Claire Petitmengin & Michel Bitbol

The Validity of First-Person Descriptions as Authenticity and Coherence

Abstract: *In this paper we list the various criticisms that have been formulated against introspection, from Auguste Comte denying that consciousness can observe itself, to recent criticisms of the reliability of first person descriptions. We show that these criticisms rely on the one hand on poor knowledge of the introspective process, and on the other hand on a naïve conception of scientific objectivity. Two kinds of answers are offered: the first one is grounded on a refined description of the process of becoming aware of one's experience and describing it, the second one relies on a comparison with the methods of the experimental sciences. We conclude the article by providing a renewed definition of 'the truth' of a first person description.*

Keywords

Introspection, first person, description, phenomenology, consciousness, pre-reflective consciousness, awareness, epistemology, methodology, explicitation, experience, subjectivity, reliability

Introduction

The goal of this article is to show that longstanding and more recent criticisms of introspection are due to an insufficient comprehension of the introspective process. After an inventory of these criticisms, we

Correspondence:
Claire Petitmengin, Michel Bitbol, Centre de Recherche en Épistémologie Appliquée, 32 boulevard Victor, 75015 Paris, France.
claire.petitmengin@polytechnique.edu, michel.bitpol@polytechnique.edu

answer them by providing a concrete description of this process, which is grounded in our practice of a first person method of verbal explicitation of experience, as well as *vipassana* meditation. Such a description leads us towards a new conception of the validity of introspective reports, conceived as authenticity and consistency instead of correspondence, a conception which is in fact the same as that which underlies the experimental sciences.

I. Criticisms of Introspection

Is introspection able to give us access to our experience? Are introspective reports trustworthy? Or on the contrary, do we have reasons to suspect that introspection — defined as the observation of one's own lived experience — is either impossible or introduces an irreducible distortion, which may be of observational, temporal, interpretative or verbal order? Doesn't an important part of our cognitive processes, of our sensorial experience and of our emotional life simply elude introspection? Furthermore, doesn't the private and singular character of experience make introspective reports impossible to verify? In this first section we draw up an inventory of these criticisms.

Stimulus error

A first argument frequently used for contesting the reliability of introspection invokes the gap often noted between the stimulus and the report on experience:

> If we compare the observer's reports with the stimuli actually exposed, we find that he may see what was not there at all, may fail to see much of what was there, and may misrepresent the little that he really perceived; introspection adds, subtracts, distorts (Titchener, 1912, p. 488).

Among the observations highlighting this gap, those demonstrating the phenomenon of 'change blindness', where a person viewing a visual scene apparently fails to detect large changes or salient stimuli in this scene (like a woman in a gorilla suit walking through a ballgame), are especially convincing (Levin & Simons, 1997; Simons & Levin, 1998; Simons & Chabris, 1999). But, as Titchener notes, this argument cannot be considered as a criticism of introspection. For introspection does not consist of observing and describing stimuli (this interpretation is the beginner's mistake, that Titchener dubbed 'stimulus error'), but of observing and describing *one's own experience* of these stimuli. The question is not whether a description corresponds to the stimuli, but to know whether it corresponds to the

subject's experience: it can be false from the first point of view while being completely right from the second.

> Psychological observation is observation by each man of his own experience, of mental processes which lie open to him but to no one else. Hence while all other scientific observation may be called inspection, the looking-at things or processes, psychological observation is introspection, the looking inward into oneself (Titchener, 1898/1914, p. 27).

Impossible split

However, is such an auto-observation possible? Indeed, how can I 'cut myself into two' in order to observe myself? How can I be angry and at the same time observe myself being angry? How can I calculate differential equations and at the same time observe myself calculating differential equations?

> The thinker cannot divide himself into two, of whom one reasons whilst the other observes him reason. The organ observed and the organ observing being, in this case, identical, how could observation take place? This pretended psychological method is then radically null and void (Comte, 1945, leçon 1, p. 34).

Moreover, supposing the existence of such a split gives rise to a risk of *regressio ad infinitum*: an especially persistent introspectionist observing a mental process might wish to observe himself observing this process, and so forth 'ad infinitum and ad nauseam' (ten Hoor, 1932).

Observational distortion

A third set of criticisms concern the reliability of auto-observation. An answer to the 'impossible split' argument consists in imagining two orders or levels of experience or consciousness (Bitbol, 2008a,b), of which one would consist in observing or 'reflecting' the other, without being completely dissociated from it. Phenomenology speaks of non-reflective and reflective consciousness; a few recent authors refer to first and second order consciousness (Marcel, 2003; Overgaard & Sorensen, 2004), or of basic consciousness and meta-consciousness (Schooler, 2002). In first order consciousness the subject is immediately engaged, immersed in the flow of experience. The second order experience consists in distancing oneself from this immediate experience through an act of observation, introspection or reflection, by means of which consciousness is directed towards itself. But how can we guarantee the correspondence between first order and second order consciousness? How can we be sure that the later doesn't distort

or alter the former (Zahavi, 2008)? 'If meta-consciousness requires re-representing the contents of consciousness, then, as with any recoding process, some information could get lost or become distorted in the translation (Schooler, 2002, p. 342).'

- Objectification

According to a first argument, in the act of introspection the subject considers himself as an object: what he observes then is not the original subject anymore, but an objectified and reified subject, who is lost as subject.

> One apparently never grasps the subjective, as such, in itself. On the contrary, in order to grasp it scientifically, one is forced to strip it of its subjective character. One kills subjectivity in order to dissect it, and believes that the life of the soul is on display in the result of the dissection! (Natorp, 1912, p. 103, quoted by Zahavi, 2003, p. 157).

- Immobilization

A similar argument stresses the 'freezing' character of the introspective act. To be able to observe the fluctuations of his experience, which is fundamentally in motion, and particularly the subtle movements of his thought, the subject has no other solution than to immobilize, to petrify them, which amounts to missing them.

> Now it is very difficult, introspectively, to see the transitive parts for what they really are. (…) The rush of the thought is so headlong that it almost always brings us up at the conclusion before we can rest it. Or if our purpose is nimble enough and we do arrest it, it ceases forthwith to itself. (…) The attempt at introspective analysis in these cases is in fact like seizing a spinning top to catch its motion, or trying to turn up the gas quickly enough to see how the darkness looks … (James, 1890/1983, p. 237).

- Disruption

If it does not stop it dead, introspection disrupts the course of experience deeply: 'Tis evident this reflection … would so disturb the operation of my natural principles as must render it impossible to form any just conclusion from the phenomenon.' (Hume, 1739-40/1969, p. 46; see T. Froese, 2009).

