

**EATING SOUP WITH CHOPSTICKS:
DOGMAS, DIFFICULTIES AND ALTERNATIVES
IN THE STUDY OF CONSCIOUS EXPERIENCE¹**

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Abstract: The recently celebrated division into ‘easy’ and ‘hard’ problems of consciousness is unfortunate and misleading. Built on functionalist grounds, it carves up the subject matter by declaring that the most elusive parts need a fundamentally and intrinsically different solution. What we have, rather, are ‘difficult’ problems of conscious experience, but problems that are not difficult *per se*. Their difficulty is relative, among other things, to the kind of solution one is looking for and the tools used to accomplish the task. I argue that the study of conscious experience in our scientific and philosophical tradition is a very difficult problem because it has been addressed with inappropriate tools: with harmful long-lasting and inadequate dogmas that have dogged science for centuries. I describe five of these dogmas, which are: (1) the existence of an objective reality independent of human understanding; (2) the subordination of epistemology to ontology; (3) the restricted view of the objectivist–subjectivist dichotomy; (4) the exclusion of the body from the study of the mind; and (5) the idea of explaining the mind in terms of the neurophysiological processes of individual brains.

I claim that conscious experience is not a transcendental, paranatural, mystic or magic phenomenon. It is tractable and approachable with scientific methods. However, one must look not only for non-reductionist views to approach it, but also for views that avoid the dogmas here described. Conscious experience is a living phenomenon and it has to be understood as such. Accordingly, our understanding of it has to make sense at several levels, from evolution to morphophysiology, from neuroanatomy to language. I put forward an approach to conscious experience which is free of the dogmas that make the study of conscious experience so difficult. This view, called ecological naturalism, is a non-functionalist and non-reductive view that provides a naturalistic account of the mind. It also puts special emphasis on irreducible supra-individual biological (SIB) processes that are essential in the realization of mental phenomena and therefore conscious experience.

Introduction

The special issue of the *Journal of Consciousness Studies* (Volume 2, No. 3, 1995) opens with a distinction between two allegedly different aspects of research into consciousness. We are told that there are the ‘easy’ problems, which deal with finding neuronal mechanisms and explaining cognitive functions, and the ‘hard’ problem of how any form of neural activity can give rise to the phenomenal experience of consciousness. According to the keynote paper, the ‘easy’ problems of consciousness ‘are those that seem directly susceptible to the standard methods of cognitive science, whereby a phenomenon is explained in terms of computational or neural mechanisms’ (Chalmers, 1995, p. 200). The author argues that there is a certain clarity in how to approach the ‘easy’ problems whereas the ‘hard problem’ seem to resist these

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same methods and remains elusive and unapproachable. What makes the ‘hard problem’ such a hard one? The keynote paper tells us that the ‘easy’ problems are *easy* because they concern the explanation of cognitive *abilities* and *functions*. To explain a cognitive function what is needed, the author argues, is only to specify a *mechanism* that can perform the *function*. The ‘hard’ problem on the contrary, he says, is *hard* precisely because it is *not* a problem about the performance of *functions* (Chalmers, 1995).

This approach, I think, is not a fruitful way of addressing the problem of consciousness. In this paper I wish to say why I think so, and present my proposal for the study of conscious experience.² I intend to accomplish five things. First, I want to say why I reject the division between the so-called ‘easy’ and ‘hard’ problems to begin with, and thereafter refer instead to ‘difficult’ problems of conscious experience. Second, I intend to say that the problems involving conscious experience are indeed difficult, but their difficulty is not intrinsic: it is relative to the practices and dogmas of current philosophy of mind and cognitive science. Third, I will describe five of the most important dogmas that make the problems of conscious experience difficult. Fourth, I shall provide an outline of a theoretical framework for approaching conscious experience while fulfilling the requirements of a scientific inquiry without being committed to these dogmas. And fifth, I shall reframe, and briefly analyse, some well known questions relative to conscious experience from the perspective here proposed.

The view I intend to present — which I call *ecological naturalism*, emphasizes the non-separation between minds and the medium³ in which they evolve, their biological mutual definition, and the supra-individual nature of the biology of mental phenomena. I shall argue that conscious experience is a living (biological) phenomenon but, contrary to widespread belief, it does not reside in the brain. Although a brain is needed for conscious experience to occur, it is inadequate to explain these experiences in terms of the neurological activity of one isolated brain alone. My arguments will focus on the fact that where the study of the mind is concerned, there are biological processes that go beyond the level of the individual — *supra-individual biological* (SIB) processes — that are irreducible to individual nervous systems. Through these processes, I shall argue, bodies and nervous systems shape themselves in communities to create consensual spaces of sense-making which allow the distinctions of self and conscious experience in individuals, to be realized.

I: No ‘Easy’ and ‘Hard’ but *Difficult* Problems of Consciousness

The division into ‘easy’ and ‘hard’ problems, and the rationale for the hardness of the problem seem to me misleading. As Dennett says, it is ‘a major misdirector, an illusion-generator’ (Dennett, 1996, p. 4). The division simply gives an illusion of being on the right track by carving up the subject matter and declaring that the most

² Although many of the arguments I present hereafter apply for the concept of consciousness in general, in this paper I will focus on what is believed to be the really difficult issue: conscious experience.

³ In order to refer to the space in which an organism exists, the idea of medium is used rather than environment. The former emphasizes the idea that the organism exists as a part of the space, whereas the latter stresses a separation between the organism and the space in which it exists.

intractable parts (i.e. those which puzzle the functionalist view) need a fundamentally and intrinsically different solution. In this regard I endorse Lowe's view:

I do not consider that there are *any* 'easy' problems of consciousness, and consider that Chalmers' division of the problems into 'easy' ones and the 'hard' one betrays an inadequate conception of conscious thought and experience — a conception . . . suggesting that the only problem with functionalism is its apparent inability to say anything about 'qualia' (Lowe, 1995, p. 266).

The view of experience and cognition expressed in the keynote paper is indeed inadequate. According to it, experience merely 'accompanies' cognition (Chalmers, 1995, p. 203), and therefore it is not seen as a constitutive and irreducible part of cognition. Such a simplistic view of experience and cognition is justly characterized by Lowe as 'functionalism plus qualia' (Lowe, 1995, p. 270). Blindly following the illusion and the functionalist-plus-qualia credo we are called to build 'explanatory bridges' (bridging functionalist-land with the elusive-experiential-land) and bring in 'extra-ingredients' to solve the problems. Since many forms of residual functionalism are (unfortunately) still at the core of mainstream cognitive science, it is not surprising to observe that many find the division between 'easy' and 'hard' problems of consciousness appealing, and that several issues of this journal are enthusiastically dedicated to the discussion of what is believed to be THE 'hard' problem of consciousness.

The view of *cognition* described in the keynote paper is restricted and leads to serious misunderstandings: to explain cognition is not just specifying a *mechanism* that can perform the *function*. Many domains in cognition — such as the understanding of common sense, everyday cognition, and sense of humour — are hardly approachable by simply specifying mechanisms that perform the function. In these domains, the functionalist-plus-qualia approach to cognition has failed to provide satisfactory explanations precisely because the *experience*, as a *constitutive part of the phenomenon* — not as an 'accompanying' factor — has been ignored (Dreyfus, 1979; Winograd & Flores, 1986; Edelman, 1992; Varela *et al.*, 1991). When seen from a functionalist-plus-qualia point of view then, experience in general — in any domain of mental activity — will be seen as a hard problem. This must be very clear: the problem with the so-called 'hard' problem is not that it asks the question of why there is experience at all (which is a very interesting question indeed). The problem is that it is an ill-defined issue based on a mistaken dichotomy that regards experience — although taken as fundamental — as merely 'accompanying' cognition, and not as intrinsic to it.

