

## Qualia from the Point of View of Language

Luca Berta

*Venice, Italy*

What is the difference between the discriminations made by a home appliance able to distinguish salt from sugar, and my sensations of salty and sweet? It is never taken into consideration that, in contrast to the appliance, I can have offline sensations, i.e., phenomenal experiences in the absence of direct environmental stimuli, mainly evoked by words occurring into thought, conversation, reading, etc. If we put this detachment stimuli/sensations in relation with the correlative detachment signs/referents inaugurated by the cognitive revolution of symbolic language (the fact that we use signs in the absence of their referents), we might rethink the role played by language in our phenomenal experience as a whole. Qualia can be defined as forms of relationship between organisms and environment, given that human environment is extended to the linguistic dimension, and that the latter has ignited a coevolutionary process with human cognition. The very same properties we attribute to qualia, even when conceiving of them as pre-linguistic phenomenal traits, rely on the cognitive resources that language has made available. The substantialist notion of qualia, I argue, is formed by an online sensation on which the focus shifts from the perceived object to the sensory quality by virtue of linguistic modes of thinking, which are systematically neglected.

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### *Home Appliances, White Bears, and Proto-zombies*

Imagine you have two glasses full of water. In the first one you have put a spoonful of salt, in the second one a spoonful of sugar. Since you don't know how to tell the difference between the two glasses, you use your new home appliance "Salt/Sugar," a sort of electronic taster. The taster dips its probe into glass 1, and the display says "SALT." Then into glass 2, and the display says "SUGAR." But this is the first time you have used your appliance, so you sip the first glass (it's salted), then immediately spit out, sip the second glass (it's sweet). The operation

of telling the difference between the two glasses is the same and leads to the same result, but when *you* are telling the difference, is there something *more* compared to what the appliance does? The difference between the analysis carried out by the electronic taster and your experience of the salted/sweet sip looks like an extra ingredient, which is called “X factor” in the jargon of the philosophy of mind. It is the qualitative aspect of experiences, what you subjectively feel in having them: the phenomenal dimension of the so-called *qualia*.<sup>1</sup>

Both in the case of the electronic taster and in the case of the human subject we can provide physical explanations to show how the presence of molecules of sodium chloride (rather than sugar chains) acts on the detectors (the sensor of the probe, taste buds on the tongue). We can look at the details of the chemical analysis performed by the electronic taster, and likewise we can follow the impulses going from the tongue to the central nervous system, being processed by dedicated areas of the brain thus generating a complex dynamic neural pattern. Nevertheless, those explanations seem to leave aside *qualia*, the phenomenal properties of experience. What is there in this physical explanation that should make me say that my sensation of saltiness is causally correct? Couldn't it be different? Could it just not be at all? In order to set the equation “brain state = phenomenal state,” you have the feeling (so to say) that something is missing. This lack is known as the “explanatory gap” (Levine, 1983). The difficulty in reducing *qualia* to phenomena consistent with physical descriptions has raised a huge debate between bearers of very different visions. Some draw dualist conclusions, arguing that *qualia* are non-physical entities. Some assume the correctness of the equation, but admit that we cannot demonstrate it, or even claim that the demonstration lies beyond the reach of human understanding. Others think that *qualia* simply do not exist, and deduce that the problem is only apparent, stemming from logical and linguistic fallacies which prevent us from fully conceiving the identity between physical and phenomenal states.<sup>2</sup>

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<sup>1</sup>I am not quite sure that *qualia* actually exist in the form that philosophical discussions conceive of them. Of course they do exist as a subject of philosophical discussions. My opinion, as I will try to sketch out toward the conclusion of the paper, is that their being a subject of discussion heavily affects their entire ontological status. It is not just an extra ingredient. Therefore, I will use the term “*qualia*” throughout the paper without implying at any level that they are objects beyond our way of conceiving of them.

<sup>2</sup>Among the thinkers who support the non-reductive thesis, claiming that *qualia* are not reducible to physical states, it is worth mentioning Frank Jackson and David Chalmers. They have presented two famous thought experiments, Mary the colour scientist (Chalmers, 2005; Jackson, 1982) and the philosophical zombie (Chalmers, 1996), which strongly challenge the physicalist view. Levine (1983) and McGinn (1989), instead, cast a serious doubt on the very possibility that we can ever achieve a final response to the question of the identity between physical and mental phenomena. Finally, some thinkers, like Daniel Dennett (1988), simply reject the notion of *qualia*, arguing that philosophers and scientists often use this term to refer to a bunch of intrinsic and non-relational properties of the experience, which are actually devoid of any possible content (for an extensive survey, see Dennett, 2005).

Let me introduce here a question, which will turn out to be useful later on. If you focus on the distinction between the salted and the sweet sip, can you *feel* the difference, or is it only a judgment on a propositional level? This is a crucial point: my idea is that the issue about qualia has to do with *this*.

To get to the point we need a white bear. In a famous psychological experiment, the origin of which goes back to a game played by Dostoevsky and his brother, Daniel Wegner asked subjects to avoid thinking of a white bear for five minutes, while they were engaged in reporting their free stream of thoughts (Wegner, 2009). Each time the thought of the white bear should emerge in their mind, they had to ring a bell. The difficulty in suppressing the white bear thought triggered a sort of snowball effect, as the effort to suppress reinforced the occurrence of the white bear, who loomed everywhere. Wegner has analyzed the mechanisms of suppression, obsession, and mental control, describing the ironical processes which lead us to talk about what we should avoid, perhaps because of the conflict between brain areas respectively processing what we are supposed to and not supposed to say or think. But my interest focuses much earlier, on the connection between the verbal assignment "Do not think of a white bear," and the fact that a white bear shows up somehow under the so-called mind's eye, with the shape and the color of a white bear.<sup>3</sup> Though there were no white bears in the room of the experiment, the thought of the white bear would become so pervading it would reappear insuppressibly.

We are now getting closer to the point. My aim is to examine the difference — if there is one — between our experience and the appliance's. The electronic taster analyses the two watery solutions and gives two codes in answer: 0/1 (on the display we see "SALT"/"SUGAR"). The human tasting system comes into contact with two substances, and for the sake of simplicity I assume that it generates two distinct and recognizable neural patterns, pattern SA/pattern SU (salt/sugar), the features of which have been shaped by evolution in order to guarantee adaptive advantages to the organism when relating to the environment. The ability to detect the presence of salt among other substances, feeling its taste in a certain way (salty), might have guided more efficiently the individual when foraging for essential nourishment. Pattern SA and pattern SU are the experiences of the salted and the sweet — the physicalists are right. But how do we connect pattern SA on the one hand, and the phenomenal sensation of salty taste on the other? — asks the "qualist," who supports the existence of qualia. The easiest answer is that there is nothing to connect, because the sensation of salty taste does not exist anywhere, i.e., it does not exist as a separate thing from pattern SA. The objection from the qualist is that you might be able

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<sup>3</sup>There is no evidence that the thought emerged with these features during the experiment; maybe the subjects only saw the string "white bear" dancing in their mind, and rang the bell. Later on I will present some evidence taken from experimental circumstances analogous to these.

to demonstrate a correlation between pattern SA and the sensation (they always appear together), but not a causal link (it is not proven that pattern SA causally determines salty sensations). Above all, the answer is unsatisfactory on an intuitive level, since the sensation of salty taste seems very different, distinct from pattern SA (the qualist insists: "How are patterns SA/SU different from O/I? Are we equivalent to a home appliance?"). Indeed this separation between sensation and neural state looks compelling (it is one of the pillars of our natural tendency to dualism); therefore it is essential to understand why.