For Wundt (1897), this disrupting effect is felt mainly in complex thoughts, whereas for James, it is felt mainly in bodily action: 'We walk along a beam all the better if we think less of the position of our feet upon it (James, 1890/1983, p. 1128).' For Merleau-Ponty (1945), reflective consciousness hinders the natural flow of spontaneous

bodily action which is irreflective, that is non reflectively self-conscious. Some experiences show that reflective consciousness alters pleasure (Schooler, 2002). 'Inner observation' could even simply destroy its object:

> If someone is in a state in which he wants to observe his own anger ranging within him, the anger must already be somewhat diminished, and so his original object of observation would have disappeared. The same impossibility is also present in all other cases. It is a universally valid psychological law that we can never focus our attention upon the object of inner perception (Brentano, 1874/1995, p. 30).

- Creation

A final criticism of observation is that it enriches or even creates experience. For example, I could invite you to turn your attention toward the tactile sensation of your feet in your shoes, or toward the noises that you can hear just now. Did these tactile and auditory sensations exist before you observed them? Did they belong to your experience, in a pre-attentive, vague and inchoate form? Or were you insensible and deaf to these sensations? Does not the very fact of turning your attention toward them simply create them?

> It is like a flashlight in a dark room to search around for something that doesn't have any light shining on it. The flashlight, since there is light in whatever direction it turns, would have to conclude that there is light everywhere. And so consciousness can seem to pervade all mentality where actually it does not (Jaynes, 1976, p. 23).

Such is the debate which opposes the supporters of the 'rich' conception and of the 'poor' conception of experience, a debate recently revived by Schwitzgebel (2007a).

> James (1890/1983) and Searle (1992) endorse the rich view of consciousness, according to which the stream of experience involves both a centre of attention and a broad periphery of consciously experienced but unattended objects and background feelings. Jaynes (1976), Dennett (1991) and Mack and Rock (1998) endorse the thin view: consciousness is limited to only one or a few objects, modalities, topics or fields at a time. The unattended hum of the traffic in the background is no part, not even a peripheral part, of your experience when you're sufficiently absorbed in other things (Schwitzgebel, 2007a, p. 7).

Temporal distortion

Therefore it seems that introspection, conceived as an observational activity unfolding simultaneously with the observed experience, is extremely problematic. But could not these problems be solved by the

possibility we have of directing ourselves *retrospectively* toward our experience? In fact, it seems that most of the time we do not observe our experience at the very moment it takes place, but *a posteriori*, as Stuart Mill had noted:

> A fact may be studied through the medium of memory, not at the very moment of our perceiving it, but the moment after: and this is really the mode in which our best knowledge of our intellectual acts is generally acquired. We reflect on what we have been doing when the act is past, but when its impression in the memory is still fresh (Mill, 1882/1961, p. 64).

In point of fact, there is no introspection in the strict sense of the term, 'all introspection is retrospection' (Sully, 1881). Retrospection enables us to remedy the splitting and distorting effects of simultaneous introspection, since the subject doesn't observe himself while experiencing, but observes instead the memory of an experience — a memory which can at will be recalled, slowed down and scrutinized in its smallest details without the original experience being affected. 'You must wait to introspect until the processes that you wish to examine have passed by. Let them run their course undisturbed: then call them back by memory, and look at them. They are now dead, and cannot be changed by your observation.' (Titchener, 1898, p. 28)

The retrospective strategy, supported by James, was adopted by the school of Titchener, the school of Binet in Paris (Binet, 1903), and the school of Würzburg in Germany, notably for studying mental imagery. But another difficulty immediately arose, that of the validity of memory: how can we be sure that the memory is true to the initial experience? How can we ensure that the recalled experience is not rebuilt? Do we not in fact arrive at a retrospective falsification of conscious history, by the processes that Dennett (1991) calls 'Orwellian' and 'Stalinesque'?[1] Do we not have good reason to question the reliability of memory, whose distorting effect is well-known, by means of transformation, amplification or impoverishment of the original experience — the dimensions of experience on which attention was not focused during the initial experience being consigned to oblivion?

[1] Retrospective alteration of history can be obtained in two ways, according to Dennett (1991). In the Orwellian way, somebody first makes one conclusion based on partial evidence, and then changes her memory of having made this previous conclusion in order to accommodate further evidence. In the Stalinesque way, somebody does not make any intermediate conclusion but entirely reconstructs the whole sequence *ex post facto,* when all the evidence is available. However, according to Dennett, at the microtime scale of brain processes the distinction is not a real one.

Interpretative distortion

Another major difficulty of introspection results from the fact that, contrary to what Dennett sometimes misleadingly suggested by evoking our unchallengeable authority about our experience (Schwitzgebel, 2007b), an experience is not infallible: I can misinterpret the way my experience appears to me. 'One can be mistaken about one's experience just as one's experience can be mistaken' (Marcel, 2003, p. 181). My experience can be occulted by naive or theoretical preconceptions, which have two types of effect.

First, preconceptions may have a distorting effect: surreptitiously, a knowledge about the experience substitutes itself for the experience, biasing the description. Just as someone who draws a table spontaneously draws it as he knows it is: rectangular, and not as it may appear to him when every perceptive or conceptual preconception is relaxed, that is as a deformed parallelogram (Vermersch, 1997, p.7). Nisbett and Wilson's experiments show very convincingly how untrained subjects slip surreptitiously from the description of their experience toward the verbalization of explanations, generalizations, and abstract knowledge about their experience.

> Subjective reports about higher mental processes are sometimes correct, but even the instances of correct reports are not due to direct introspective awareness. Instead, they are due to the incidentally correct employment of a priori causal theories (Nisbett & Wilson, 1977).

Sometimes, it is an expectation or a motivation that substitutes for the experience.[2] 'When individuals have strong expectations about conscious experience they may access the expectation rather than the actual experience' (Schooler & Schreiber, 2004).

Second, preconceptions may have a concealing effect: when a dimension of our experience does not match up with our knowledge or our expectations, it can remain unnoticed. For example, until the publication of Nigro and Neisser's article (1983), in the field of cognitive psychology it was considered impossible that someone would be able to see himself/herself in an evoked scene, and in fact very few people described such an experience (Marcel, 2003). In the same way, the belief that thought must be expressed in images or words makes the description of unsymbolized thinking very difficult (Hurlburt & Schwitzgebel, 2007). In the medical domain, the belief that seizures are sudden, a theory which underpins the whole medical discourse on

[2] This could explain for example 'the placebo effect', in this case the expected effects of the medicine substituting themselves for the felt effects.

epilepsy,[3] considerably hampers the awareness and description by the patient of the preictal symptoms that could enable him to anticipate and manage his seizures (Petitmengin *et al*., 2007).