II: Difficulties Are Relative

If we don't carve up our subject matter into *a priori* theoretically-defined 'easy' and 'hard' problems, we don't need, as Chalmers (1995) proposes, an 'explanatory bridge' to cross the 'explanatory gap' between *functions* and *experience* (p. 203). What we need is a whole new territory in which to explore experience as a constituent — and it is worth repeating it — not as an 'accompanying' factor. We don't need an 'extra ingredient' in the explanation (p. 207). We need a new view, with new tools and new methodologies. But, we still have an open question: what makes the problem of conscious experience — this intimate, personal, vivid, and direct phenomenon in which we all have been immersed throughout our lives — apparently so *difficult*?

In order to proceed, we have to step back and keep in mind three important things:

- 1) That ‘difficult’ is a relative term. Problems are not difficult *per se*. They appear to be difficult for certain people (or communities of people) at certain moments, in certain contexts. For a regular western adult, for example, eating soup is not ‘difficult’ *per se*. It can be difficult if he or she uses chopsticks, most likely less difficult if the person uses a fork, and may even seem very simple if he or she uses a spoon.
- 2) That the tools used to address problems are not adequate or inadequate *per se*. Their adequacy is related, among other things, to the task for which they are used. Chopsticks may be adequate for eating *sushi*, but inadequate for eating soup.
- 3) That the manner in which we ask questions, as well as the language we use to make sense of them, shapes the answers we propose and the difficulties we encounter. Modes of questioning define the task to be accomplished — i.e. what is to be eaten: soup, *sushi* or something else.

The moral then is that it is imperative to analyse what is the realm in which the ‘difficult’ problem of conscious experience is raised, and what are the tools used to approach such a problem. This ‘difficult’ problem emerged in the tradition of the western scientific and philosophical study of the mind (to which belong the Tucson conferences on consciousness, and the forum created by this very *Journal of Consciousness Studies*). It is in that context that it has to be understood, along with all the underlying implicit assumptions and dogmas that may exist. We need to analyse what tools mainstream science and philosophy of mind are using to address the problem of conscious experience, which make it difficult for them. With a deeper insight into that question we can then try to answer the question of how we are to approach conscious experience.

I believe that much of the existing confusion about questions regarding conscious experience is unwittingly entrapped in the conceptual frameworks of the cultural traditions, so to speak, from which they emerged. Current science and philosophy of mind have been approaching the problem of conscious experience with inadequate tools: *we have been trying to eat soup with chopsticks*. We have been trying to understand this phenomenon with inappropriate conceptual frameworks and dogmas that, unfortunately, we have inherited, and that have dogged the foundations of philosophy and science for centuries. These dogmas concern, among other things, a conception of an objective reality independent of human understanding; a view of epistemology as subordinated to ontology; a restricted view of the objectivism–subjectivism dichotomy; the exclusion of the body from the study of the mind; and the overwhelming tendency to explain the mind in terms of the neurophysiological processes of individual brains. In short, in order to make problems such as conscious experience less difficult, a fundamentally different view — free of these long-lasting dogmas — is needed.

III: On Difficulties and Inadequate Tools: Dogmas and Implicit Assumptions in Mainstream Science and Philosophy of Mind

Since the early years of the scientific study of behaviour, the study of the mind has been shaped in many ways by the practices of the hard sciences. Methodologies, neologisms, metaphors and conceptual frameworks were adopted and codified in various fields as the study of the mind evolved. This process carried with it embedded dogmas and implicit assumptions that now inform much of the ongoing discourse in the study of the mind and consciousness. Unfortunately, some of these dogmas — which were fundamental in the conceptualization of the periodic table in chemistry, of the set of elementary particles in physics, and of the genetic code of DNA in molecular biology — can be inadequate for the study of the mind and consciousness.

Dogma 1. *The existence of an objective reality that is independent of human understanding*

Perhaps nothing is more commonsensical than to think that objects around us have properties that exist independently of us and of our understanding of them. Our folk understanding of the world goes in line with the idea that no matter what any person happens to think, there is *a way* the world really is. This is at the origin of a whole variety of human beliefs and practices, including moral systems and religions. We tend to take for granted that there is one correct *God's-eye view* of how the world really is.

For centuries, this view has impregnated the very roots of our western culture, and has permeated the foundations of science and philosophy as well. This view has a long history and rests upon a long-lasting ‘unquestionable’ dogma in philosophy which says that by means of a branch called metaphysics it is possible to deal with the first principles of ultimate reality. In the fields of cognitive science and philosophy of mind this view has been referred to as objectivism (Johnson, 1987; Lakoff, 1987; Edelman, 1992; Varela *et al.*, 1991).⁴ According to it, ‘there is a rational structure to reality, independent of the beliefs of any particular people, and correct reason mirrors this rational structure’ (Johnson, 1987, p. x). Because this view has enabled tremendous progress in areas such as physics and chemistry, its influence has, unnoticed, been reinforced in both the scientific domain and in our folk understanding of the world. As a result, there has seemed to be no reason to question this view. Moreover, any attempt has seemed counterintuitive.

From this perspective it makes sense to talk about a world composed of discrete, pre-given, pre-distinguished, well-defined objects that pre-exist our understanding. It makes sense then to talk about ‘brute facts of nature’, or of ‘intrinsic features of the world’ (Searle, 1992; 1995). According to this view, expressions such as ‘mountain’ or ‘molecule’, for instance, name features of the world that are intrinsic to nature, that is, they exist independently of our minds: mountains and molecules are mind-independent. This perspective seems to fit extremely well with the necessity for objective knowledge in science. If things exist independently of our observation and understanding, they constitute objective facts and we can study them objectively.

⁴ In a previous article I have called this view ‘ontological objectivism’ to distinguish it from other forms of objectivism (Núñez, 1995).

It is well-known that the objectivistic view has been challenged by philosophers of solipsistic orientation for a long time. More recently — in this century — it has been challenged by philosophers of phenomenological orientation as well, such as Merleau-Ponty (1945) and Heidegger (1962). But in the last decade it has also been questioned by scholars within the domain of cognitive science and modern philosophy of mind. Recent knowledge about the mind gathered in a variety of disciplines — from linguistics to anthropology, and from neuroscience to psychology — is providing substantial material that can hardly be interpreted from an objectivist view (Johnson, 1987; Lakoff, 1987; Varela *et al.*, 1991; Edelman, 1992; Thompson *et al.*, 1992; Thelen & Smith, 1994; Núñez, 1995). As the philosopher Hilary Putnam puts it:

the problem with the ‘objectivist’ picture of the world . . . the deep systemic root of the disease, I want to suggest, lies in the notion of an ‘intrinsic’ property, a property something has ‘in itself,’ apart from any contribution made by language or the mind (Putnam, 1987, p. 8).

Problems with this view start when the subject matter of our scientific inquiry switches from movements of planets or falling objects, to the understanding of our own minds, including conscious experience. The legacy of our scientific and philosophical tradition pushes us to treat conscious experience either as if it was an entity which exists objectively and that is tractable in reductive terms, or as a process that has a mind-independent qualitative content. This is what some authors have in mind when they suggest that experience (‘accompanying’ cognition), like mass in physics, should be taken as a fundamental feature of the world (Chalmers, 1995). In such a case we tend to think that what is needed is to identify the objectively *a priori* definable mind-independent components of conscious experience. But where the study of the mind is concerned, the God’s-eye view becomes untenable and objectivism fails (Johnson, 1987; Núñez, 1995; Varela, 1979; 1996). To study conscious experience we must count on something other than the existence of objective reality independent of our understanding.