Let's use a little mental experiment to test whether a completely different impression might be possible, an intuitive impression of consciousness without any gap between neural state and sensation. I will call it the proto-zombie experiment. Imagine an individual, not a classical philosophical zombie, but rather a proto-zombie provided with phenomenal consciousness. His phenomenal experience, though, is arranged in a different way from ours: when he sees a green object, his pattern G activates, and something happens which is strictly analogous to our sensation of green. He sees a leaf, and his experience could be translated into this propositional content: "There is a green leaf." So the proto-zombie sees the green of the leaf, and feels something in seeing it — the X factor of greenness. The difference is that the experience of green, into his proto-zombic consciousness, is imperatively tied to the perception of something green. If in the surroundings there are no leaves or other objects reflecting light so as to trigger pattern G in his brain, there is no way that green can emerge in his consciousness. He can neither have a dream of green, nor a hallucination of green. He cannot even think of something green, or of greenness itself. I guess the proto-zombie would be very good at Wegner's experiment: since there are no white bears in the room (nor pictures of white bears), there is no chance that the "white bear quale" (shape, color, softness of the fur, scary roar) will show up in his mind.<sup>4</sup>

My question is: Would the proto-zombie ever raise the question of qualia? Would he ask how to connect the subjective sensation of green on the one hand, with the brain state activated by perceptual encounters, on the other? I think the answer is no, because the proto-zombie would never have the chance to figure out the gap between the two phenomena, which are all the same to him: the experience of seeing something green. The discrimination between the two aspects depends on a specific modality of mental functioning (which I am going to describe in the next paragraph) not available to him. So is becoming a proto-zombie, or at least adopting the proto-zombie's position, enough to solve the mystery of qualia, fill the explanatory gap and answer the "hard problem"

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<sup>4</sup>Maybe the problem is that the proto-zombie couldn't undergo the experiment at all, as he would be unable to understand the assignment. My idea, which will be developed further on, is that a kind of phenomenal experience as his is not compatible with the use of symbolic language.

(Chalmers, 1995) of consciousness studies? I do not think so, but the case of proto-zombies is useful to understand which cognitive traits are involved in determining the distance between our state and theirs. (I cannot rule out the hypothesis that somewhere, in the multifarious universe of animals, there is a being whose way of experiencing is similar to the proto-zombie's.) And the reference to those cognitive traits might favor a necessary rethinking of the problem.

### *The Strange Case of Offline Qualia*

We tend to think that the discrimination carried out by the appliance and that performed by the human are different in terms of experience. Provided that this general difference is elusive and resists analysis, I suggest we consider a more specific difference. It is not certain that this difference can explain the X factor, but its consequences are so far reaching (both in the way we experience and in the way we think about our experience), that neglecting it would be inconsiderate. I am talking of this: when the electronic machine detects the salted solution, it enters the state "0" and signals "SALT" on the display. When the human being sips the salted water, she enters the state "pattern SA" and expresses it by a frown on the face or by the utterance "It's salted." So far the situations seem quite similar. But there is something out of the reach of the machine that a human can do — or rather cannot help but do, sometimes. The appliance enters the state "0" if and only if its sensor gets in contact with sodium chloride molecules. On the contrary, I can experience salty taste even though there are no sodium chloride molecules on my tongue. I can feel the salty taste even in the absence of salt, I only need to imagine myself drinking some salted water (could you feel it when I asked you so, a few paragraphs above?). Unlike the appliance that only works when dipping the probe (and unlike the proto-zombie, who is apparently provided with proto-qualia tied to the co-occurrence of perceptual inputs), human beings are subject to qualitative experiences detached from environmental stimuli. Our phenomenal experience takes place not only online, while looking at the blue sky, listening to the rain, touching a hot teapot, smelling rancid milk, or feeling pressure in the bladder. It also occurs offline. In many ways: during dreams and hallucinations, for instance, or in some mixed cases when the stimulus is not directly in contact with our perception, but is mediated by the expression of another individual. I do not smell the rancid milk, but I see someone smelling something hidden in a mug and expressing intense disgust on her face.<sup>5</sup> There is also another way, fully detached by the environmental context, in which qualia can arise in our conscious experience: the linguistic way. Here we are, back to the white bear. A quale can arise in my mind

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<sup>5</sup>That happens thanks to the mirror neuron system, as exhaustively explained by Rizzolatti and Sinigaglia (2008) in their book.

as it is linguistically evoked by my interlocutor, or as I evoke it in my train of linguistic thought.

I say “green,” and see green with the so-called mind’s eye (although I am in a dark room). I propose that this extraordinary phenomenon is the symptom of a powerful work of functional reconfiguration that symbolic language has carried out on the preexisting cognitive resources. In any case, such a macroscopic and distinctive trait of our conscious experience cannot be left aside if we are to shed some light on the nature of phenomenal states and the explanatory gap. In the first place, studying offline phenomenal experience can help clarify the mechanisms of phenomenal experience in general. In the second place, offline experience itself plays a key role in shaping the concepts through which we think of the phenomenal dimension of experience (starting from the notion of qualia: we can conceive of qualia’s existence thanks to the capacity to feel offline sensations, but when defining them we’d rather restrict the concept uniquely to the online cases).

Is there any evidence that what happens in my brain when I am told “imagine you drink some salted water” or “imagine you see a green patch” is the same as what happens when I actually drink some salted water or see a green patch? Do the same neural activations (those we have named pattern SA and pattern G) occur? Does our brain work in the same way when processing some stimuli as when processing language utterances which refer to those very stimuli, though in their absence? The problem has never been experimentally tackled on a systematic level. Nevertheless many signs indicate that this general hypothesis of functioning is not groundless. Recent theories such as “embodied cognition” or “sensorimotor theory,” for instance, claim that the concept of X and the perceptual instantiation of X share, on the brain level, a non arbitrary relationship, based on the use of common neural resources (maybe conceptual thinking exploits resources already shaped by evolution for sensorimotor purposes as suggested in Fogassi and Ferrari, 2007, and Gallese, 2008). Phenomena consistent with this hypothesis have been detected during the execution of several cognitive tasks; observing a small letter and then a big one activates the same cortical areas involved when imagining a small letter and then a big one (Kosslyn, 1995). Or when we process the meaning of action verbs referring to the hand, the foot, or the mouth (for instance grasping/kicking/licking), motor and premotor areas respectively dedicated to each part of the body are activated (Hauk, Johnsrude, and Pulvermüller, 2004; Tettamanti et al., 2005). During the understanding through language of situations emotionally marked, when I am told that one of my loved ones is getting an electric shock, in my brain a pain matrix emerges, which largely overlaps (in variable degree) with the pain matrix emerging when I directly see her getting the shock, or when I myself get it (Singer et al., 2004). The perceptual domain makes no exception. As far as it seems, reading the word “cinnamon” triggers the brain areas dedicated to olfaction

(González et al., 2006). And the neural substrates related to color perception (seeing yellow) significantly overlap with those generated by the processing of color words ("yellow") (Simmons et al., 2007).

Therefore it seems possible to claim that (a) direct environmental stimuli (originating from external or internal context, i.e., inner organs), and (b) linguistic stimuli connected to them via semantics, determine in our brain homogeneous effects. Of course the qualist will say that this cannot prove that qualia are homogeneous too, provided that there is no reliable link between brain states and phenomenal states. However few deny, in their phenomenal accounts, that perceptual yellow and evoked yellow share a common subjective quality. Overlapping of brain states and overlapping of phenomenal accounts seem to provide a desirable starting point for my hypothesis. What I ask is to suspend the judgment in order to understand how far what we call qualia depend (ontologically? causally?) on the interaction between those two processing modalities.

Thus, if we are to explore the elusive difference between the machine's absence of qualia, and the profusion of qualia in my own experience, we had better start from a remarkable and verifiable difference: I can experience qualia even when I am not in contact with the environmental stimuli that "normally" trigger them. All of this thanks to language. Yet this enormous portion of phenomenal experience is systematically neglected or underrated when discussing the nature of qualia. It looks like a strategic exclusion of language, which is not considered relevant to the heart of the problem. An actual exclusion is being perpetrated, sometimes formulated in theoretical terms when qualia are restricted to online cases, that is, to the phenomenal dimension of perception as long as perception is in progress. As Hilbert (2010, p. 849) affirms in the entry "Qualia" of the *Encyclopedia of Perception*: "Qualia are these characteristic feelings that accompany perceiving. One motivation for the idea that we experience qualia is that there is a clear difference between seeing a red tomato and thinking that a tomato is red and that the difference has to do with some extra element present in the case of seeing that is absent in the case of thinking."

Michael Tye (1997–2007), in the *Stanford Encyclopedia of Philosophy*, adds emotional and sensorial experiences to those strictly perceptual, but chooses not to consider offline qualia and qualitative experiences related to linguistic thought, because their presence seems uncertain to him, and at any rate unessential to the practice of thought: "In any event, images and sensations of the above sorts are not always present in thought. They are not *essential* to thought."