The distortion or screening of experience by a preconception may be even more difficult to detect if it is 'adaptive', that is if it fulfils a function,[4] the resistance of the individual or the community to the process of becoming aware being in this case proportional to the benefit received.

Verbal distortion

A last distortive effect comes from verbal description. As James wrote: 'We find ourselves in continual error and uncertainty so soon as we are called on to name and class, and not merely to feel (1890/1983, p. 191). This difficulty is partly due to the paucity of the vocabulary we have for describing our subjective experience. 'We almost completely lack the concepts and competencies that would allow us to parse, think about, talk about, and remember the complexity of experience' (Hurlburt & Schwitzgebel, 2007, p. 51). Moreover, the vocabulary we have, and the metaphors we use in order to palliate its insufficiency, transmit very powerful preconceptions and implicit theories that contribute to the distorting effect of introspection by infiltrating the description of our experience. Finally, the very effort of describing verbally some specific experiences may disturb them, introducing a 'verbal overshadowing' (Schooler, 2002). Describing amounts to decomposing and dissecting. However the experience of a perfume, the taste of a wine, an aesthetic experience, the recognition of a face, are experiences of an holistic nature, that one cannot analyze and break up into separate elements without altering them. And although it may be possible to describe a logical problem-solving task as it unfolds, by simply 'thinking aloud', describing tasks of a non discursive nature (affective decision making, analogical reasoning, insight problem solving) hampers or disrupts the process (Schooler *et al*., 1993; Schooler & Dougal, 1999).

Blindness of introspection

Furthermore, as different researchers have noted, an important part of our experience eludes reflective consciousness and therefore introspection.

[3] And this is can be traced right back down to the etymology of the word 'epilepsy': the Greek term *epi-lambanein* meaning 'to surprise'.

[4] Wilson (2002) speaks of adaptative unconscious, Schooler (2002) of adaptative dissociation (of meta-consciousness).

For example, some processes of choice, of decision, are very difficult to access. We have access to the result of our thought processes, but seldom to the processes themselves, to the 'what' but not to the 'how'. As Nisbett and Wilson noted, we suffer from 'the most extreme form of inaccessibility to cognitive processes — literal lack of awareness that a process of any kind is occurring until the moment that the result appears' (Nisbett & Wilson, 1977, p. 241).

But even the 'what' often seems difficult to access. On the one hand, some subtle or ambiguous sensations (like the prodroma of an epileptic seizure or a of a stress attack) are difficult to detect. Even intense emotions — of sadness or anger for example — may remain unobserved. On the other hand, many actions are performed 'automatically', without any reflective consciousness. The most quoted example is that of absent-minded driving: we sometimes realize when arriving at a destination that throughout practically the whole journey we have been completely absorbed in our thoughts without any reflective consciousness of our perceptions — the road, the other cars, roadsigns — or of our actual driving. Studies carried out on this phenomenon of 'mind wandering' while reading show that subjects are often not aware of the fact that their mind is wandering, even when they are taking part in an experiment in which they are expressly requested to pay attention to these absences (Schooler, 2002; Schooler *et al*., 2005).

Non verifiabiliy of results

A last group of arguments against the use of introspection as a scientific method invokes the non verifiable character of its results. This absence of verifiability is due to two factors, the private character and the singular character of experience. On the one hand, my subjective experience is private, inaccessible to anyone else; no one therefore has the means of verifying the accurateness of my description. On the other hand, a given experience is singular, unrepeatable, neither by others nor even by myself who is experiencing it: it is therefore impossible, for me as for others, to test the accuracy of a description by reproducing the described experience.

> Introspective reports offer no means for independent checks by which they may be evaluated. Indeed, the reports are irreplicable not only by others but even by the particular introspector himself (Wundt quoted by Shanon, 1984).

In these conditions, an introspective report is neither verifiable nor falsifiable, and it is this which prevents introspection from achieving

the status of a science - the verifiability of results being considered the very basis of scientific methodology. Methods for studying lived experience, called 'first person' methods, would be in principle and by nature radically different from 'third person' methods used in the natural sciences.

The following quote summarizes the situation well:

> As introspection is not a rigorous method, one must not expect any scientific results from it. By using it one cannot hope to reach results of observation and experimentation that would be repeatable and controllable, in the way public observations and experiments in physics or in chemistry are controllable - since mental phenomena that introspection observes are private, inner, non public and communicable only by the means of language, by which one expresses them (Schlanger, 2001, p. 530).

II. Response to Criticisms

This picture looks catastrophic. Behind the researcher trying to evaluate the relevance of introspection for scientific research, these criticisms question the human being in us: what do we really know about our lived experience? Since our lived experience is the most personal and intimate thing about us, we think we are familiar with it, and cannot imagine for a moment that we could fail to perceive it or be misled about it. However, if I asked the reader to describe precisely his strategies of memorization for example, or how he proceeds in writing a letter or an article, or even in spelling a simple word, it is very likely that in a first stage, I would obtain quite poor descriptions. I would probably manage to collect the description of what you *know* about processes of memorization, of what you either heard or read on this topic, but in order to know precisely the way you really proceed, it would be necessary to carry out an in-depth examination. All of us (hopefully) know how to carry out these actions, but we have only a very partial consciousness of how we go about doing them. This indigence does not only concern our intellectual processes, but also our emotional processes, or even as fundamental and pervasive experiences as our bodily and sensory experiences (Schwitzgebel, 2008).

But if we are unaware of our experience, we are especially unaware of the particular experience consisting in accessing our lived experience and describing it. This experience has very little been studied for itself. Since Titchener[5] the necessity and the very possibility of

[5] 'Experimental introspection is a procedure that can be formulated; the introspecting psychologist can tell what he does and how he does it' (Titchener, 1912, p. 495).

describing the introspective act have rarely been envisaged.[6] However, research by practitioners of introspection who have not only practised it but have also attempted to describe their practice, show a convergence: introspection is a particular act, a specific process consisting in achieving very precise inner gestures. But these gestures do not consist in observing one's experience, in 'in-specting' or 'retro-specting' it, in producing a description which would reflect it precisely. This conception of introspection is a naive representation that does not rely on a precise, first-person knowledge of the introspective act. Therefore criticisms which rely on this preconception (based either on theoretical ideas or on instinctive introspection) in order to contest the adequacy of introspective reports on experience, are simply irrelevant. In the continuation of this text, we will use empirical[7] descriptions of the introspective act in order to develop a new conception of the validity of an introspective report. This validity is no longer measured in terms of 'truth' — conceived as adequacy or representative accurateness, but in terms of authenticity on the one hand, and of performative consistency on the other. We do not claim to present an exhaustive description of the introspective act,[8] which would go beyond the scope of this article. But on the basis of a preliminary work of description, we intend to pinpoint some lines of epistemological reflection.