Dogma 2. *The subordination of epistemology to ontology*

As an extension of the preceding dogma, it is assumed in the mainstream philosophical tradition that, by means of a discipline called ontology, it is possible to study the essence of being; to study the basic characteristics of all reality and how things and objects are in themselves. According to this view, epistemology is nothing but the discipline which studies the origin, nature and limits of knowledge about this preexisting Real World. Whereas ontology answers the question, ‘What is it?’ epistemology answers the question, ‘How do we find out about it?’ It is widely accepted — and taken for granted — that the whole point of epistemology (especially in the study of the mind) is to get at the preexisting ontology. In these terms, no epistemic considerations can address metaphysical issues. Consequently, this has an impact on modern cognitive science: cognition has been seen as a mental process by which knowledge of preexisting objects in the Real World is acquired. Cognition has been about mental *re*-presentations, manipulations of *symbols* and *information-processing*, where the objects that are *re*-presented, the symbols that stand for them, and the information that they provide, are all believed to be mind-independent.

When the subject matter of human questioning was about falling objects and molecules, it made sense to talk about a clear distinction between ontology and epistemology. But, when the subject matter becomes the understanding of our own conscious experience, we need to see the relation between ontology and epistemology in a new way because whatever we say about our minds (including what ontology is) is possible because of the very processes we are trying to explain. This time the God's-eye view of nature, believed to transcend all human limitation, is no longer adequate. Now the cognition of the cognizing scientist and the mind of the philosopher of mind, become part of the picture. This recursive structure forces us to reconsider the traditional view that sees epistemology subordinated to ontology (Núñez, 1995), thereby freeing us to approach conscious experience in a more fruitful and healthy manner.

Dogma 3. *The restricted view of the objectivism–subjectivism dichotomy*

Directly in line with the two previous points is the belief that when talking about the mind we are forced to choose between an objective mode of speaking and a subjective one. In general, these modes are conceived as orthogonal. While the latter is about individual, private, personal feelings, sensations and thoughts, the former is about phenomena that are believed to be approachable and describable in terms of concepts and laws that are mind-independent (i.e. free of personal interpretations by the observer). The truth of the phenomenal experience is believed to be validated by the experiencer him/herself. The truth of objective knowledge, on the contrary, is believed to be validated by facts that transcend our existence. In the study of the mind in the present century this dilemma has been shaped in a concrete manner through extrospective and introspective methodologies.

Traditional science, because of its nature and goals, has tried to gather knowledge making a clear distinction between the studied-object and the studying-subject. In the past centuries, those disciplines that have kept this distinction clearly defined have proved to be the most successful, and their paradigms have been considered real models of how we human beings are supposed to gather knowledge and make sense of the world in which we are immersed. And this is so irrespective of what the subject matter is: falling objects, chemical reactions or conscious experience. It is not surprising then, that the ideal models of knowledge-gathering in our western society are those that follow — in so far as the distinction between studied-object/studying-subject is concerned — the study of planetary movements, falling objects or chemical reactions. However, when one tries to extend this ideal mode of knowledge-gathering dictated by classic science to address other subject matters such as the mind, the task of maintaining this distinction is much harder. Although different attempts have been proposed to overcome these difficulties, the status and credibility of the knowledge gathered by disciplines that have failed to follow the model of classic science (or have chosen to include too many subjective elements in its methodology) have been questioned. In the study of the mind, certain approaches have even re-defined their subject matter and methodologies in order to keep the studied-object/studying-subject distinction as clear as in classic physics, paying the price of leaving out relevant phenomena. Such is the case of behaviourism and functionalism. Although they facilitate the 'objective' study of *behaviour* of organisms and the performance of *functions* by living organisms or artificial devices respectively, they pay the price

of leaving out the phenomenal experience. This is precisely what happens with the illusion of defining ‘easy’ and ‘hard’ problems of consciousness — claiming the solutions require fundamentally different explanatory proposals (Lowe, 1995; Dennett, 1996).

The moral here is that goals, methodologies, definitions of subject matters, and credibility have all been shaped by, and have in turn reinforced, a distorting dichotomy between objectivism and subjectivism. We seem to be forced to choose between:

- 1) doing ‘serious’ science by keeping a clear distinction between object–subject — paying the price of treating important though ‘messy’ contents as merely ‘accompanying’ factors (or sometimes of leaving them out altogether) — and,
- 2) doing ‘weak’ studies by actually considering these elusive elements as essential constituents but paying the price of not doing ‘serious’ knowledge-gathering.

We have thus inherited a dogma which traps us in a choice between an objective and a subjective approach. When it comes to talk about conscious experience this issue is particularly delicate because experience being by definition personal (therefore subjective) presents unique difficulties for the traditional scientific approach. In the scientific study of the mind, this restricted view of the objectivist/subjectivist dichotomy is then particularly problematic. But as we shall see, there are more choices than this.

Dogma 4. *The exclusion of the body from the study of the mind*

In line with what is entailed in the preceding dogmas is the fact that in the study of the mind, the body has been totally excluded. There are deep historical and cultural elements rooted in the *disembodied* way in which we approach and understand ourselves. Many religions, for instance, see aspects related to the mind as being independent of the body. This can be seen in the folk beliefs that individuals have some kind of entity (spirit or soul) which shares characteristics of the mind (such as, personality, desires, consciousness and preferences) and which exists even after death. Mind-related features are thus seen as somehow independent of the body in which they were realized when the organism was alive. Modern science, being a sociocultural activity immersed in these cultural traditions, is not free of the influence of this fundamental view.

In the scientific and philosophical study of the mind, the tendency has been to see the mind as independent of the body. But, what is worse, the traditional approaches — derived from the heritage of objectivism — ignore the body altogether. These approaches consider the body as a source of subjective elements (or noise) considered to be distractive and irrelevant to the objective nature of meaning and thinking. ‘The body has been ignored because reason has been thought to be abstract and transcendent, that is, not tied to any of the bodily aspects of human understanding’ (Johnson, 1987, p. xiv). The body, and the very fleshly experiences we all go through in our everyday life, have been excluded from the study of the mind because they are thought of as playing no role in our reasoning about abstract subject matters, active sense-making and understanding of the medium in which we live.

Also in line with functionalist approaches to the study of the mind is the implicit idea that the body is not relevant. According to functionalism, what is relevant to explain, say, a cognitive phenomenon, is to specify a *mechanism* that can perform the cognitive *function*. Ultimately, the physical realization in which this mechanism is

specified doesn't matter. Whether the mechanism is realized in a Turing machine, sophisticated parallel-processing computer, or the body of a mammal doesn't matter. The living body is irrelevant. Living phenomena — the very biological processes through which life and bodies are realized — are simply not relevant because what matters is the *functional* dimension. In the current study of the mind, this framework is heavily stressed not only in the most influential form nowadays — computer functionalism — but also in other forms of residual functionalism that underlie alternative approaches to the study of conscious experience. What is common to all of them is that the living body is not taken as an essential grounding for experience.

This implicit dogma can be easily seen in Chalmers' keynote paper on the 'hard' problem. Let's take, for instance, what he says about the 'principle of organizational invariance' that states that 'any two systems with the same fine-grained *functional organization* will have qualitatively identical experiences' (Chalmers, 1995, p. 214; emphasis original). He explains this saying that 'if the causal patterns of neural organization were duplicated in silicon, for example, with a silicon chip for every neuron and the same patterns of interaction, then the same experiences would arise' (p. 214). He adds, 'according to this principle, what matters for the emergence of experience is not the specific physical makeup of a system, but the abstract pattern of causal interaction between its components' (p. 214). Thus, from this view, the way in which a living neuron is *embodied* as a result of millennia of evolution is irrelevant, since its functions are easily replaceable by a human-designed static inorganic silicon chip. *Embodiment* here does not matter. *Functions* and *abstract* mechanisms do. Thus the thought experiments Chalmers proposes to defend his arguments are contaminated with this dogma from the very beginning. *Disembodiment* resides at the very core of the implicit assumptions.