But even when offline qualia are taken into account (for instance, in the debate on "phenomenal concepts"; cf. Papineau, 2002 and 2007) the interaction between qualia and language is not explicitly dealt with, as if offline qualia could be created from scratch and managed in thought without the intervention of language.

Talking about recognitional concepts, mental representations, retrieval of stored information, and imaginatively recreated experiences can easily generate the illusion of a thought functioning autonomously from language. As often is the case in the philosophical discourse, language is reduced to a kind of peel, an external crust which has no influence on the mechanism of pure thought, and serves at most to express some contents outbound. Some philosophers and scientists consider human thought in its amazing capacities and subtleties, but then they pretend as if language didn't play any role in making it function, they leave language aside expecting that all the rest will remain unchanged. Language is not like the icing on the top of the cake of thought. Rather, it is like the baking powder.

There are two philosophers, very different from each other in many aspects, who have firmly opposed this exclusion of language from the realm of sensations and conscious experiences. One of them is Dennett, who has sketched out a theory, the multiple drafts model (eventually refined in slightly different versions, as in Dennett, 2005), which puts language at the source of consciousness. According to this model, sensory inputs are processed in parallel by many different mental agencies, each one fixing independently a certain informative content. There is no centered locus of elaboration where contents are collected and become conscious, but rather there are scattered contents striving to take part in a self-organized narrative stream, which is what subjective experience is made of. Therefore Dennett denies that there are any mental objects prior to this content fixation. And at the moment of fixation, the content to be expressed, on one side, and the expression, on the other, try to reduce their distance in such a manner that content may modify the expression, but also vice versa: "In this way, the most accessible or available words and phrases could actually *change the content of the experience*" (1991, p. 247). Qualia are "disqualified"; they do not exist. A quale might be useful as a fictional character in our narrative account of inner experiences, "but what it turns out to be in the *real* world [. . .] is just a complex of dispositions" (1991, p. 389). Thus the color of a leaf, or the smoothness of silk, are not intrinsic features of our subjective experience, but rather the result of the interaction between some environmental traits, and some reactive dispositions promoted by evolution in an observer endowed with species-specific and individual characteristics. One of our main characteristics, as humans, is that we constantly tell others and ourselves stories about who we are and what we experience (1991, p. 418).

Basically, I agree with Dennett's view. But Dennett has mainly focused his attention on the bottom-up direction of environmental inputs seeking for an expression, and has not sufficiently stressed the importance of those cases where the expressions occur into the narrative stream without any correlative input, thus determining what I have called offline qualia. In fact, among the reactive dispositions that characterize the human species, there is the ability to fix the



content of a conscious experience (as the expression meets the content) and make it resonate in such a way that the expression becomes autonomous from the content itself. At that point not only can the expression affect the content, as Dennett says, but also it can generate the content even in the absence of any alternative inputs. I will try to explain what I mean by “resonate” in the second to last section, using some of Nicholas Humphrey’s theories to back up my claims.

But in the end, do qualia exist, or not? My answer is no, if they are conceived of as pure sensations or inner objects. But yes, they exist as apparently pure sensations and apparently inner objects, generated by the resonating effect that language sets on. We might call them fictional entities, if we prefer. But then we must admit that, if qualia are fictional, the whole conscious experience turns out to be fictional too, as soon as we want to seize its phenomenal thickness within our thought.

The second philosopher I wanted to mention is Wittgenstein. We know how firmly Wittgenstein opposed the exclusion of language from thought, and how he investigated private sensations (i.e., qualia) from the standpoint of the relationship with their supposedly exterior verbal expressions. The game of ostension, Wittgenstein claims, cannot account for what happens in our experience. As long as we think of sensations as inner objects, and of words as expressions referring to them, we find ourselves in the impossibility to explain those objects and their presence. We are unable to say how we can possibly reach them and point them out with our inner forefinger. We cannot even know for sure whether they actually exist. As in the famous example of the beetle (1953/2009, par. 293): if everybody has got a box with a beetle in it, but no one is allowed to look into anyone else’s box, it is possible to imagine that the thing in the box is different for each individual, or even that some boxes are empty, since the beetles would play no role in the referential game. As a result, the substantialist position about sensations leads to the paradoxical conclusion that inner objects might not exist. I do not think that Wittgenstein ever meant to deny that something takes place “inside” us. Rather, he wanted to show how far the idea of inner objects is metaphorical, intertwined with the way we use language, and that if we take it as an actual explanation of our psychological mechanisms, we are doomed to face a contradiction (1968/1993, p. 223). He suggested that we should rethink the whole issue, starting from the indissoluble correlation of sensation and expression in our experience. Our ability to name a particular sensation may depend on the presence of something inside us, but even before that, it depends on the preliminary fact that we are already familiar with the mechanism of naming, with the linguistic game that enables us to discriminate experiences. Again, we cannot just put qualia inside, and the language that expresses them outside. Wittgenstein wanted to think about the relationship in a different way. In his words, he wanted to understand why “I saw a particular color, concentrated on it and the word red came without tension” (1968/1993, p. 246). Conversely,

I would like to understand why, if I am told the word “red,” a sensation of red endowed with phenomenal thickness comes without tension. Those interferences between sensations and words are not contingent at all. They emerge systematically in our mental life, and shape the conceptual tools we use to refer to mental life itself. For all these reasons it is not a good idea to exclude them from the analysis. Following in Wittgenstein’s footsteps, my intention is to adopt the point of view of language — in a functional and evolutionary sense — to tackle the problem of qualia. I am confident that this approach might help explain how the problem itself arises. And might help formulate new hypotheses of solution.

### *Qualia After the Cognitive Revolution of Symbolic Language*

Let’s get back to the proto-zombie staring at a green leaf. What he feels during this experience, the sensation of seeing a green leaf, might be described as a form of relationship between organism and environment (the same is true, I assume, for my non-*proto-zombic* sensation). It is a relational event which takes place only partially in the *proto-zombie’s* head. He does not describe his experience in these terms, nor does he know the evolutionary mechanisms that have shaped this interaction between a leaf with specific characteristics of reflection and an organism endowed with a certain nervous system. Thus qualia, of course, are the least of his worries. In the first place since he lacks the mental tools to conceive of them. As I will try to show, if we grant him the use of symbolic language, his experience changes dramatically, so he is no longer a *proto-zombie*. In the second place, as to qualia, there is another point: the problem does not actually exist before the radical revolution in the modes of experience caused by the onset of language.

Let me outline in a very schematic way what I think has happened. It all started in some community of our ancestors, when a rudimental system of signs was used in a new, apparently improper way. To indexical use, which allows the use of signs in the presence of the object or event associated to it (I see a snake and shout “Snake!,” as *vervet monkeys* do so well), is added symbolic use (Deacon, 1998). Signs start being used in the absence of their referents, giving rise to what is called displaced reference (Cosmides and Tooby, 2000). Co-occurrence links between signs and states of things lose importance, favoring a different order of relationships among signs that fosters the development of syntax. Language makes its way in the human mind, triggering several cognitive adaptations. The matter is that the detachment sign/referent is followed by another, strictly intertwined: the detachment environmental stimulus/sensation. Indeed, the possibility of using the expression “green leaf” in the absence of a green leaf is able to generate an experience phenomenally overlapping with that of seeing a green leaf (later we will try to understand how), except for the

detail that there is no leaf to see. Of course, our ancestors, unlike the proto-zombie, must have had experiences of green in the absence of a green stimulus, like in dreams or hallucinations. But those were rhapsodic cases, whereas the occurrence of green sensations in conscious thought can be managed by language, which makes it a powerful cognitive tool to activate in accordance with processing and communication needs. Bodily sensations, formerly tied to environmental inputs, can be systematically exploited on a new level: they enhance the cognitive benefit of processing linguistic information. For example, when I hear of an experience, I can “test” some of its qualitative features, although nothing is actually going on. Symbolic thinking and understanding are not only a matter of manipulation of formal symbols, they can involve bodily sensations. Thus, I can achieve an embodied understanding of potential experience that only takes place in language. These sensations without direct stimulus occur in a systematic and functional way, connected to specific operational traits of symbolic language. Displaced reference, combined with linguistic recursion, has changed the laws of occurrence and use of sensations in human consciousness, giving rise to what I have called *post-symbolic corporeity*.<sup>6</sup>

So I have a sign (a word, an utterance) and a sensory-emotional event associated with it. I am told “green” and have a sensation of green, although the light is off. An explanation would be that this, as well, is a form of organism–environment relationship. Signs function without referents, and sensations without inputs from the physical environment: what triggers them directly are the signs. In fact, we can keep thinking this is a kind of organism–environment relationship, once we have accepted a wider notion of environment, which encompasses the symbolic system (the words of others, the words in my thoughts, in books, etc.). That is to say, we should accept that the habitat of human beings, as a consequence of the cognitive revolution just sketched out, is composed both of environmental and symbolic stimuli, and of the contextual interaction between them.<sup>7</sup>

On the contrary, my impression is that so far the importance of this revolution has been underrated, as we usually think (linguistically) of reality as if language was not a part of it. What follows is a hypothetical account of how we have created the separate domain of qualitative experience by using linguistic resources, though denying their centrality. Instead of putting in direct relation signs and sensations, we prefer looking for something to serve as a mediator. We consider the word as a contingent and “external” expression, referring to

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<sup>6</sup>Elsewhere, I (Berta, 2010) have tried to outline this revolution much more extensively, taking into consideration the coevolutionary aspects of brain/language, and defining the new cognitive organization of humans as “post-symbolic corporeity.”

