X by sending us this tempest and therefore are in position to pray X not to drown us. In other words, attributing intentions presupposes an intentional being, which, in turn, is presupposed as a (supernatural) person – i.e., in this case, the god of tempests. If we are awed by the complex mysteries of Nature, on the other hand, we will also attribute intentions and, therefore, personality to a single entity – God almighty.

What happens with *art*? As you know, anything might be considered art nowadays. It seems, then, that what we are observing when we point with the term “art” is neither a given kind of (artistic) object, nor a kind of (artistic) reception of it. It may be more profitable to use the word “art” to signal an *attitude*. Now consider that, if irony might be considered such an attitude, it can be schematized in a recursive frame: {I value ironically [X]}. My proposal is that the word “art” point to a similar recursive process: {I value artistically [X]}. Two things must be clear here: (1) I am in no way attempting to define what art is (there are far too many definitions of it to try a new one!) I am just pointing to a cognitive recursive process which we may now describe by doing a lot of thinking. (2) Consequently, I am well aware that the concept [ART] in our culture is a very complex one, as religion probably is (see the analysis attempted by Pascal Boyer (2001) in his *Religion explained*, for instance). What I am trying to say is that if the human mind would be unable to embed representations inside other representations, we would probably lack, religion and art. And *humour*, as we have briefly seen before in the account of Curçó, above.

To end this hypothesis on the power of recursion, as you may remember from what I mentioned above, scientific knowledge is also possible because we are able to treat some of our directly stored representations and embed them into other factual representations. I think it is clear that we all have the factual representation that we are all living beings. But we are able to question the whys and wherefores of this otherwise direct representation. We are able to embed it into high order representations. {I understand scientifically that [I’m alive]}.

In short, a very small mutation has allowed human beings to compute massive recursive processes and, I propose, this may be the natural way to start thinking about our *soul* (or, less grandiloquently, our *mind*).

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