The traditional views of the study of the mind — committed to objectivism and functionalism — have had an extraordinary influence, especially in the study of cognition. As a consequence, mainstream cognitive science is impregnated with objectivist and functionalist ideas that ignore the body as an *essential* element *inseparable* from the phenomena to be studied. This has important negative consequences for the study of conscious experience, because the living body is a source of experiences, and the history of our experiences defines what the body does and literally shapes how the body is. Ignoring the experience of the living body in the study of conscious experience is not a simple matter of harmless simplifying assumptions. It is throwing away the very subject matter, and that is flatly a mistaken move. In order to overcome the difficulties we now face in the study of conscious experience, we absolutely need to consider the body and bodily experiences in our account. Fortunately, critiques of this long-lasting dogma have already been proposed by scholars within the realm of the study of the mind (Merleau-Ponty, 1945; Dreyfus, 1979; Winograd & Flores, 1986; Johnson, 1987; Lakoff, 1987; Edelman, 1992; Varela *et al.*, 1991; Csordas, 1994a; Freeman, 1995; Thelen, 1995). We need to take inspiration from their work and bring the body back.

Dogma 5. *The obsession with the self-contained individual: isolated brains*

The controversial millennia-old mind-body problem has elicited a variety of solutions. Today, in modern terminology, they are characterized and grouped into a vast

collection of views labelled with *-isms* of all kinds: dualism, monism, idealism, materialism, behaviourism, physicalism, reductionism, functionalism, and so on. There are also more subtle divisions with first and last names based on more technical distinctions, such as substance dualism, computer functionalism, biological naturalism, philosophical behaviourism or eliminative materialism. What it is worth noticing is that, despite the enormous heterogeneity of these views, almost all of them implicitly assume that the appropriate unit of analysis to address the mind–body problem is the individual: the body and the mind of one individual as an isolated self-contained entity. Even those approaches that considered also a ‘soul’ in the equation, deal with the soul of this one self-contained individual.

Psychology, philosophy of mind and cognitive science have all been heavily influenced by the dogma of the self-contained individual, from Freud’s psychoanalysis to classic behaviourism, from Piaget’s genetic epistemology to modern cognitive science. Nowadays, with the advancements in biology, this tendency has been reinforced by the development of new technologies in the study of the brain, such as magnetic resonance imaging (MRI) and positron emission tomography (PET) scanning. As a result we have today a cult of individual self-contained brains. What matters is THE brain.

With the exception of a very few dualists, no scholar today would deny the role of biology in the mind–body problem. No one would try to approach the mind and consciousness without attempting to be coherent with the advancements made in the study of the nervous system. Regardless of the approach, the works of a whole variety of scientists and philosophers, from Crick’s *Astonishing Hypothesis* (1994) to Dennett’s *Consciousness Explained* (1991), from Searle’s ‘biological naturalism’ (1992) to Edelman’s ‘neural Darwinism’ (1992); from Churchland’s *Neurophilosophy* (1986) to Penrose’s ‘quantum-coherent events in the brain’ (1995), they all take the study of the nervous system very seriously. They all, in one way or another, are concerned with questions such as how mental phenomena are produced by the elements of the neuroanatomy — neurons, synapses, synaptic clefts, receptors, mitochondria, glial cells, neurotransmitters, and so on. They all try to understand how neurophysiology accounts for the rich range of our mental phenomena, from desires to pains, from orgasms to smells, from thoughts to anxieties. Nevertheless, these questions exclude almost by definition the issue of the interactive nature of biological processes *beyond the level of the individual*, and the role they play as genuine constituent parts (and therefore irreducible) of mental phenomena. None of these questions address issues such as how mental phenomena are realized through the interactive biological processes of communities of organisms. In general, the work of these scholars deals only with single, isolated agents having mental processes independently, and being realized in independent brains. Interactions between subjects’ mental phenomena appear to be reducible to these more basic individual ones. These interactive processes are not seen as constituent and indissoluble parts of the biological nature of mental phenomena, rather they are seen as a consequence of them.

This tendency can be clearly seen in Hofstadter’s ant colony metaphor for the brain (Hofstadter, 1979). In order to discuss the holistic and collective phenomena that occur in brain activity, he sets up this metaphor in which individual ants in an ant colony are like neurons in the brain. He focuses on collective phenomena, ‘particu-

larly on the idea that some information or knowledge or ideas can exist at the level of collective activities while being totally absent at the lowest level' (Hofstadter, 1983, p. 277). He imagines teams of ants cooperating on tasks and information passing from team to team that no individual ant is aware of. And on he goes with his argument.

But why, in what concerns human mental phenomena, does the analogy stop at the level of the individual brain? Why do mental phenomena, being living phenomena, have to be analysed at the level of single nervous systems only? Why, when consciousness, language, or other high level cognitive processes are concerned, can't the metaphor be about ant colonies and interactive biological human bodies/brains evolving in a shopping mall, or on Wall Street, or in a highland village in the Andes? Why can't there be a metaphor where individual ants are individual human beings? Unfortunately, in our western tradition we have an obsession with individuality, which is reinforced day by day through our social security numbers, dates of birth, and passport numbers. Individuals are seen as discrete and self-contained, and so are their brains, their mental activity and therefore their conscious experience. As we shall see, this brings enormous difficulties when dealing with the subjective/objective dichotomy and the mind-body problem.

In summary, because of these dogmas, we have enormous difficulties in addressing the problem of conscious experience. With these tools, paradigms and questions, the problem of conscious experience becomes a very difficult one indeed. But the problem is not difficult *per se*. It is difficult when we look at it from the traditional perspective, with all these dogmas and implicit assumptions. I suggest that we try other tools, change perspective and make the problems of consciousness easier (which will define other dogmas, hopefully less harmful). This is the main purpose of the next section.

IV: Ecological Naturalism: An Approach to Conscious Experience

Having identified some of the underlying dogmas and implicit assumptions in the philosophical and scientific tradition that make the study of conscious experience difficult, we can now address the question of how we are to approach conscious experience.

Basic assumptions

The first step is to characterize some basic assumptions that will constrain our approach. I am going to endorse a variation of three assumptions described by Edelman (1992) in his work on consciousness. These are: the physics assumption, the evolutionary assumption, and the qualia⁵ assumption. The first one refers to the fact that our explanatory proposal of conscious experience must be coherent with the knowledge we have about physics. Following this assumption we leave no room for spirits, ghosts or any other disembodied 'beings'. The evolutionary assumption refers to the fact that modes of conscious experience emerged as a phenotypic feature at a certain moment in the evolution of species. This implies that the manifestation of

⁵ By 'qualia' Edelman refers to 'the collection of personal or subjective experiences, feelings, and sensations that *accompany* awareness' (Edelman, 1992, p. 114; italics added). It is my understanding that subjective experience doesn't merely 'accompany' awareness, rather is *inherent* to it. For this reason I have chosen to use the term 'inherent-qualia'.

conscious experience either conferred evolutionary fitness directly on individuals having it, or provided a basis for other traits that enhanced fitness. Conscious experience then is not an epiphenomenon: it is efficacious. Finally, the inherent-qualia assumption refers to the fact that our account of conscious experience must consider the enacted personal subjective experiences and feelings as *inherent* to awareness.

Endorsing these assumptions — in particular the second one — implies that we consider conscious experience as a living phenomenon. At first glance this idea doesn't seem to propose anything new, as today almost any scholar would agree that conscious experience is somehow related to biological processes. However, because I intend to propose a new view free of the dogmas described earlier, the idea that 'conscious experience *is* a living phenomenon' has a particular connotation. Let us see why.