<sup>7</sup>In this respect the inclusion of language into the ecological environment of humans has a repercussion, through selective pressures, on the human organism too, i.e., the other pole of the relationship. If we truly are genetically prearranged to host language in our mind, this must affect somehow our way of being in every organism–environment relationship.

an “internal” object X (a psychological object, in this case).<sup>8</sup> We fall into the natural temptation, deprecated by Wittgenstein (1958, p. 1), of trying to find a substance for a substantive: “a substantive makes us look for a thing that corresponds to it.” You cannot see any referent, but there is one: it is a mental, non-relational object, which corresponds to no material object (after all, green can pertain to a leaf, but also to an emerald, to a flag, or to a car — this object, conversely, is greenness beyond any specific perceptual relationship). Once we have found an internal correlate for the sign, which was previously wandering without referent, we use this very same object to fill in the gap of the other couple: stimulus/sensation. It is the presence of this object X, indeed, that provides the stimulus for the onset of the sensation. The word designates a thing in my mind, and this thing gives rise to the sensation.

Those internal, non-relational objects, similar to qualia in many aspects, stem from experiences available only for brains working on a recursive-symbolic regime. But once the contour of those supposed objects has been marked, the ladder of language might be thrown away. One of the problems is that the presence of these supposed objects causes relevant difficulties in what seemed to be easy. This is why we can no longer go back to the comfortable proto-zombie’s point of view, not even in those cases we share with him, as when we look at a green leaf and sense green. We deny this is a simple form of organism–environment relationship. In fact, since we cannot help noticing that the sensation of green also occurs in the absence of green objects (although some qualia experts don’t agree on this), then it must be something separate from the relationship involving the leaf, light, my eyes, and my brain. It must be something added to the sheer relationship. And since we are persuaded that those non-relational sensations depend on the presence of an object X in our head, we look for the object X even if the perception is online. I look at the green leaf, but I believe I must add the greenness to make the sensory experience complete. The form of organism–environment relationship, considered in its physical manifestation, is not enough — we must add a supplementary ingredient. This is why it is possible to declare, as Hilbert does, that qualia are “these characteristic feelings that accompany perceiving” (2010, p. 849). There is simple perceiving on the one hand, and qualia on the other, although the two things go together.<sup>9</sup>

Language allows us to conceive of this distinction, in two senses: because some features of its functioning suggest this hypothesis, and because it provides us with the conceptual tools to face this task. The double decoupling sign/referent–

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<sup>8</sup>The word itself, “expression,” comes from the Latin verb “*exprimo*,” which literally means “to squeeze out.”

<sup>9</sup>Later I will try to explain, using Nicholas Humphrey’s theories as a model, why I think that, after all, this sort of extra ingredient is a good description of what we actually do. But at that point it will be clear that my notion of qualia is radically different from Hilbert’s.

stimulus/sensation makes us conceive of the sensation as something autonomous, absolute with respect to actual occurrences. At the same time, it makes us conceive of a pure perceptual act, deprived of any sensory factor. At this point it comes natural to split up the relationship and allot the two phenomena on opposite, non-interconnecting sides: the perceptual act on the material side, explainable in compliance with physical laws (the pattern G activated by the stimulus into the brain), and the extra ingredient (all the different qualia) on the phenomenal, subjective side, irreducible to physical laws.

When I say that some features of language lead us to a substantialist and dualistic account of our modes of experience, I hint at the referential peculiarities of the terms in the domain of phenomenology. Normally the use of a sign in the absence of its referent does not generate the referent itself. If I say "land" while on a life raft in the middle of the ocean, the land is not going to appear magically. What happens has been described in many ways, as a series of psychological, social, and communicative effects connected to the use of the word (I will think about land, maybe about the first time that my father taught me to use the word in this sense during a sailboat trip, and perhaps other people on the life raft, realizing that there is no land, will push me into the sea out of frustration). But if I say "green," things seem to go in a different way. I will think about green, and among the psychological effects there can always be (it doesn't have to, but always *can*) the phenomenal experience of sensing green.<sup>10</sup> Obviously no green object is going to appear, but if we identify green with a non-relational phenomenal experience, then the use of the sign actually seems to generate its referent. I say "green" and there is green, it appears not somewhere outside but inside of my head, and, after all, green is nothing but this (the social and communicative aspects, indeed, are often ignored by the qualist). There we are, on the way to substantialism.

Papineau (2007) sharply defines this mechanism saying that phenomenal concepts, when referring to a given perceptual experience, use a version of that experience in order to *mention* that experience. That is to say, each time it is exercised, the phenomenal concept reproduces a version of the phenomenal state it refers to (the concept of green reproduces the experience of green); therefore states and concepts share the same phenomenology. Or, to put it in Chalmers's words, "some philosophers have suggested that phenomenal concepts

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<sup>10</sup>Of course not all the words, and not all the communications, elicit phenomenal states. Crane (2005), for instance, claims that you can have the phenomenal concept of a diminished seventh chord, without being able to have a correlative phenomenal experience. In any case, only the words that vividly capture conscious attention can generate a sensation (imagine a jagged knife, and then imagine you abruptly pass it over your tongue). On the other hand, it is worth reminding that not all perceptions arouse conscious phenomenal states — only those we focus our attention on (i.e., those we cannot manage automatically, those which entail the opacity of our conscious experience, as we will see).

are special because their referents — phenomenal states — serve as constituents of the concepts themselves” (2007, p. 172). This particularity would be the base of the “antipathetic fallacy,” through which Papineau (2007, p. 136) intends to explain the intuitive and persuasive (though only illusory) traits of the explanatory gap. Let’s pose an equation of the type *green* = *specific neural pattern G*, which embodies the belief of most materialist thinkers, who are sure that qualitative mental states are nothing but brain states.<sup>11</sup> Our spontaneous tendency to refuse this equation derives from the different functioning of the two concepts. The phenomenal concept *green*, as I said, uses the experience it refers to: so when we read the left hand of the equation, we have an experience of green. The non-phenomenal concept *specific neural pattern G*, on the contrary, does not reproduce any phenomenal experience when exercised: we read the right hand of the equation, and feel no sensation of green. Given this difference it is clear, one might say, that the two members of the equation are not coincident: *green* and *specific neural pattern G* are not the same thing. The materialist is wrong, the dualist right.

As Papineau highlights, this inference is as easy as it is incorrect. We have the impression that the material concept *specific neural pattern G* leaves something out because it triggers no sensation, but this does not imply that it fails in referring to the sensation itself. We must stay clear of the categorical confusion. The identity posed by the equation concerns the referents of “green” and “specific neural pattern G,” i.e., the occurrence of the experience called “green” and the occurrence of the experience called “specific neural pattern G,” not the concepts we use to indicate them. There is obviously a difference between the way the concept “green” and the concept “specific neural pattern G” work.<sup>12</sup> The use of “green” might entail the experience of green as an effect of its processing, activating into the brain what I, as a materialist, think the specific neural pattern

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<sup>11</sup>I say “most materialist thinkers,” because there are different positions among materialists themselves. Some of them would deny the opportunity of such an equation, since they tend to think that only one member of the equation actually exists: the neural pattern. They claim that qualitative terms are misleading, and ought to be banned from the scientific discourse. Therefore, according to eliminative materialists (Churchland, 1981), the equation should not be posed at all. The thinkers I am referring to are rather those who support the identity theory, which also has different versions. The so-called “type theory” asserts the equation “mental states = physical states” with a strong commitment about the causal relationship: my mental state is Q because the physical state of my brain belongs to the P type. On the contrary the “token identity” physicalism only assumes that a certain mental state X at the time t is causally related to a certain physical state Y, but does not engage in claiming that Y necessarily determines X. Chances are that in a different occasion, or in a different organism, X could correspond to a different physical state. This position, which takes into account the remarks made by Hilary Putnam to identity theory (Putnam, 1975, pp. 429–441), is also called non-reductive physicalism. For an overall survey, see Crane (2001).