In this section we will address successively each criticism identified in the previous section.

1. Introspecting, observing and becoming aware

First let's consider the arguments of impossible split and observational distortion.

As Titchener explained when denouncing 'stimulus error', 'introspecting' is being interested in the actual experience of an object and not in the object of an experience. It is not describing the properties of an object — the shades of green of the landscape I am watching, the smooth, soft, fresh character of the surface of my notebook, the characteristics of the sound of the bell. But it is describing my visual

[6] Even Schwitzgebel, who supports the idea that introspection is a skill (2004), does not embark in a description of this expertise.

[7] The word 'empirical' is used here with its extended etymological meaning (*empeirikos*: who has the experience of), and not with its restricted meaning of 'falling within experimental science'.

[8] Pierre Vermersch's article (this issue) is devoted to the description of the introspective process.

experience, my tactile experience, my auditory experience, what it is like or feels like to live these experiences.

But what is my 'experience' of the objects? What else do I have at hand other than objects or contents of experience? The landscape, my notebook, and even the sound of the bell, have some stability, I can quite easily identify their characteristics and describe them. But my experience of them is evanescent, as if transparent; my first impression is that I neither know what to say nor am able to say anything about them.

> Thus in my view, Descartes got things exactly backwards. The outside world of stable objects, people, and events is what we know the most directly and certainly. The 'inner world' of conscious experience is reflected on only rarely and is known only poorly. (Hurlburt & Schwitzgebel, 2007, p. 52)

For 'transparency theorists', we cannot access our experience as such. For Searle for example (1992), as a state of consciousness can only be described in the terms of what this state represents, the consciousness of the state cannot be distinguished from the consciousness of the represented object. Similarly Dretske (1995) argues that introspection is nothing other than a sort of 'displaced perception': we only know that we are in a given mental state by being aware of the object represented by this state.

> Such experiences (if experiences they be) as seeing and feeling seem to be, as it were, diaphanous: if we were asked to pay close attention, on a given occasion, to our seeing and feeling as distinct from what was being seen or felt, we should not know how to proceed; and the attempt to describe the differences between seeing and feeling seems to dissolve into a description of what we see and what we feel. (Grice, 2002, p. 45)

However a convinced 'transparency theorist', after saying that the sensation of blue is nothing other than blue, and that it vanishes if we try to fix our attention upon it, remarks: 'Yet [this sensation] can be distinguished, if we look attentively enough, and if we know that there is something to look for (Moore, 1903, p. 450).'[9]

But what must we look for, and how do we go about it?

Let us consider the first question. Usually, the concentration of attention upon the object of experience conceals the experience itself. If I look at a landscape or a painting, I immediately recognize elements which my attention focuses on and becomes absorbed in. My gaze stretches out, projects itself toward the object, over there, I lose

[9] For an extensive criticism of the transparency theory, the reader may refer to (Thompson, 2007, chapter 10).

contact with the immediate visual sensation. It is a little like a person driving in a nail with a hammer, whose attention is entirely directed toward the nail, and only has a transparent or 'pre-reflective' consciousness of the contact and variations of pressure of the hammer in the palm of his hand — to refer to a well-known example. When I hear a sound, the event that is at the source of the sound (the bell), immediately recognized, masks the auditory experience. As James noted, in the experience of movement, our interest in the object toward which the movement is directed (the ball, the apple) masks the movement of the limb, which itself conceals the internal sensations of movement in the muscles and joints that actually initiate the movement of the limb (1890/1983, p. 687). All our cognitive processes are also involved: whether we are memorizing, remembering, imagining, calculating, understanding or deciding, the absorption in the object or the objective, the 'what' of the process, overrides the 'how', which stays pre-reflected. For example while writing this article, I am completely absorbed by the content of the ideas I am trying to express. But I am barely aware of the rapid succession of inner images, inner comments, slight emotions, micro-operations of comparison, appreciation, amplification, letting go, which constitute my activity of writing. I am conscious 'in action' of this micro-activity, as I am actually writing. But I am not reflectively conscious of it.

Box 1: Imagining a mountain waterfall

(See next page; NB it is very important that the footnote[10], printed on this page only to avoid splitting the box, is not read until *after* the exercise has been completed.)

[10] For the purpose of this written exercise, we suppose that the reader succeeds in forming an image, and our questions focus on the characteristics of this image. But a real explicitation interview, taking into account the possibility that the reader has done something different than imagining, would begin with a much more open (or 'openbiginninged', according to Hurlburt in this issue) question such as: 'When I asked you to imagine a mountain waterfall, what happened first?'. The following prompts would have been adapted to the answers of the interviewed person. Moreover, this exercise does not mean that the imagining experience must be determinate with regard to all the characteristics being asked about, as the questions posed in this box suggest.

Box 1: Imagining a mountain waterfall

I would like to invite you to participate in a small experiment. Take your time, here and now, to imagine a mountain waterfall. Make a pause at this point, and wait until you have completed your work of imagination before reading the next sentences.

Now I propose you to answer the following questions. Did this waterfall appear in color or in black and white? Was this image clear or fuzzy? Was it stable or fleeting? Was it an imaginary waterfall, or a waterfall that you had seen before? Was the visual scene accompanied by sounds? By smells? By bodily sensations? Did you see this image as if it was a photograph or a film? Or were you 'inside the scene', in the location of the waterfall?

Now if you saw a photo: where did you see it (at the top at the bottom, to the right, to the left)? How far away was this image? How big was it? If you were 'inside the scene': were you seeing it from your own eyes, from your own point of view? Or were you seeing it from the eyes of another person in the scene? Or from elsewhere in the scene? In the last case, did you see yourself looking at the waterfall?