Avoiding the classic dogmas

Adopting a view free of the dogmas mentioned above has certain consequences. For instance, if we want to remain committed to the idea that conscious experience is a living phenomenon while rejecting the dogma about the existence of objective reality (dogma 1), we need: first, to find somehow the stability lost with the abrupt disappearance of objective reality, and secondly, to avoid diving into the obscure and diffuse ocean of subjectivism. How can this be accomplished? Well, it is at this point that the abandonment of the other dogmas makes a crucial difference. By adopting a view in which mental processes are conceived as being realized through the living process of communities of bodies/brains (rejecting dogma 4), rather than isolated individuals (rejecting dogma 5), we open a space for a different understanding of what ontology and epistemology are (rejecting dogma 2), and of the relation between 'objective' and 'subjective' (rejecting dogma 3). Here communities of bodies/brains — in their co-existence and mutual specification — shape themselves in such a way that their bodily grounded experiences co-define a space of commonalties: the ground for inter-subjectivity. In turn, this process makes possible the realization — in individuals — of the very experiences which are brought forth by the body/brain in the process of making sense of the medium in which it exists. In such a view, the very interactive nature of biological phenomena — from microscopic levels to macroscopic supra-individual ones — are considered as essential and irreducible constituents of mental phenomena, experience, and sense making. So, the project now is to look for a biological account of intersubjectivity.

Supra-individual biological (SIB) processes as ground for intersubjectivity: speech-accent-like phenomena

In order to approach conscious experience in a more adequate manner, we need to leave the single self-contained individual paradigm (dogma 5), while keeping our commitment to the idea that conscious experience belongs to the realm of the living. This means that we must approach conscious experience referring also to *supra-individual biological processes* (hereafter called SIB processes)⁶ that are *inherent* to

⁶ The idea of 'supra-individual biology' is used rather than 'biosocial' in order to avoid the misunderstanding of conceiving the *social* component of mental phenomena as belonging to a separate non-living (biological) realm. Here the stress is put on the interactive bioecological nature of living phenomena that take place beyond the level of individual organisms. Culture thus is a genuine living (biological/ecological) phenomenon.

mental phenomena and therefore are irreducible to one individual's biology (i.e. irreducible to individual and isolated brain states).

It is important to be clear about what I mean by SIB processes and avoid any possible misunderstanding of the term 'supra-individual'. By *supra-individual biology* I don't mean 'supra-organism', or 'pan-organism', or 'meta-organism', or anything like that. A SIB process is not the 'collective conscious' or a 'Gaia-like' entity. SIB processes don't imply panpsychism either. By *supra-individual biological processes* I mean those processes relative to life that occur at a level beyond the autonomous beings one is studying (in the case of conscious experience, this usually means individual human beings). The processes intervening in the spread of a cholera epidemic are an example of SIB processes: the phenomenon is manifested in individuals (those who actually get sick are individuals) but it is realized through biological processes that take place beyond the sick individual (i.e. the network of biological processes that make the epidemics possible). There are no meta-organisms, no supra-organisms, no panpsychism.

Let me further illustrate what I mean by SIB processes with another very simple example: speech accents. Notice that I refer to accents — that is, simply modes of 'noise-making' — rather than language itself, to avoid complicating the example by such elements as semantics, speech acts, utterances, and so forth. Although a brain is necessary for a particular speech accent to occur, as an isolated organ it does not determine it. Accents are modes of 'producing noises' during speech whose distinction is made by an observer making reference to collective phenomena (at supra-individual levels). Nonetheless, a speech accent is still a living phenomenon, as it is realized in the ontogeny of some living beings. Accents — although manifested in individuals — have to do with biological processes that are realized at levels that go beyond the individuals, and that explain why speech accents are neither randomly distributed among populations nor are they genetically determined. In fact the phono-audiological apparatus, supralaryngeal vocal tract, and nervous system of individuals in a community, are shaped during their ontogeny through recurrent interactions with other nervous systems and other organisms — other 'noisy' bodies in this community. These biological processes then take place beyond the level of the individual (SIB processes) and are essential in the determination of the manifestation of a particular accent.

From this analogy we can learn four things:

- 1) That in order to understand certain living phenomena like speech accents, studying only isolated brains is not enough. What is also needed is to study how bodies and nervous systems through their mutually triggered influences are continuously shaped during the ontogeny of the individual in which the phenomenon is consistently manifested in a stable manner (i.e. the actual accent). It is through recurrent interactions with other bodies/brains and other organisms that bodies, brains and nervous systems are co-defined, and mutually specified.
- 2) That a supra-individual biological phenomenon doesn't necessarily entail the configuration of a higher order meta-organism or entity that manifests the phenomenon. It is not a society, or a culture, or any form of meta-individual that actually manifests a certain speech accent.

- 3) That when studying certain phenomena, it is misleading to refer to an objective reality. In this example, there is no ultimate objective *Real Accent*, and no *God's-accent*. Accordingly, a question such as what (ultimately) it *is* like to have *the* conscious experience of, say, greenness does not make sense (I will return to this later).
- 4) That often we are not aware of the processes through which certain phenomena are manifested in ourselves, or even of their actual manifestation! We are neither aware of the processes through which our accents are shaped, nor that we actually have an accent. We simply speak, and go through our lives embodying modes of noise-making during speech. But this doesn't mean that these processes are irrelevant to explaining the manifestation and emergence of the phenomena being studied (i.e. speech accents).

Here I make the claim that the physics, the evolutionary aspects and inherent-qualia involved in conscious experience — like speech accents — although being manifested in an individual/personal manner, are realized through SIB processes that are irreducible to one individual's biology. As accents are 'modes of enacting consistent noises in a relatively stable manner', experiences are modes of enacting consistent *phenomenal* worlds in relatively stable manner. Like accents, conscious and unconscious states are not on/off states that one has whose correlates are to be found in one's brain. These modes — whether they are about enacting consistent noises or worlds of inherent-qualia — are manifested in individuals but are realized and shaped historically through SIB processes, whose correlates, if any, are to be observed in communities of bodies/brains.

Having this in mind, we can now describe more precisely the view in which we are interested. We want a view that emphasizes the non-separation and mutual specification of minds and the medium in which they evolve, their co-definition, and the supra-individual biological nature of the processes through which these minds are realized (SIB processes). Such a view gives room for the study of intersubjective experience and considers both the advancements in modern cognitive neuroscience and the structure of human experience itself (Varela, 1996). If I am asked to give a name to it I would call it *ecological naturalism*⁷. This view suggests the following:

- 1) *Neurophysiological processes in the nervous system are necessary for mental phenomena to occur.*
- 2) *Mental phenomena are realized through a history of recurrent co-ontogenetic interactions between individuals.*
- 3) *Mental phenomena are themselves features of the network of processes that take place through recurrent interactions between co-defined individuals and their medium.*

And, as a kind of corollary, proposes that

Mental events and processes are as much a part of our biological natural history as those concerning speech accents, epidemic diseases, digestion or mitosis.

⁷ This term, and its characterization, resulted from an analysis I made of John Searle's 'biological naturalism' (Searle, 1992), published in a previous article in this journal (Núñez, 1995). Ecological naturalism endorses several claims defended by biological naturalism, but the fundamental difference is that the former does not endorse objectivism, and considers the SIB processes to be essential.

V: Outline of a Theoretical Framework Compatible with Ecological Naturalism

The task now is to describe a theoretical framework compatible with an ecological naturalistic view and that is in line with the role played by the SIB processes in the understanding of conscious experience. In order to do this, I shall refer to the work done by some scholars who have criticized the objectivistic tradition in the study of the mind from a biological perspective. In particular I shall refer to the work by Maturana and Varela (Maturana, 1978; Maturana and Varela, 1980; 1987; Varela, 1979; 1989), starting with some considerations about the nervous system.

Nervous systems and structural coupling

According to Maturana, the nervous system emerges in the phylogenetic history of living beings in the form of a network of interacting neurons which works in terms of internal correlations and patterns of coherence: ‘with respect to its dynamics of states, the nervous system is a closed system’ (Maturana, 1978, p. 41; see also, Maturana, 1995). The organization of the nervous system, at the level of the ontogeny of the individual, is defined by ongoing historical processes, such as natural selection of groups of neurons based on developmental and experiential selection, and by dense reentrant interrelations between larger specialized group of neurons (Edelman, 1992). Thus evolution, at the level of the species, at the level of the individual, and at a neuronal level, plays a central role in the emergence of our minds. This emphasizes the idea that brains are in a state of permanent dynamism, down to subsynaptic levels; always existing in an ongoing unfolding process.