<sup>12</sup>Unlike Papineau, I would rather call these linguistic signs: “concept” risks being taken as a referent of a term.

G is. Conversely, the use of “specific neural pattern G” never causes the emergence of a specific neural pattern G. Still, this asymmetry in the way the signs work should not undermine the validity of the equation.

What Papineau does not take into consideration is the fact that this asymmetry is fraught with relational implications. I mean that “green” sets up an actual form of sensory relationship for our organism of speaking animals, whereas “specific neural pattern G” is nothing but the label of just one aspect of the relationship. In the first case we have a complete form of organism–environment relationship between selected devices in the nervous system (the neuron circuitry of the specific neural pattern G) and an element from the extended habitat *physical environment + language* (the word “green”). It is a form of ecological relationship that manifests itself as the experience of green. The words “specific neural pattern G,” on the contrary, though activating some neural patterns, in our linguistic adaptive environment (the historical context where we learn the language we speak) provide no input for a form of sensory relationship. Maybe one day, should the neuroscientific jargon become common coin not only among the specialists, “specific neural pattern G” and “specific neural pattern XYZ” will rouse respectively the experiences of green and of the coarseness of matted wool. But at the moment our linguistic game does not work in this way.

### *Phenomenal Experience in the Service of the Social Brain*

By insisting on relationality I mean to suggest that we could take Chalmers’s version of phenomenal concepts, and check whether it would still be valid after inverting the factors. If it is true that phenomenal concepts are special in that their referents — phenomenal states — serve as constituents of the concepts themselves, vice versa phenomenal states could be special in that the concepts, which refer to those states (the occurrences of language in communication and thought), serve as relational constituents of the states themselves.

Carruthers and Veillet (2007) claim that the arguments based on phenomenal concepts might provide an account of how the explanatory gap issue arises in a way that is not contradictory with physicalism, but give us no physical explanation of what qualia actually are. The phenomenal concepts strategy would be defensive, aimed at undermining the anti-materialist arguments without demonstrating the truth of the equation *phenomenal states = brain states*. The remark is sharp, but its relevance might be tied to some reductive assumptions so far underlying the dispute about phenomenal concepts. Are we sure that the fact of being able to explain the explanatory gap by virtue of the way we think of, refer to, and discuss our phenomenal experiences, tells us nothing at all about phenomenology itself? I think it tells us something, provided that we stop neglecting the role of language on multiple levels. That is to say, provided that we acknowledge (a) that linguistic signs can trigger a sensation without the intervention of an internal

object; (b) that the discrimination of phenomenal/brain states can be manipulated only through the resources of symbolic-recursive thought; and most of all (c) that the equation *phenomenal states = brain states* must be seen from a relational standpoint, so that both the members are conceived of as parts of a relationship taking place in an unprecedented ecological niche, where language has a major role.

It is not just a matter of how we conceive of and describe our phenomenal states: the forms of this thinking and describing can affect the forms of phenomenal states themselves. From the moment that signs were decoupled from referents, and sensations accompanied them on the same path, a new kind of adaptive context was established. Language, as I have said, takes part in this new habitat. This does not mean that the sign systems, the various languages that we speak, are simply added to the physical environment. To include language means to include all the social objects, institutions, and material, cultural, and mental practices — the existence of which is connected to symbolic language. Of course, language has not created all this out of nothing. Rather, it has fostered a coevolutionary process that opened up new spaces of possibility, and permitted new ways of transmission and cumulative learning.

According to the social brain hypothesis (Dunbar, 1998; Gazzaniga, 2008; Humphrey, 1976), the most refined cognitive skills of humans (language included) have risen as adaptive responses to an increasing degree of social complexity. The groups of our ancestors grew larger and more articulated, so managing the big amount of relationships started to be difficult and onerous. On the other side, their ability to exploit and control environmental resources made them dominant in their habitat, which they were beginning to transform for their own benefit, thus diminishing the competition with other species while increasing the competition with other groups of conspecifics. At a certain stage selective pressures, depending on social navigation needs (e.g., securing a good position among the members of a community, being smarter than rival communities, etc.), became more relevant than those connected to direct interaction with the physical environment. If there is something true in this hypothesis, our cognitive equipment, starting from a certain stage of our evolutionary pathway, has been shaped more extensively by the social context than by material interactions. And the onset of language, which in turn has exponentially multiplied social complexity, probably dates back to this same stage.

My idea is that the handling of sensations, emotions, and other bodily experiences has been shaped in response to this imbalance of selective pressures. Sensations and emotions serve us not only to profitably react to the physical environment, but also to successfully float in the sea of social and communicative interaction. Furthermore, when we add language, this type of interaction becomes basically ubiquitous both outside (the others: what they do, say, think, feel) and inside (the self: what it does, says, thinks, feels).



At this point the social brain hypothesis might be renamed socio-linguistic brain hypothesis, because of the impact that language has on the extent of social relations, and because of the additional activities that the brain must implement as a consequence. That is, symbolic thought, which, in the first place, detaches from the here and now of present reality, allows a recursively infinite series of combinations of signs, determines the possibility of self-reference (for instance the negation of a concept); and then symbolic communication, which allows the combinations to spread among different brains, and the experiences to be transmitted and memorized (thus further multiplying the possible combinations). In my opinion the entwining of signs and sensations, the amazing fact that words make us feel something in a way assimilable to the experiences they refer to, is a result of the cognitive settlement in response to these new circumstances. In fact, in conjunction with the combinatorial explosion of linguistic faculties, some problems arise: (a) What is more relevant to think and remember among all the wandering thoughts, detached from the here and now, which can show up in my consciousness?; (b) What is more relevant to process and remember among all the pieces of information that others communicate to me?; and (c) Is the information contained in my thoughts and others' communications true and useful, and in relation with which contextual circumstances?

The tools to take advantage of these new activities without wasting time and energy are partially created on purpose by language itself (the more and more thin-grained conceptualization), and partially already available: sensations, emotions, and all the feelings that help us process our experiences, or those we observe in others (do you remember mirror neurons?). To feel something specific when thinking of a ripe red strawberry rather than a disturbingly blue mozzarella, when a friend tells me about his gorgeous new colleague rather than about the splinter stuck in his cornea, means to understand with the body what otherwise would be a sequence of signs to process only in conceptual terms. On the contrary, we can exploit pre-existing devices to ground into corporeity linguistic thought, linguistic communication, and everything linguistic that there is in our habitat. Post-symbolic corporeity is this new cognitive order, in which phenomenal states, instead of occurring only in the presence of direct stimuli, are recruited to give qualitative thickness to the linguistic dimension of our experience. They help us understand what to welcome, what to reject, what to reconsider later — even though our knowledge might be indirect, linguistically mediated.

I think that the forms of phenomenal experience and those of symbolic communication have undergone a process of reciprocal attuning. Qualia and language have been coevolving since referential decoupling, combinatorial recursion, and self-referentiality (the peculiar traits of language) started to manifest themselves and to change the general rules of functioning of the human mind. Some of the pre-existing brain devices, as the modules of sensory and emotional processing, have been allocated to new tasks — such as the employees of a com-

pany after a merger — while their organizational and functional features have been tweaked.

### *Experiments on the Interaction between Phenomenal States and Language*

The influence of language on the processing of phenomenal states has already been demonstrated in those cases when a linguistic input is able to evoke vivid sensations or emotions. I say “green” and see green, to put it in easy words. On this level, language heavily affects the distribution of phenomenal occurrences, and most of all, extends and reshapes the relational context where any phenomenal state might emerge.