So what was the goal of my questions? It was to redirect your attention from the content of the visual experience (the waterfall), which usually absorbs our attention, toward the synchronic structural characteristics of this experience, which are usually pre-reflective: for example, the dimensions of the image, its localisation in space, or your 'perceptual position' outside or inside the scene.

Now you could achieve a slightly different gesture, consisting of diverting your attention from the image once stabilized, towards the dynamics of its appearance, its genesis: was the image or scene preceded by other candidate images? Did the final image appear at once, complete, or was it progressively constituted? Which sensorial dimension appeared first, the visual, the tactile, the auditory, the olfactory, (or maybe the gustatory)? From the instant where I asked you to imagine a waterfall, did you say anything to yourself? Did you feel anything particular? When precisely did you know that you were 'imagining a mountain waterfall'?

These questions help you to turn your attention from the content of the experience towards its — often pre-reflective — diachronic structure. *[See footnote 10 on previous page]*

The pre-reflective[11] part of our experience seems to include different levels of depth, which are increasingly difficult to become reflectively aware of. If all of us can easily turn our attention toward the sensation of our feet in our shoes, who among us is able to recognize the part of the body (finger, arm, shoulder, stomach or head) that initiates the movement when he or she tries to catch an object (Shusterman, 2008, p. 94)? Who among us has a clear awareness of the criteria which enable him or her to appreciate the relevance of a formulation while writing?

Let us now consider the second question: how can we go from a first order or pre-reflective to a second order, reflective or introspective[12] consciousness of experience? In an article relating a recent study, Overgaard recognizes that the distinction between first order and introspective consciousness is not only a conceptual, but also an experiential distinction. But when he asks the subjects: 'Every time you see a picture, you are not to think about it as a figure out there on the screen. Instead, you are to think of it as an experience you are having' (Overgaard & Sorensen, 2004, p. 80) what are they supposed to do? Most traditional definitions of introspection as well as recent ones imply that this act consists in observing oneself, in the same way as one would observe an object outside, but by turning one's eye inward:

> Looking inside in order to see what happens in there: this is in a nutshell the essential of introspection. (…) We look at ourselves being, thinking, acting — as if we were a sight for ourselves (Schlanger, 2001, p. 528).

In this perspective, introspection or reflection is seen as a deliberate act of objectification, separating and distancing, whose direction is simply the opposite of the usual form of objectification, which is directed towards the outside. Consciousness turns towards itself, reflecting itself. It is this kind of conception that makes the image denounced by Comte of a division of the subject himself unavoidable. 'Reflection (…) involves a kind of self-fission. (…) It makes subjective life thematic in a way that involves self-division and self-distanciation' (Gallagher & Zahavi, 2008, p. 61).

However, from the descriptions of this act which are grounded in disciplined practice quite another vision is emerging: becoming aware of one's experience does not consist in distancing oneself from it in order to observe it, considering it as an object, but on the contrary in

[11] To use the vocabulary of Husserl (1913), later adopted by Sartre (1936 and 1938) and Ricœur (1950). Piaget (1974) speaks of 'consciousness in action', Vermersch (2000) speaks of 'direct consciousness'. The French word for 'pre-reflective' is 'pré-réfléchi'.

[12] In the remainder of this article we will use these three terms indifferently.

reducing the distance, in coming closer to it. It is not a matter of splitting into two in order to look at one's experience, but of coming into contact with it. 'Suppose that instead of wanting to raise ourselves above our perception of things, we plunged into it to dig it out and enlarge it.'[13] It is not about stopping or fixing the course of experience, in order to observe it while immobilizing it under the beam of garish light of consciousness. In this sense James's metaphor of the light being switched on, and the visual model that underlies it, are deceptive. Rather than switching the light on suddenly to see what the room looks like in the dark, it is rather exploring it in the dark, patiently, by feel, with precision and delicacy, a little as a blind person would do. It is not a matter of 'looking at' one's experience but of 'tasting' it or 'dwelling in' it.

This exploration is encouraged by a particular attentional disposition, which is both open and receptive. Unlike focused attention, which is narrow, concentrated on a particular content, this attention is panoramic, peripheral, open on a vast area. This diffuse attention is however very fine, and sensitive to the most subtle changes. Several people have described this openness to us as a subtle shift of the area usually perceived as the centre of attention towards the back of the skull, or from the head down into the body.

This attentional disposition is also described as non intentional, receptive. This characteristic seems paradoxical because it is difficult for us to conceive of attention as being other than intentional, actively focused toward a goal and a given object. However numerous testimonies describe another type of attention that while being very alert and awake, remains loosened, detached, receptive. It does not consist in stretching toward experience to scrutinize it, recognize it, and characterize it immediately. But in being present at the singular situation, open to anything that may arise. This disposition allows us to become aware of dimensions of experience that the stretching toward a goal usually makes imperceptible. The only thing that one can do is to adopt the required attentional disposition and let consciousness come.[14] It is rather like looking at a stereogram:[15] for the motif to appear in all its depth and transparency, nothing must be forced; one

[13] Merleau-Ponty (1943, p. 22) quoting Bergson (1934, p. 148).

[14] This particular disposition is described in detail in (Petitmengin-Peugeot, 1999) and (Petitmengin, 2001, pp. 183-191 and 251-268). This disposition corresponds to the attitude of 'letting go' described in (Depraz et al. 2003, chapter 1.2). The reader can also refer to Charles Genoud's article in this issue.

[15] For example *Magic Eye: A New Way of Looking at the World*, Andrews and McMeel Publishing, 1993.

must simply adopt the required position of receptivity and then wait. This act is devoid of intentionality, in the two senses of the term: neither a will or particular expectancy, nor the grasping of an object.

This process does not mean either diverting one's attention from the external objects toward an inner world, to intro-spect. Because when we free ourselves from the absorption into the objects of experience to explore our experience of the objects, the separation which is usually perceived between an inner and an outer world proves to be much more permeable. This process rather enables us to come into contact with the pre-reflective dimension of experience where this scission originates (Petitmengin, 2007).

In a remarkable article (Zahavi, 2003, integrated in Zahavi, 2008, chapter 4), Dan Zahavi analyses Heidegger's answer to Natorp's criticism according to which reflection fails to account for subjective experience because it turns it into an object. Heidegger agrees with Natorp that any investigation that seeks to grasp experience as an object is bound to fail. But he argues that a true phenomenological understanding, far from implying the withdrawal and distancing from experience required if the subject is to bend backward and stare at itself, consists of gaining acquaintance, familiarity or sympathy with experience. This process 'entails neither a seizing of the life nor a stilling of its stream, but simply a going along with, or rather a being carried along with the stream of life'. (Zahavi, 2003, p. 173, quoting a 'rather unique passage' at the end of the lecture course *Grundprobleme der Phänomenologie* of 1919/1920). This remark is developed by Sartre (1934, p. 83) when he points out that 'phenomenological reduction' simply consists in relaxing *all* efforts consciousness makes to elude itself by giving itself objects, including the effort it makes to give itself an 'interior' object.