The organization of the nervous system is such that, if there are changes in the state of the relative activity of a group of neurons, they produce changes in the relative activity of the same group or other groups of neurons. Accordingly, perturbations that affect the system trigger changes of state in the nervous system, *but it is the structure of the perturbed nervous system which specifies what configurations of the medium can perturb it* (Maturana and Varela, 1987). From this perspective, an explanatory proposal of mental phenomena should be focused on the fact that the network can be perturbed by structural changes in the network itself and not — as the traditional (and still dominant) view in cognitive science suggests — on how incoming ‘information’ containing data from the ‘real’ external world might determine new states in the system.

The idea of ‘information’ supposes that a certain feature of the external real world is *pre-distinguished* independently of any observer, such that it is meaningful and identifiable by itself. However, the distinctions in terms of information made by an external observer are, from the point of view of the system, arbitrary, because the attribution of causality is made in terms of what is meaningful for the observer. This consideration is essential, for it means that the perturbations don’t determine what happens in the nervous system (as the notion of impinging information stresses), but rather they only trigger changes of state. Therefore, the nervous system does not process information picked from an external environment. Rather, while interacting in its medium it is the structural state of the nervous system that specifies what perturbations are feasible and what changes trigger them. Hence, the nervous system *does not* operate in terms of instructional processes. To claim that the idea of

information-processing is essential to the study of the mind and consciousness has unfortunate consequences. As Lowe puts it, ‘it is the reductive, and wholly inadequate, *information-processing* conception of human cognition which is responsible for the misperception that ‘consciousness’ (in the form of ‘qualia’ and the like) occupies what threatens to be a merely epiphenomenal role as a peculiar additional feature of human mentation that is in no way essential to our basic intellectual capacities’ (Lowe, 1995, p. 270).

So far, this point of view could be considered a solipsistic one, for couldn’t the nervous systems of each of us lead us to experience totally independent views of the medium in which we exist? How, then, do we all distinguish the regularities the world seems to have? How do tennis players interact in a game, hitting the same ball successively? How do we all distinguish the shapes of the letters in this text? How do we all see the ‘mountain’ mentioned with dogma 1? Here we ought to move to the next step.

Organism and medium, through recurrent interaction, are co-defined — mutually specified. But the sources of perturbation for an organism in the medium include other (similar or different) organisms as well, such that recurrent interactions between the organisms also co-define them. As a result of these recurrent interactions between the mutually perturbed organisms there is *structural coupling* of the organisms, that is, a history of mutual congruent structural changes (Maturana and Varela, 1987; Maturana, 1995). To an observer, this process, specified through such ontogenetic recurrent interactions, appears as a sequence of interrelated patterns of conduct, as a set of coordinated actions. This biological phenomenon occurs at cellular levels, meta-cellular levels, and at higher levels that go beyond the level of individuals as well (supra-individual ones).

An example of coupling at a supra-individual level is what an ethologist would describe as courting behaviour: at a particular place and time a male and a female of a particular species interact in an interwoven process of mutually triggered congruent structural changes, that are seen as coherent patterns of conduct by the observer. In social insects, like ants or bees, much of their structural coupling takes place through the interchange of chemical substances, such that their cohesion of social unity depends on this. The lineage of the hominids, in particular our species *Homo Sapiens* has developed an extremely dense and sophisticated nervous system, such that this outstanding complexity sustains one of the most peculiar and sophisticated forms of structural coupling: human language. Cohesion and social unity in our case is largely based on a constant linguistic flow between individuals, that is, a linguistic domain constituted as a domain of ontogenetic coordinations of actions.

Language, experience and supra-individual embodiment

According to this view, language *is* a biological phenomenon — a non-denotative (*a priori*) system of coordination of actions. In the ongoing process of SIB interactions, language emerges when the operations in a linguistic domain result in coordinations of coordinations of actions about actions that belong to this domain (Maturana and Varela, 1987). This non-denotative system emerges in the interaction between individuals during their individual histories, in recurrently making distinctions of events and regularities in the medium, and in learning them in an interactive manner through

a space of commonalties sustained by bodily grounded experiences.⁸ This progressively leads to the formation of relations between semantics and phonology.

Thus, the expression ‘mountain’ or ‘experience of greenness’, for instance, coordinates actions with respect to the actions we realize when we deal with what *a posteriori* we call a ‘mountain’ or an ‘experience of greenness’ respectively. Accordingly, this does not correspond to a description of how the concept of ‘mountain’ emerges in our language as a result of the interactions with the ‘real’ mountain which is supposed to be out there in the external world. Neither does it describe how an ‘experience of greenness’ corresponds to the ultimate essence of greenness. These are distinctions made *a posteriori* in a certain language that has already emerged by these very SIB processes (e.g. the distinction of ‘mountain’ and the ‘experience of greenness’ that I’m using at this very moment). Rather, ‘mountain’ and the ‘experience of greenness’ are enacted by an organism as a result of the ongoing coupling with the medium (which includes other individuals); as a result of recurrent interwoven co-individual biological processes in which it is involved along with other organisms, that are realized in its biological structure and through its ongoing interrelation with the medium. The process of enacting ‘mountains’ or ‘experiences of greenness’ is a result of an operation in a domain of congruent co-ontogenetic *structural coupling* with the medium and other organisms (individuals), and not as a result of the interrelations with a pre-existing mountain in the real world, or with the ultimate essence of the experience of greenness.

Perhaps this seems bizarre, elusive, or counterintuitive because our common sense tells us that even if our great-great-great-grand-parents are all dead, objects in the world still exist independently of them, out there in the real world. In our everyday experience we find that the ‘mountain’, for instance, is still there even though our ancestors are dead. Under the traditional dogmas, this leads to the temptation to believe that the same case would occur were we all to die now (or if we had never existed on earth). But this carries a deep misunderstanding. In fact, there is an extremely important difference between these two cases. In the case of the ‘presence’ of the mountain despite our ancestors’ death, cohesion and social unity have been maintained through SIB processes for many generations — being realized in the ontogenies of individuals through generations long after our ancestors’ death. So the distinctions we make now about objects and what we say about them (which are distinctions that emerged in this process) are possible regardless of the fact that now they are all dead. This is what occurs when geology — which is a body of knowledge that has emerged through a process of intergenerational social cohesion — tells us stories about mountains and rocks that ‘existed’ before we inhabited the planet (more about this later). But if we all die now, the situation is very different, precisely because the SIB cohesion necessary to keep alive the distinction ‘mountain’ collapses so that there is no longer any ‘mountain’ (and had humans never existed, such a distinction simply would never have emerged.)

What leads us to have the impression that there is an objective reality independent of our existence is the impressive stability of the space of commonalties we experience in our every day life (space that emerges through our co-ontogenetic structural

⁸ It is worth noting that all these phenomena related with language at a supra-individual level can be studied empirically with techniques such as those used in ethnomethodology and cognitive linguistics.

coupling with the medium): from chromatic and gravity experiences to pain and hunger. But, as soon as the space of commonalities shrinks, we refer to the distinctions we make in this domain as things that are not objective and are contested. Such is the case of religion, racism, issues about abortion, and conscious experiences.