In the second place, language affects the cognitive background of each and every online perceptual episode. The subjects studied by Elizabeth Phelps in one of her experiments (Phelps et al., 2001) were shown some sequences of geometrical shapes. They had been previously informed that, if a blue square appeared, they would get a light electric shock. Indeed the electric shock was never given, but the brain scans confirmed the activation of the amygdala — a crucial area for the emotion of fear — each time a blue square was shown. A shape perceptually analogous to others, lacking any kind of threatening features, can trigger a reaction of fear as the cognitive context has been linguistically altered.

In the third place, there is new experimental evidence that language plays a role in perceptual discrimination tasks that were not supposed to involve linguistic processing. For instance, Russian speakers, who have two distinct terms for lighter blues and darker blues, are faster at discriminating two colors falling into the two linguistic categories, than when the colors belong to the same category. For English speakers, who only have one word for blue, there is no difference in reaction time between the two cases (Winawer et al., 2007). The fact that the sheer perceptual discrimination of a color involves brain areas dedicated to language has been also demonstrated (Tan et al., 2008). In this study some Mandarin Chinese speakers were asked whether two viewed colors were the same or different (this task should not involve the use of color terms or color concepts). The participants observed alternatively color patches belonging to a group of three colors easy to name in Mandarin (the correlative of “red,” “green,” and “blue”), and color patches of uncertain categorization (hard to name in English too: I would call them chocolate brown, periwinkle blue, and beige). By confronting the neural activations triggered by the first group to those triggered by the second, researchers found that observing an easy-to-name color automatically implies the supplementary activation of two areas (left posterior superior temporal gyrus and inferior parietal lobule) responsible for word-finding processes. Wittgenstein was right: language, as far as its tentacles reach out, affects mental processes from the perceptual stage. Or, to put it in

Tan et al.'s words, "this finding suggests that the language-processing areas of the brain are directly involved in visual perceptual decision" (p. 4004).

The phenomenal experience of humans is thus a form of relationship where physical environment, organism, and language dynamically interact on multiple levels. The very intervention of language though, by introducing a gap into the couple stimulus/sensation, favors a substantialist and dualistic shift. Phenomenal states seem autonomous objects, immaterial fixations of environmental relationships placed out of the relation. Actually they are forms of relationship recursively elaborated, which detach from a domain of relationship restricted to the environmental present, and enter an extended system of relationship. Which form do they take? Besides the long evolutionary path that has modeled our sensory-perceptual systems, the forms of phenomenal experience are also shaped by the adaptive needs emerging in this new context of relationship: the needs of symbolic-recursive thought, and those of communication. What I feel in my post-symbolic consciousness presents itself in the most suitable form to be linguistically manipulated in my mind and potentially communicated to others (provided that what I feel is not tied from the very beginning to something that I have thought, read or heard on the radio, on TV, during a conversation, etc.). It is worth spending energy to process a phenomenal state if it is relevant not only for an immediate relation in the environment, but also for a relation in the new extended context. The form of sensations presumably fits its adaptive functions. And we have to keep in mind that in the latest, crucial segment of human evolutionary path, these functions have been symbolic, linguistic, and communicative as well. I do not mean to claim that qualia are wholly linguistic entities; I am just saying that the apparition of language in the human ecological niche (as humans meet language in the social environment and in their own minds, and these encounters can generate sensations) is likely to have altered the way we experience qualia. That is, as I have already suggested, phenomenal concepts (linguistically intended) might have become constituents of the phenomenal states themselves.

A doubt can easily arise at this stage: If phenomenal experience entails the interaction between organism, physical environment, and language, then what happens when language is not involved? Does a simple online perception, which requires no linguistic thought, lack phenomenal content? First, though phenomenal experiences are forms of organism-environment relationship, and for humans the environment encompasses language, it is not necessary that language always plays an active role in the relation: sometimes the environment may offer no linguistic elements useful for a specific relation. On the other hand, insofar as the onset of language has concurred to shape the form of relationship, and constantly modifies the cognitive context where relations occur, it could be difficult to pick out a perceptual experience absolutely free from linguistic contamination. As Tan et al. (2008) show, the perception of red, green, and

blue patches inherently activates the brain areas responsible for word processing, though there is no immediate reason for this cognitive work. On the contrary, the perception of hard-to-name colors determined no similar activations, perhaps because they would be too expensive for the non-linguistic task that the subjects had to perform. An ounce of good sense toward the subjects of the experiment makes me think that they felt something even when looking at the hard-to-name colors. We can infer the same about the proto-zombie, or about animals not endowed with language (in the sense that they cannot speak, but above all, in the sense that they are not endowed with the cognitive resources connected to language): it is wrong to think that they do not feel anything. It is just that they do not feel, I argue, the type of phenomenal experience that we delimit by using post-symbolic resources. In this respect there is a difference between non-linguistic perceptual experiences for humans, and perceptual experiences for non-humans: the subjects of the experiment might have been asked, right after, what they felt while looking at the hard-to-name colors, and this would have reactivated their perceptual memory, thus projecting sensations into a conversational context. In the cases of proto-zombies and of animals, nothing analogous could happen: because our consciousness works in a different way, in a different context.

The problem emerges if we demand qualitative experience to be as ours — including all the language-based complexities we are not aware of — or nothing. Or if we admit in theory that other forms of phenomenal relationship may exist, but then we appeal to human-specific criteria to verify their existence. My idea is that the forms of phenomenal experience in different organisms should be investigated in relation to the quantity and to the modalities of communication exchange with the environment and the conspecifics, which are aspects measurable without conjecturing internal spaces and mental states.

Therefore I think the answer is yes, humans can have non-linguistic phenomenal experiences, but:

- (a) Each experience of this type can always be called into question, at any time, by the language-based work of thought.<sup>13</sup>
- (b) Whatever non-linguistic phenomenal experience is, it has nothing to do with the so-called qualia or phenomenal states in our philosophical discussions. Because every time we discuss them, no matter how sincerely

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<sup>13</sup>It is worth saying a few words about one of the alleged features of qualia: ineffability. Sometimes sensations seem to resist any attempt of description, and what we feel looks out of the reach of language. I do not mean to deny this difficulty. The informational richness of a sensation cannot be fully reproduced by a linguistic label. But we should refrain from thinking that giving labels is the only activity permitted by the linguistic game. What I deny is that even the most inexpressible sensations are completely isolated from language. Suppose there were two qualia between which we were not able to tell any difference in linguistic terms ("slightly more...", "a little bit less . . .", "more similar to . . ."). In which sense could they be two different qualia in our conscious experience?

we want to refer to pure language-free phenomenal experiences, we inevitably use arguments based on symbolic resources. We discuss red, green, sweet, salted, disgust, fear, and to explain ourselves we resort to introspective skills and bodily understanding that are based on the *pathetic* effect of our words. We hope to be understood because when I write “red” you, reader, know what it means and will probably have a phenomenal experience of red (I’ve used this trick several times in this paper). But at this stage the referential distortion is irreversible: we thought we were talking about pure qualia, whereas we are talking about those qualia that are available only for a mind working on a symbolic-recursive regime.<sup>14</sup>

This is what, in my opinion, qualia are: forms of relationship with the environment linguistically generated, fostered, and managed, though we pretend they are pure phenomenal states. Non-linguistic forms of relationship exist indeed, but they are transparent to our consciousness: I see a green leaf, taste some sugar (but without thinking of the green leaf, or to the sweetness of the sugar, perhaps I am thinking about yesterday’s football match). As soon as I intend to take into consideration the phenomenal thickness of the color I have seen, or of the taste I have felt, I am doing something that requires linguistic resources — and by doing this I provide the experience with the phenomenal thickness I was looking for. As linguistic thought joins the sensation, then the latter becomes opaque, thick, phenomenologically solid (in fact I can offer a verbal report of what I feel). The sensation of seeing red is the phenomenal state, subjective and internally accessible, the X factor that marks our experience, just insofar as we entertain the sensation in our thought according to the modalities shaped by language.

Does this mean that we should no longer discuss phenomenal states, since the discussion itself makes the actual subject at stake disappear from under our eyes? So, can we just end the discussion, and devote ourselves to silence? And how can one rationally and experimentally support such a claim?