In this perspective, the process of emergence into reflective consciousness is not an observational process. It is not either a process of reflection of pre-reflective experience by a second order consciousness that would reflect, mirror or copy the first one. These are abstract representations, which are not based on real practice, they simply do not correspond to what an individual does concretely when 'introspecting.' As the etymology of the terms 'introspection' and 'reflection' reinforce these preconceptions, we consider them inappropriate and will limit their use as far as possible in the remainder of this text.

Therefore the criticisms of 'introspection' that invoke an observational distortion lose their relevance. Indeed between reflective and pre-reflective consciousness there is no relationship of corres-

pondence, the one copying or reflecting the other one in a more or less exact way. On the contrary, during the process of becoming aware, a transformation occurs, very fortunately because this is the 'raison d'être' of this process.

> The (introspective) analysis changes the experience, and this change is not, as is sometimes supposed, an inevitable and deplorable accident, but its purpose and aim. (Bode, 1913)

It is not about minimizing or overlooking this change, but about eliciting on the one hand what it consists of, on the other hand which process induces it. The latter question — crucial because the authenticity of a description relies on a disciplined unfolding of this process — will be addressed in the following sections of this article. As for the first question, we will reformulate it in this way: 'How does reflective experience differ from pre-reflective experience?', or more simply: 'What does reflective consciousness bring to experience?' Surprisingly, this extremely important question has been little investigated. In the non observational perspective, reflective consciousness is not a second consciousness that stares at the former, at the risk of reifying, freezing, distorting or disturbing it. There is only one consciousness which, when becoming self-aware, intensifies, amplifies, lights up (Fink, 1992; Prinz, 2004). A slight form of attention to experience accompanies and accentuates this, but without focusing and without effort. This 'non observational awareness' (Marcel, 2003, p. 178) is not disturbing but liberating. Becoming aware of the pre-reflective micro-dynamics of lived experience introduces a space into it that opens up considerable possibilities of transformation. Here are some examples:

- Becoming aware of the subtle pre-reflective sensations that announce the onset of a seizure enables the epileptic patient to control his/her seizures, which improves significantly his/her quality of life (Petitmengin et *al.*, 2007).
- Developing an early consciousness of the subtle symptoms that precede the emergence of an emotion, and of the micro-gestures that maintain and amplify it, makes it possible to learn to foil and calm the emotional process before the intensity of emotion causes possible suffering (Philippot & Segal, this issue).
- Alexander's work shows that our usual focusing on the desired goals conceals what we really do in our bodily action and posture, preventing us from seeing how what we do impedes what we want to do. Whereas being aware of our bodily experience

makes us more precise and effective (Shusterman, 2008, p. 259).

- An increased mindfulness of one's bodily experience seems to play a determining role in the process of transformative learning (Mathison & Tosey, 2009, this issue).

Far from disrupting it, freezing it or shrinking it, it seems that an increased consciousness of experience makes it more efficient, more fluid and meaningful, contrary to what indeed happens in the attitude that would consist in trying to consider oneself as an object. Entering into contact with our experience does not divide us into two but gives us back our entirety, our integrity.

Finally, let's notice that the goal of *vipassana* meditation is precisely to gain such a reflective awareness of experience. A very old Buddhist sûtra express this very simply:

> When the practitioner is walking, he knows: 'I am walking'. When standing, he knows: 'I am standing'. When sitting, he knows: 'I am sitting'. When lying down, he knows: 'I am lying down'. Whatever his body does he is aware of,' (…) In eating, drinking, chewing or savouring, he does so with full awareness; in walking, in standing, in sitting, in falling asleep, in waking, in speaking or in keeping silent, he does so with full awareness. This is how he remains mindful of the body. [16]

'When walking, he knows he is walking': the *vipassana* practitioner walks while being conscious of walking, in other words he is reflectively conscious of his bodily experience — the subsequent stages of this training being mindfulness of sensations / feelings (*vedanâ*), of the mind (*citta*), and of mental contents (*dharma*). The goal is not to reach a special ('altered') state of consciousness, but to become increasingly aware of what is usually lived through but remains unnoticed, in other words it is to recognize what is there (Genoud, this issue).

2. Retrospecting and evoking

Let us now examine the argument of temporal distorsion.

How can we go from a pre-reflective to a reflective consciousness of experience? How can we come into contact with our experience? Because of the absorption of our attention into the object, the extreme rapidity of the unfolding of experience, and the richness of the pre-reflective dimension, it is usually very difficult to come into

[16] *Sattipatthâna-sutta* (*Four Foundations of Mindfulness*), *Dîgha-Nikâya*, 22 or *Majjhima-Nikâya*, 10.

contact with the pre-reflected dimension of experience while it is taking place. But this coming into contact may be facilitated by a specific state, the evocation state, which enables us to recall or re-enact a past experience. According to Sartre (1934, p. 30), 'Any irreflective consciousness, being a non-thetic consciousness of itself, leaves a non-thetic memory that can be consulted.'

The evocation state falls within a type of memory which has been called 'concrete memory' (Ribot, 1881; Gusdorf, 1950), and more recently 'episodic memory' (Cohen, 1989) or 'autobiographical memory' (Neisser, 1982). This type of memory is not based on a deliberate desire or project to remember; rather, the experience is memorized non-intentionally by the subject. Moreover, in concrete memory the recalling of the memory is also involuntary: it does not occur on the initiative of discursive thought, but spontaneously, usually through the intermediary of a sensorial trigger. Thus the memory cannot be deliberately set off, but it is possible to indirectly prepare for its emergence by rediscovering the sensations linked to the experience. For example, if you were asked: 'What is the first thought you had when you woke up this morning?' it is quite probable that there would be no way for recovering this memory other than returning in thought to your bed at the moment when you awoke. Therefore the trigger may be visual (in order to remember the experience, you recall the visual context of the experience, what you were seeing at that moment). The trigger may be auditory (you recall the sounds, such as the birds singing or the alarm clock going off). It may be kinaesthetic (your recall for example the position of your body). It may be olfactory or gustative (as in Proust's well known 'madeleine', the evocation of which enabled him to recall very precisely one scene, and then whole chapters, of his childhood).