In summary, the theoretical framework described here leads to an understanding of nervous systems, bodies, and SIB processes that allows us to give an account of mental phenomena without endorsing any of the dogmas mentioned at the beginning. This theoretical framework is neither subjectivist nor objectivist, neither solipsistic nor representationist. It is not objectivist or representationist because it does not separate mind and medium and as a consequence it does not assume the existence of objects independently of organisms and minds (dogma 1). And it is not subjectivist or solipsistic because it does consider organisms and minds as co-defined in their media, endorsing thus a co-ontogenetic and ecological view of mental phenomena. Meaning and sensemaking then are not arbitrary since they are constrained by structural coupling. Therefore this theoretical framework defines a different view of the objectivist/subjectivist dichotomy (dogma 3) and of the relation between ontology and epistemology (dogma 2). Moreover, because of the important role played by phylogeny and ontogeny in the process of causing mental phenomena through structural coupling of the organisms and their medium, mental phenomena are considered as much part of our biological natural history as those concerning epidemics, digestion, or mitosis. Because of what structural coupling suggests, one simply *cannot* ignore the very bodies in which such a process is realized (dogma 4). The flesh in which experiences are realized is not a mere physical implementation or a simple instantiation in a physical system, but *instead* is *inherent* in the experience. Finally, these bodies are not isolated. In order to truly follow the commitments to the idea that mental events and conscious experience are a fundamental part of our biological natural history, this framework does not focus exclusively on an individual paradigm (dogma 5), rather it does it on a broader biological scope that encompasses supra-individual processes. This view respects the essential idea of mutually specified interacting organisms immersed in an ecological medium, which is realized in an ongoing dynamic evolutionary process in the direction suggested by the idea of structural coupling.

VI: Ecological Naturalism's Entailments: Re-framing Well-known Questions

What is it to ask 'What is it like to be a bat?' ?

Very often it is suggested that in order to study the problem of the subjective aspects of conscious experience it is relevant to address a question of the form 'what is it like to be something'. In its modern form, this tendency finds its origins in the now classic paper by Thomas Nagel entitled 'What is it like to be a bat?' (Nagel, 1974). In that paper Nagel states, '... the fact that an organism has conscious experience *at all* means, basically, that there is something it is like to *be* that organism' (p. 436). This view, which has become a reference (some even talk of organisms having 'nagelian properties') fits nicely with functionalism, and together they produce quite misleading views. Thus Chalmers in his keynote paper refers to this question when he addresses his 'hard' problem and the subjective aspect (experience) which, according to him, 'goes along' with information-processing. He follows Nagel by saying that there is 'something that it is like' to be a conscious organism, and speaks in a similar

way about bodily sensations and mental states. What unites conscious states — such as pains and orgasms, the felt quality of emotion and the experience of a stream of conscious thought — is, he says, that there is something it is like to be in them (Chalmers, 1995, p. 201). But what does this mean? Or better, what can we learn from this kind of questioning?

The question addressed by Nagel is certainly relevant. He wants to know what it is like for a *bat* to be a bat, and not merely what it would be like for us to behave as a bat behaves: ‘. . . fundamentally an organism has conscious mental states if and only if there is something that it is like to *be* that organism — something it is like *for* the organism’ (Nagel, 1974, p. 436). This distinction — between the organism (bat) and the *question-asker* (us) — is fundamental. However, the way this question is asked presupposes the endorsement of several of the dogmas described in section III that leads to the belief, as Nagel says, that ‘consciousness is what makes the mind–body problem really intractable’ (p. 435). If one endorses these dogmas, and in particular those which have direct relation with the belief that there are mind-independent *facts* and concepts such as the ultimate essence of what it is to-be-a-bat-for-a-bat (dogmas 1, 2 and 3), one faces major difficulties in answering the question in ultimate terms. This is indeed Nagel’s case (as it is the case of many scholars in the field). He endorses precisely these dogmas: ‘My realism about the subjective domain in all its forms implies a belief in the existence of facts beyond the reach of human concepts’ (p. 441). The fact that he believes in mind-independent disembodied concepts is even more clearly seen when he says: ‘after all, there would have been transfinite numbers even if everyone had been wiped out by the Black Death before Cantor discovered them’ (p. 441).⁹ Nagel’s view of these mathematical concepts are a perfect example of what George Lakoff and I have called mind-free mathematics (Lakoff & Núñez, in press). From this mind-free understanding, conscious experience is inevitably seen as a very difficult problem, or in Nagel’s case, simply intractable. My suggestion, at this point, is to study this relevant question free of these dogmas, from an ecological naturalistic viewpoint.

Earlier we saw that the distinctions we bring forth *about* the world (e.g. ‘mountain’ or ‘experience of greenness’) are — under the traditional dogmas — conceived as being independent of one’s existence. This says that the *aboutness* of what is called ‘intentionality’ refers to real, objective mind-independent contents. This is what makes it possible to think that there is *a* way that conscious experiences *are*. As an extension, we tend to believe that the question of what it is like, *for* a bat (first-person matter) to be a bat, is potentially ‘answerable’ in ultimate terms (third-person matter) — although perhaps not by humans — by an implicit potential omniscient transcendental being. It is here that we sense the troubles which lead us to experience the difficulties of the problem. But the question is so appealing that we still keep wanting to know ‘what is it like to be a bat, or a human being’. However, according to ecological naturalism the distinctions — that are necessary to ask the question, think about and answer it — are dependent on the living condition of the observers and experiencers who ask the question through active and ongoing sense-making and elaboration of meaning. The very question is mind-dependent, so the allegedly

⁹ Notice the use of the word ‘discovered’, as opposed to conceived, invented, built or constructed. For a more complete discussion of cognitive aspects underlying the concept of infinity from a non-platonist and non-objectivist perspective see Núñez (1993) and Lakoff & Núñez (in press).

ultimate answer is, so to speak, the empty set. It is like trying to find the ultimate solution to the equation ' $x^2 + 1 = 0$ ' in the realm of real numbers. If we adopt the dogma that all numbers *are* real numbers, then the ultimate solution seems intractable (not defined). What is needed here is a new view, a new (and richer) understanding of the concept of number (i.e. complex numbers). So if we reject the previous dogma, then not only is the problem not *intractable*, but also we may generate amazingly rich contributions to the study of that kind of equation (e.g. complex analysis). The same applies to our understanding of conscious experience.

Much of the confusion and the difficulties around these issues emerge when we ignore the fact that we merely happen to conceive the distinctions necessary to formulate the question *as if* they were independent of our existence. Remarkably, our neurophysiological structure and SIB interactive nature permit us through bodily and linguistic experiences to make distinctions of a very peculiar nature: features conceived *as if* they were independent of our existence. As a result we can extend our operations in language to a range of distinctions in which we believe that we don't play any role at all. Thus, in addressing events such as the extinction of the dinosaurs, marine life or the origin of the continents (this is precisely the case of geology mentioned earlier), we are able to do so in our meaningful terms extended from our own bodily grounded experiences, without even noticing it (Lakoff & Johnson, 1980). As a consequence, we believe all these distinctions are mind-independent. But notice, *all* the distinctions we make are relative to us. All the *aboutness* is relative to us and is organized in conceptual systems relative to the realization in our biological structure and social cohesion. Accordingly, even the very question of 'what is it for a bat to be a bat' is a human question that only arises in human experience, understanding and discourse. Nagel is right when he says that, 'It is difficult to understand what could be meant by the *objective* character of an experience, apart from the particular point of view from which its subject apprehends it' (Nagel, 1974, p. 443). And he asks: 'After all, what would be left of what it was like to be a bat if one removed the viewpoint of the bat?' (p. 443). But the fundamental problem here is that it is not a question of 'points of view'. It is a question of active embodied sense-making, which includes the very question one is asking. And as far as we understand, bats don't make sense of their world by asking those questions

From an ecological naturalistic view then, it does not make sense to answer the question of 'what is it like to be a bat' — in terms of what that experience would *really be* — as if the answer could actually be right or wrong, or as if there were 'facts' that do not consist in truth of propositions expressible in human language (conceived as an *a priori* denotative system).¹⁰ One has to remember that the *what-is-it-like-to-be-something* question exists in structurally coupled human language. That is, it exists in a highly developed non-denotative system of coordinations of coordinations of actions that takes place between complex hominids, that evolved through structural coupling for millennia. It is in this structurally coupled coordination that bodily sensations, experiences, inherent-qualia, self-distinctions and stories

¹⁰ By studying how such a question has come to existence in human discourse, however, we can learn a lot more about our conscious and unconscious understanding of conscious experience. For instance we could try to understand what SIB processes and bodily grounded experiences make such coordinations of actions possible: Why do we think of conscious experience unwittingly ignoring that the issue is a human one, with no transcendental heuristic validity? Why do we assume that there is a kind of essence of batness that is independent of our understanding? Etc.

about inherent-qualia, have evolved recurrently. Like wine-tasting, the human adventure is the manifestation of coordinations of actions realized through the recurrent emergence of inherent-qualia and increasingly rich and sophisticated distinctions that are brought forth through language. The question of *what-is-it-like-to-be-something* has value in the realm of human sensemaking, but not as a heuristic tool to gain insight into conscious experience.