I do not think that the discussion should come to an end. We only need to be aware of its implications, when the subject of the discussion presents linguistic features causing interferences. If we acknowledge the relevance of language in the analyzed phenomenon, and we know the distortions and the fallacies that a naïve use of language might determine with respect to the phenomenon itself, then the discussion can go on searching for provable results. As an example, a slight variation in Tan’s experiment might offer some evidence to support my hypothesis. In fact, the simple perception of hard-to-name colors did not elicit any activation of brain areas connected to language. But what if the subjects, while looking at the same patches, were asked to focus on the qualitative dimension of their perceptual experience, on what they feel? I am inclined to

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<sup>14</sup>Following Papineau, we might call this the “pathetic fallacy” of phenomenological disputes.

think that we would see some areas connected to language shine on the display of the brain scanner.

*What Actually Are the Qualia We Discuss About?*

In order to outline the mechanism I have in mind, I am going to make use of the functional model of sensations proposed by Humphrey (2000, 2006), then adding an extra element. According to Humphrey, what happens when we look at a colored object, for instance a red screen, is not just one phenomenon. On the one hand, we perceive the screen as an independent object in the physical space having certain features, among which is the red color. On the other hand, we have a sensation of red created by the subject. Or, to put it better, in Humphrey's theory the sequence is in reverse order. Sensation and perception, though triggered by the same event, might be autonomous effects, parallel rather than sequential. The phenomenon of blindsight, to which Humphrey has dedicated many years of research, should bring evidence to support this distinction: some patients affected by severe damages to the primary visual cortex state that they cannot see, meaning that they have no visual sensations. But several experiments have shown that these patients were able to spot and discriminate visual stimuli with an accuracy rate remarkably higher than chance expectancy. They keep saying they cannot see, but if they have to make a guess, they often answer in the correct way, as if perception was basically intact, and they only lacked the sensation of seeing.

In Humphrey's opinion, sensations, through bodily stimulation, have to do with the self and what I feel here and now, whereas perception concerns the judgments on the outer world. So perceptions are the actual objects of perceiving, but sensations are not the objects of sensing. The red screen is the content of my perceiving, but the sensation of red is not the content of my sensing, rather it is the very act of feeling *redly*. This kind of activity, which Humphrey likens in functional terms to bodily expressions such as laughing and crying, would generate the phenomenal thickness by triggering a recursive process. To clarify the functional origin of sensations Humphrey sketches an evolutionary history: the history of a primitive amoeba-like animal in the ancient seas. The boundary of the animal comes into contact with objects, substances, and events that may have either a positive or a negative effect, so it is adaptive for the animal to evolve the ability to react to each stimulus with a specific response. For instance, when its skin comes into contact with salt, it wriggles "saltily"; when it comes into contact with sugar, it wriggles "sugarly." These reactions are strictly situated around the stimulation area, but soon something similar to a reflex arc develops: information from the skin reaches a central ganglion and an adaptive behavior is adopted (get closer/move away), together with the wriggling. As the animal's complexity increases, it becomes advantageous to add inner representations of

distal stimuli, so that it can elaborate more sophisticated planning and decision making. But there is no need to develop a new system to analyze the stimuli: all the information about the stimulations is already stored in the command signals going toward the periphery of the body. By monitoring its own signals (salt → wriggle saltily), the animal forms a representation of what is happening to itself: the sensation. The next step is to exploit the same information to form a representation of what happens outside of its body: here comes perception.

But the history is not over. The animal keeps evolving, and its fitness is less and less tied to automatic responses to environmental stimulations. Wriggling saltily might have lost most of its adaptive reasons. But if automatic responses are no longer advantageous, why lose the internal representations connected to them, i.e., sensations, which match so profitably with perceptions? There is a solution: the animal can go on issuing command signals, so that it can monitor them and thus have a picture of the ongoing situation. All it has to do is inhibit the behavioral responses. The commands become virtual, and the activity gets "privatized," short-circuited before reaching the body surface. In the end, the activity is separated from the external environment, and turned into a loop inside the brain. From the beginning, at the time of actual wriggling, the wriggling activity used to have a feedback effect on the distal stimulus. But now that the loop has shortened and is entirely situated into the brain, the feedback effect prevails: the virtual commands of sensory responses affect themselves in a recursive way, partially self-creating and self-sustaining. As Humphrey (2000, p. 19) claims, "These signals still *take their cue* from input from the body surface, and still get *styled* by it, but on another level they have become signals *about themselves*."

Humphrey's history has an imaginative flavor, but turns out to be full of remarkable insights. Its domain of relevance corresponds to what I have called online sensations. My intention is to extend the heuristic validity of this model to two more cases, which Humphrey did not take into consideration. The first one is that of offline sensations. In my opinion we can have a sensation in the absence of a distal stimulus, because language has found the way to sneak into the loop, to replace the stimulus in the recursive process. The command signals are short-circuited into the brain, and maybe inward signals as well can be subject to a similar short-circuiting. It is no more necessary that they come as encoded inputs from the sensory system, they can also be inputs instantiated directly into the brain during the stream of linguistic processing (I am told something, read a sentence, think). In this way it is easier to give a more detailed account of how language can generate phenomenal states detached from environmental stimuli: they are signals about themselves, in which the feedback effect has been ignited by the symbolic-recursive activity of thought. And these language-based phenomenal states will have, according to the model, the features of sen-

sations in the absence of perceptions, as is the case for offline phenomenology (I have a sensation of green, but I know I am not perceiving any real green object, in the outer world).

The second case concerns qualia in their philosophical and scientific sense. As we have seen, when we discuss qualia — and we may even give a definition of them restricted to the episodes of online sensations — the actual subject in question is altered by the linguistic processes of the discussion itself. The pathetic fallacy of the expressions we use turns the pure sensation we thought we were dealing with, into an impure sensation, which we keep before our mind's eye just because it can be symbolically evoked at one's pleasure. This impure sensation, the real subject of philosophical–scientific discussions, can be described in its prototypical form as a combination of the two phenomena already analyzed. On the one hand, we have the online sensation, as a distal stimulation triggers the brain loop: seeing a green leaf I have a green sensation. On the other hand, there is the intervention of linguistic thought, which embeds itself in the sensory episode. From the moment I decide to address the phenomenal aspect, my thought no longer focuses on the content of the experience (the perceived object), but rather on its sensory quality. To do this, thought resorts to linguistic resources that boost the recursive process, sustaining it with a new source of stimulation. In fact I can even close my eyes now, but I will keep on having the green sensation that is the subject of my phenomenological reflection. Conversely, if I was not thinking about the sensation of green (be careful not to think about it, or you will stumble on the pathetic fallacy!), the sensation disappears as soon as I close my eyes. This double feeding of the recursive process enhances the qualitative thickness and drags the sensation at the centre of consciousness, where innumerable other relations on the mnemonic and conceptual level can be interconnected to the ongoing experience. This is what we truly talk about (not about “pure” sensations, that's for sure), when we refer to the X factor that makes our way of experiencing so special.

### *Conclusions*

I am aware that my hypotheses are not likely to be considered compelling neither by dualists, who will still sense a gap in the equation *phenomenal states* = *brain states*, nor by materialists (to whom I feel closer), who cannot find here a physicalist description of brain functioning able to explain the transition to the qualitative dimension. The problem is that none of them are aware of how much the subjects of their investigations are transformed by the peculiar use of language in the course of the investigation itself. The second problem is that very few of them take into consideration that the symbolic nature of the human mind affects dramatically the exercising of phenomenal/brain states.



My remark is that as long as we ignore the relevance of language on recursive levels — like in a fractal — both with regard to the issue itself and with regard to the way we think about the issue, the problem of qualia is not going to be solved, nor dispelled. We cannot penetrate the difference between the qualitative traits of my discriminations, and the non-qualitative traits of those performed by the household appliance, if we neglect the fact that only I can have experiences in the absence of direct stimuli, and that this phenomenon is generated and managed by cognitive resources belonging to the linguistic order (referential detachment, recursion, self-reference, etc.). We cannot understand phenomenal experience as a whole if we suppress the fact that a massive part of the experiences is causally dependent to symbolic stimulation, and that those connected to environmental stimulation can be at any time reframed into the stream of linguistic thought. Neither should we underrate the coevolutionary influence that the use of language (as a vector of stimulation, learning, and sensation managing) is likely to have had in terms of functional settlements of the conscious experience. But if we admit that sensations are forms of organism–environment relationship, and that this environment is not only physical, but also inherently and evolutionarily symbolic to such a degree that the linguistic dimension has altered the cognitive features of the organism itself, then we might find a new way to understand qualia.