The evocation state allows the emergence into reflective consciousness of dimensions of experience that were not only memorised unvoluntarily, but moreover remained unnoticed at the very moment of experience. This emergence unfolds progressively, through successive strata, each new evocation of a given experience eliciting the unfolding of a new dimension.[17]

But knowing how to elicit this evocation state is a very specific skill. This is why we consider that it is indispensable, for inexperienced subjects being asked to describe their experience, to be accompanied in this process by a skilled person. In our opinion, one of the reasons why the subjects questioned by Nisbett and Wilson (1977)

[17] This process is described in this issue by Vermersch who calls it 'leafing through'.

failed to describe their experience of choosing a photograph, is this lack of guidance. Because if someone describes his/her experience without evoking it precisely, relying only on a vague memory, all that he is able to do is to describe what he *believes* he has done, or *thinks* he might have done — not his experience but his beliefs, implicit theories and judgments about his experience. This is precisely what happened to Nisbett and Wilson's subjects, and this is the reason why according to us, these experiments — while being very instructive – do not invalidate at all the possibility of becoming aware of one's experience in a disciplined way. Nisbett and Wilson's subjects were simply not 'introspecting', i.e. performing the process that would have enabled them to come into contact with their experience.

'But how can we be sure that the evoked experience is true to the initial experience, and is not a rebuilt experience?' — are we often asked. This question implies that only the initial experience can be 'pure', the experience of evocation being a second order experience, an ersatz of experience likely to be distorted to various degrees. We would answer that nobody can live an experience 'in the past', there is no other experience than the present. It is therefore impossible to 're-live' a past experience, or to access it 'retrospectively', through a problematic splitting into two that would enable subjects to observe themselves. In the evocation state, the subject lives a new experience. Therefore the question of knowing in abstracto, from a 'cosmic exile' standpoint, if the experience of evocation coincides with the initial experience, or is a true copy of it, is epistemologically irrelevant. It is only from within current experience that the existence of any alleged match between experiences can be investigated. As we'll develop later on, 'being true to' does not hold between two experiences, but as an internal mark of one experience.

In point of fact the particular experience consisting of evoking a past experience, while 'slowing down' in a way the unfolding of experience, enables us to come into contact, here and now, with dimensions of experience which are usually concealed by our instantaneous absorption into objects. A certain type of memory enables us to become reflectively conscious of the structure of our experience. Therefore what is important is not that the evoked *content* is exactly identical to the content of the initial experience. What is important is not that the mountain waterfall that you are evoking now is exactly identical to the waterfall you imagined a moment ago. What is important is that, thanks to the experience of evocation, you become

reflectively aware of the synchronic and diachronic *structure* of the experience of imagining.[18]

On the other hand, it is important that the process of evocation unfolds correctly. It is a very precise process, quite different from the process of constructing a description or describing a vague memory, a belief or a theory. Practiced persons have internal criteria that inform them about the intensity of their own evocation state, and know how to achieve the very precise micro-actions that enable them to elicit or to revive this state. Trained interviewers have linguistic devices able to elicit or revive this state in another person, and objective criteria for evaluating its intensity.

An example of objective indicator is the direction of the eyes: when a subject is evoking a past experience, he takes his eyes off the interviewer to look 'into space', to the horizon. At the same time, the flow of speech slows down, and the words are often cut with silences: these para-verbal clues are the sign that the subject is coming into contact with the pre-reflective dimension of his experience. Co-verbal gestures often appear, indicating that the subject is in contact — or attempting to make contact — with his experience.

Let's add that we are not condemned to be reflectively conscious of our experience only in the evocation state. Once aware of a characteristic of my experience thanks to the evocation state, I can verify its existence 'in real time'. For example, the epileptic patients we interviewed, although they became aware of their preictal symptoms while evoking a past crisis, now know how to recognize them during the preictal period. Thus evocation is a procedure whose final aim is to acquire an increasingly fine reflective awareness of one's experience in real time.[19]

3. Interpreting and bracketing presuppositions

We will now consider the argument of interpretative distortion.

If lived experience is concealed by our fascination for the objects of experience, it is also masked by our preconceptions and beliefs about experience. Can we learn to perceive our experience as it is, and not as we think or believe it is? Can we learn to 'bracket' our presup-

[18] 'If Melanie uses a newly (re-)created image in place of an original image, we still find something about the characteristics of Melanie's images' (Hurlburt & Schwitzgebel, 2007, p. 151).

[19] Is it possible to acquire reflective consciousness of one's experience without calling on evocation? To what extent can *vipassana* meditation for example do without evocation? An answer to this question would require a precise comparison, through first person reports, of explicitation and meditation techniques.

positions, preconceptions and implicit theories about our experience? Again, this process has been little described. Phenomenologists, who consider the 'phenomenological reduction' as the core of their method, are very discreet about the way to achieve this gesture concretely. Even in the interview methods where it is agreed that 'the main skills of the investigator's task are to bracket the investigator's own presuppositions and to help the subject bracket the subject's own presuppositions' (Hurlburt & Schwitzgebel, 2007, p. 263), these skills are little described. The practice of the interview of explicitation leads us to distinguish the *devices* that make it possible to elicit the gesture of reduction in the context of an interview, from this gesture of reduction itself.

When persons try to describe a given experiential process (whether it is cognitive, emotional or perceptual), they start spontaneously by describing what they believe they do, what they imagine they do. A particular effort is necessary to enable them to 'bracket' their representations, beliefs, judgments and commentaries, in order to access their experience itself. In the context of an interview, a set of devices enable a trained interviewer to help the person (Vermersch, 1994; Petitmengin, 2006). First of all, these devices consist in helping the subject to shift from a general description to the description of a singular experience, which is precisely situated in time and space. Then even though this experience has just been lived, the interviewer helps the subject to evoke it and stabilize this evocation (Vermersch, 1994, chapter 5; Petitmengin, 2006, p. 244–46). Afterwards, 'content empty'[20] questions help the subject to become aware of the different structural — diachronic and synchronic — dimensions of his experience, and to give a verbal description of them. It is important to note that the key question is the question 'how', the question 'why', which makes the subject irresistibly veer toward explanations and abstract considerations, being proscribed.[21] Such guidance, even when the subject first asserts: 'I am doing nothing', or 'I know how to do it, but

[20] 'Content-empty' questions are questions which guide the interviewee's attention towards the various moments and dimensions of his experience, which flag them without suggesting any content (Vermersch 2004). This type of 'content-empty' questioning enables the researcher to obtain a precise description without infiltrating his own presuppositions.