Where are inherent-qualia and the self?

I claim that inherent-qualia, and all subjective experiences — like speech accents — although manifested in individuals (as a ‘first-person matter’) are shaped historically through structural coupling. Because of the extraordinary role that language plays as a sophisticated mode of structural coupling in the human mode of living that we *Homo Sapiens* manifest, individuals’ inherent-qualia are co-defined and mutually specified — through SIB processes — with the stories we tell about inherent-qualia. In an ongoing process, inherent-qualia are expressed, shared, and shaped consciously and unconsciously through a linguistic flow in a truly inter-subjective space. This flow takes the form of stories the experiencer tells in human language, where while coordinating the very actions of distinctions we make, our inherent-qualia are in turn shaped by the process. But, because — as with speech accents — we are in general unaware of the SIB processes through which coordination of actions and meaning are realized, we don’t think that we — by (biologically) co-existing with more people — bring forth and sustain modes of experiencing (as we don’t think that by speaking, and bringing forth a speech accent, we are actually sustaining the SIB processes necessary to keep a speech accent alive). As a consequence, in our everyday or folk understanding, we don’t see what is biologically supra-individual, and we have the impression that our experiences are *completely* personal. And we are led to think that experiences actually *have* a content, that they are ‘about’ things that are not sustained by any intersubjective space (e.g. colours, smells, shapes).

Inherent-qualia, then, although they are personal — manifested and observed in individuals — are realized through SIB processes. For example, what we call (as a distinction) the experience of greenness, coordinates actions with respect to the actions we realize when we deal with what *a posteriori* we name ‘greenness’ (as I am doing in this article). But notice, that these coordinations of actions will show very different patterns depending on whether the group of organisms (individuals) that brings them forth has developed in a polluted suburban community in New Jersey or in the tropical rain forests of the Amazon Basin. Accordingly one is not surprised to learn that indigenous people living in the rain forests bring forth in their everyday life a richer variety of chromatic and linguistic distinctions falling in English under the term ‘greenness’, than people in cities or deserts. Again, like speech accents these different ways that inherent-qualia are embodied are neither arbitrary, nor randomly distributed among populations nor are they genetically determined. They are realized through SIB processes.

And what can we say about the self? That the distinction ‘self-distinction’ (Maturana, 1995) is an orientational process that constitutes the basis of self-consciousness. This self-distinction is experienced by individuals and is grounded in embodiment. As the anthropologist Csordas puts it in his view of embodiment and cultural phenomenology,

self is neither substance nor entity, but an indeterminate capacity to engage or become oriented in the world . . . In this sense self occurs as a conjunction of prereflective bodily experience, culturally constituted world or milieu, and situational specificity or habitus. Self processes are orientational processes in which aspects of the world are thematized, with the result that the self is objectified, most often as a ‘person’ with a cultural identity or set of identities (Csordas, 1994b, p. 5).

I claim that the very fundamental self-distinction — this orientational process — so peculiar to humans and necessary for experiencing the private sentiment of being an independent bounded entity in the world, is, like speech accents, shaped historically through SIB processes. This suggests that there is no ultimate objective essence of human self-conscious experience. Thus the experience of self as manifested in individuals — and *intrinsically* co-defined with personal inherent-qualia — will have a qualitatively different flavour if the individual in which it is manifested is a slave in ancient Egypt, a young woman in Victorian London, or an old male in West Africa. Because brains, bodies, and nervous systems exist in communities, dancing together and shaping each other in mutually congruent interactions, experiences of self manifested in individuals have echoes of melodies and rhythms of that co-ontogenetic historically shaped dance. Once again, like speech accents, these different experiences of self are neither randomly distributed among populations nor are they genetically determined; nevertheless one can look for patterns relative to the historically co-defined SIB processes of the communities of brains and bodies involved.

Can we study conscious experience scientifically?

The moral of all this is that we don’t have to quit the scientific and philosophical arena to approach conscious experience. We have to formulate questions differently, however, and look for new tools. The view proposed here gives a new connotation to what is normally understood as the old problem of the ‘first- and third-person matter’. First-person matters are indeed manifested in individuals, but are shaped historically and co-defined through SIB processes with others’ first-person matters in the community of bodies/brains. First-person matters are not *genuinely* first-person, in the same way that one’s speech accent is not genuinely one’s *own* personal creativity. Thus through third-person matters (such as scientific activity) we can try to make sense of the distinctions made at collective levels about first-person matters. In fact, in our everyday experience that is what we do when we assume that there are inherent-qualia in other human beings’ experience. This is not surprising because our inherent-qualia have been shaped historically through SIB processes in co-definition with precisely the individuals in whom we assume inherent-qualia exists. As scientists or philosophers we have no reason not to assume the same. So in the realm of science or philosophy of mind we can define a community of human beings (bodies/brains and the mode of living they define in the interaction) as the canonical referent for the study of intersubjective distinctions made concerning conscious experience, and we can define the individuals as the organisms in which conscious experience is manifested. Since an individual’s conscious experience is co-defined in communities of individuals, patterns of coherence observed in language, actions, body and brain structures, and the SIB processes that shaped them, can all be correlated. As Varela points out in his ‘neurophenomenological’ programme (Varela, 1996), our success will depend on our ability to seriously develop appropriate

methodologies to approach phenomenal experience, and to report and correlate these aspects. It will depend also on our capacity for broadening our understanding of the living phenomenon, and in particular on our ability to develop more powerful tools to study precisely those SIB processes responsible for the distinctions we make in our experiences that make conscious experience possible. Unfortunately, because in the study of the mind the individual-brain paradigm has reigned for such a long time, we have not yet developed techniques to study the biology of what is intersubjective and supra-individual in nature.

From the point of view presented throughout this article, science as a human enterprise acquires a different meaning. Science is no longer about searching for ‘the’ ultimate truth (or the increasingly close approximation to it). It is rather a highly sophisticated mind-dependent mode of sensemaking, bodily grounded and structurally coupled, that we value as a mode of knowledge gathering. It is based on inherent-qualia and stories we recurrently tell to each other about them, and it is shaped through what is valued in the process of sense-making: replicability, coherence, reliability, logic, beauty, validity, parsimony, rigour, and so on. In this respect, science is little different from any other human activity. So addressing questions such as whether we will or will not one day explain consciousness ‘entirely’, or whether the difficulty of the problem lies ‘beyond’ the reach of science, doesn’t make sense from this perspective. Answers to our questions don’t lie out of the reach of our own understanding and discourse, beyond the reach of scientific inquiry in a disembodied metaphysical realm. Answers and explanatory proposals are stories that make sense at a certain moment in a community of people (or scientists and philosophers). If they are accepted they constitute explanations, at least for the time at which they are accepted as such. We need not, then, worry about the question of whether explanations of conscious experience lie out of our reach. What has happened so far is that in the scientific and philosophical community we have not accepted yet — in a more or less consensual way — an answer, an explanatory proposal of conscious experience that makes sense in our system of knowledge that we name science and philosophy. I believe that if we try to make sense of conscious experience without endorsing the dogmas mentioned earlier in section III, it will be easier to make sense of this elusive phenomenon. But for that we need to stop *eating soup with chopsticks*.

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