My final suggestion is that we should analyze our systems of perceptual and sensory discrimination in connection with the differential system of symbolic language. Because it is the interaction between these systems that enables us to have a mental experience detached from the immediate reactions to environmental situations, but endowed with phenomenal thickness. The stream of this experience, which can link together unprecedented combinations of signs and at the same time reactivate sensations tied to information stored in the memory, operates in such a way that in every moment of every single perception, thought or feeling, the context is different — so what it is like to be me in this moment is always something unique. It will be necessary to bring into question the naïve neuroscientific paradigm that matches each stimulus to a predetermined neural activation (in other words, the assumption *green = pattern G*). And, from the standpoint of system interaction, we should rethink from scratch the notions of stimulus/activation/sensation on the one hand, and sign/meaning/referent on the other. In this way I am confident that we will have better chances to understand in which sense what I feel when drinking a sip of sugared water and a sip of salted water is different from a 0/1 discrimination.

### References

- Berta, L. (2010). *Dai neuroni alle parole [From neurons to words]*. Milan: Mimesis Editore.  
 Carruthers, P., and Veillet, B. (2007). The phenomenal concept strategy. *Journal of Consciousness Studies*, 14, 212–236.

- Chalmers, D. (1995). Facing up to the problem of consciousness. *Journal of Consciousness Studies*, 2, 200–219.
- Chalmers, D. (1996). *The conscious mind: In search of a fundamental theory*. Oxford: Oxford University Press.
- Chalmers, D. (2005). Phenomenal concepts and the knowledge argument. In P. Ludlow, Y. Nagasawa, and D. Stoljar (Eds.), *There is something about Mary: Essays on phenomenal consciousness and Frank Jackson's knowledge argument* (pp. 269–298). Cambridge, Massachusetts: MIT Press.
- Chalmers, D. (2007). Phenomenal concepts and the explanatory gap. In T. Alter and S. Walter (Eds.), *Phenomenal concepts and phenomenal knowledge* (pp. 167–194). Oxford: Oxford University Press.
- Churchland, P. (1981). Eliminative materialism and the propositional attitudes. *Journal of Philosophy*, 78, 67–90.
- Cosmides, L., and Tooby, J. (2000). Consider the source: The evolution of adaptations for decoupling and metarepresentation. In D. Sperber (Ed.), *Metarepresentations: A multidisciplinary perspective* (pp. 53–115). Oxford: Oxford University Press.
- Crane, T. (2001). *Elements of mind. An introduction to the philosophy of mind*. Oxford: Oxford University Press.
- Crane, T. (2005). Papineau on phenomenal concepts. *Philosophy and Phenomenological Research*, LXXI, 155–162.
- Deacon, T. (1998). *The symbolic species: The co-evolution of language and the brain*. New York: Norton.
- Dennett, D. (1988). Quining qualia. In A. Marcel and E. Bisiach (Eds.), *Consciousness in modern science* (pp. 42–74). Oxford: Oxford University Press.
- Dennett, D. (1991). *Consciousness explained*. New York: Little, Brown and Co.
- Dennett, D. (2005). *Sweet dreams. Philosophical obstacles to a science of consciousness*. Cambridge, Massachusetts: MIT Press.
- Dunbar, R. (1998). Theory of mind and the evolution of language. In J.R. Hurford, M. Studdert-Kennedy, and C. Knight (Eds.), *Approaches to the evolution of language: Social and cognitive bases* (pp. 92–110). Cambridge: Cambridge University Press.
- Fogassi, L., and Ferrari, P.F. (2007). Mirror neurons and the evolution of embodied language. *Current Directions in Psychological Science*, 16, 136–141.
- Gallese, V. (2008). Mirror neurons and the social nature of language: The neural exploitation hypothesis. *Social Neuroscience*, 8, 317–333.
- Gazzaniga, M. (2008). *Human. The science behind what makes us unique*. New York: Harper Collins.
- González, J., Barros-Loscertales, A., Pulvermüller, F., Meseguer, V., Sanjuán, A., Belloch, V., and Ávila, C. (2006). Reading cinnamon activates olfactory brain regions. *NeuroImage*, 32, 906–912.
- Hauk, O., Johnsrude, I., and Pulvermüller, F. (2004). Somatotopic representation of action words in human motor and premotor cortex. *Neuron*, 41, 301–307.
- Hilbert, D. (2010). Qualia. In B. Goldstein (Ed.), *Encyclopedia of perception* (pp. 849–852). Thousand Oaks, California: Sage Publications.
- Humphrey, N. (1976). The social function of intellect. In P.P.G. Bateson and R.A. Hinde (Eds.), *Growing points in ethology* (pp. 303–317). Cambridge: Cambridge University Press.
- Humphrey, N. (2000). How to solve the mind–body problem. *Journal of Consciousness Studies*, 7, 5–20.
- Humphrey, N. (2006). *Seeing red: A study in consciousness*. Cambridge, Massachusetts: Harvard University Press.
- Jackson, F. (1982). Epiphenomenal qualia. *Philosophical Quarterly*, 32, 127–136.
- Kosslyn, S. (1995). Mental imagery. In S. Kosslyn and D. Osherson (Eds.), *Visual cognition* (pp. 267–296). Cambridge, Massachusetts: MIT Press.
- Levine, J. (1983). Materialism and qualia: The explanatory gap. *Pacific Philosophical Quarterly*, 64, 354–361.
- McGinn, C. (1989). Can we solve the mind–body problem? *Mind*, 98, 349–366.
- Papineau, D. (2002). *Thinking about consciousness*. Oxford: Oxford University Press.
- Papineau, D. (2007). Phenomenal and perceptual concepts. In T. Alter and S. Walter (Eds.), *Phenomenal concepts and phenomenal knowledge* (pp. 111–144). Oxford: Oxford University Press.
- Phelps, E.A., O'Connor, K.J., Gatenby, J.C., Gore, J.C., Grillon, C., and Davis, M. (2001). Activation of the left amygdala to a cognitive representation of fear. *Nature Neuroscience*, 4, 437–441.

- Putnam, H. (1975). *Mind, matter and reality. Philosophical papers volume 2*. Cambridge: Cambridge University Press.
- Rizzolatti, G., and Sinigaglia, C. (2008). *Mirrors in the brain: How our minds share actions, emotions, and experience*. Oxford: Oxford University Press.
- Simmons, W.K., Ramjee, V., Beauchamp, M.S., McRae, K., Martin, A., and Barsalou, L.W. (2007). A common neural substrate for perceiving and knowing about color. *Neuropsychologia*, 45, 2802–2810.
- Singer, T., Seymour, B., O'Doherty, J., Kaube, H., Dolan, R.J., and Frith, C.D. (2004). Empathy for pain involves the affective but not sensory components of pain. *Science*, 303, 1157–1162.
- Tan, L.H., Chan, A.H.D., Kay, P., Khong, P.-L., Yip, L.K.C., and Luke, K.-K. (2008). Language affects patterns of brain activation associated with perceptual decision. *Proceedings of the National Academy of Sciences*, 105, 4004–4009.
- Tettamanti, M., Buccino, G., Saccuman, M.C., Gallese, V., Danna, M., Scifo, P., Fazio, F., Rizzolatti, G., Cappa, S.F., and Perani, D. (2005). Listening to action-related sentences activates fronto-parietal motor circuits. *Journal of Cognitive Neuroscience*, 17, 273–281.
- Tye, M. (1997–2007). Qualia. *Stanford encyclopedia of philosophy*. (<http://plato.stanford.edu/entries/qualia/>)
- Wegner, D.M. (2009). How to think, say, or do precisely the worst thing for any occasion. *Science*, 325, 48–51.
- Winawer, J., Witthoft, N., Frank, M.C., Wu, L., Wade, A.R., and Boroditsky, L. (2007). Russian blues reveal effects of language on color discrimination. *Proceedings of the National Academy of Sciences*, 104, 7780–7785.
- Wittgenstein, L. (1958). *The blue and brown books*. Oxford: Basil Blackwell.
- Wittgenstein, L. (1993). Notes for lectures on "private experience" and "sense data." In L. Wittgenstein, *Philosophical occasions, 1912–1951* (pp. 202–288). Indianapolis: Hackett Publishing. (originally published 1968)
- Wittgenstein, L. (2009). *Philosophical investigations*. Chichester: Blackwell Publishing Ltd. (originally published 1953)