[21] This point is illustrated very well by Nisbett and Wilson's experiments (1977), recently confirmed by Johansson's, where verbal reports are elicited by the question 'why?'. 'To solicit the verbal reports we simply asked the participants why they chose the way they did (Johansson & al., 2006, p. 675).' When an untrained subject is asked for the reason for his choice, he slips automatically, without even noticing it, toward abstraction. It is therefore not surprising that the comparative linguistic analysis of the verbal reports of the manipulated subjects (explaining a choice that they didn't make) and of the non manipulated subjects (explaining their actual choice) shows no difference. In both cases, the subjects are

I don't know what I am doing', usually allows him to leave the level of abstract preconceptions to become aware, often with much surprise, of unnoticed processes, and to describe them very precisely.

Here again, a set of precise clues enable the interviewer/researcher to evaluate the degree of contact of the subject with his experience, and therefore the authenticity of his description (Hendricks, this issue). One of these is the concrete character of the vocabulary: the absence of abstract categories, of psychological concepts, is an indicator that the subject is not describing theoretical knowledge but is absorbed in his experience, in contact with it.[22] These concepts or categories are not present in the description. Abstracting them from the description will be the researcher's task in the aftermath of the interview.

For example, the subject does not say 'This bird song elicits in me the evocation of a spring morning' — sentence that contains a meta-knowledge (evocation) and an explanatory interpretation (elicits in me). He rather says 'I feel refreshed and cleared', 'the air is like in a spring morning'. He does not say 'I have the mental picture of an elephant', but 'I see an elephant', or even 'there is an elephant.' The more a person enters into contact with her experience, the more the vocabulary becomes simple, direct, concrete.[23]

The more the gesture of reduction is trained and refined, the more the detected and abandoned preconceptions are subtle. Because it is one thing to abandon your implicit theories about decision making to become aware of the process that led you to choose this pair of socks; and quite another to abandon your naive theories on perception to become aware of the micro-processes that led you to recognize here a pair of stockings (Schwitzgebel, 2008). Or to abandon your body image to come into contact with your concretely felt bodily experience, in other words to shift from 'the thought of the body or the body in idea' to 'the experienced body or the body in reality' (Merleau-Ponty, 1945, p. 231).

It is important to underline that the gesture of reduction is not a matter of intellectual, conceptual understanding. It does not consist in

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not in contact with the experience associated with the process of choice, but give it a theoretical justification. A specific guidance is necessary to enable them to become aware of the 'how' of their choice and to describe it.

[22] Prinz (2004) distinguishes 'mere captioning' from 'psychological captioning' which uses psychological terms, raising the possibility that different processes could be involved.

[23] The article of Mary Hendricks in this issue provides an analysis of the somatic and linguistic criteria enabling the therapist or researcher to evaluate the 'level of experiencing', i.e. the degree of contact of a subject with his/her experience.

shifting from a naive conception to an expert conception, but in leaving the conceptual level, in agreeing to lose one's conceptual landmarks. It is a gesture of loosening, of letting go, that implies an attitude of receptiveness, humility, and in a way vulnerability. One of the clues that the subject has actually achieved this gesture is the surprise he feels when discovering an unexpected dimension, for which he cannot find any pre-existing conceptual category. It is then difficult to suspect him of being influenced by a preconception (Vermersch, 2000; Hurlburt & Schwitzgebel, 2007).

Coming into contact with experience is not therefore acquiring some new knowledge about experience, but rather striping ourselves of the knowledge that prevents us from entering into contact with experience. It is a process of simplification and distillation rather than complication and enrichment. This iterative process (Hurlburt, this issue), that enables us to free ourselves from increasingly subtle preconceptions in order to have more intimate contact with experience, seems to have a specific structure. A better understanding of this structure - the different stages of this letting go, and the succession of minute gestures that enable us to come closer and closer to experience — requires a meticulous investigation of the reverse micro-process of superimposition to experience, of its different stages and of the different mechanisms of resistance that make us impervious to it.

4. Describing experience

We will now consider the argument of verbal distortion.

If the capacity of words to describe lived experience has been questioned, the process of description itself has been little studied and described. The few descriptions that have been made show that it consists of precise inner gestures, usually concealed by the rapidity and spontaneity of verbalization: entering into contact with experience, testing the quality of this contact, intensifying this contact, letting words come, confronting words with experience to evaluate their appropriacy.[24] These gestures can be learned and perfected, or facilitated by the questions and prompts of an expert interviewer. The authenticity of a description relies on this being carried out correctly.

It has been noticed that the gestures that enable the *description* of an experience differ in subtle ways from those that enable the *expression* of this experience (Petitmengin, 2007, p. 72; Hurlburt & Schwitzgebel,

[24] This process is described in detail by E. Gendlin in (Gendlin, 1962) and in the context of the 'Thinking at the Edge' method (for example in 'Introduction to thinking at the edge' and 'Making concepts from experience'). See also (Petitmengin, 2007).

2007, p. 156). When I am in contact with a feeling, I can *express* it through a poem, a picture or a dance, but I can also try to *describe* as precisely as possible its sensorial characteristics, as well as the process of its emergence, transformation and disappearance. For example, I can express a given emotion by writing: 'The setting sun is lighting up the woods / Joy is opening its wings / How the sky is blue and boundless!' (Victor Hugo, 1982). But I can also make a less poetic description: 'a sensation of heat in the centre of my chest, which intensifies, becomes bigger, and then rises in my throat'. How does what someone carries out in order to enter into contact with their experience and describe it differ from what the poet does? A meticulous work of description and comparison of these two know-hows would enable us to answer this question. A possible difference might be related to the use of metaphors: whereas expression calls extensively and loosely on it, description needs precise vocabulary, which for the time being we lack. But why not create it? (Wittgenstein, 1992, § 610 p. 291) What prevents us from introducing new words that would enable us to refer to the various dimensions of our experience – for example words coming from a disciplined and collective use of metaphor or metonymy (Findlay, 1948), rather than from free metaphors as in poetic expression? Why not refine our vocabulary gradually as we become more skilful and discriminating in exploring our lived experience? Why not follow the same way by which oenologists have created a very rich vocabulary in order to describe the olfactory and gustatory experience of wine (Courtier, 2007)?

The explicitation process, with its use of verbal descriptions, has been criticised for transforming experience, and notably altering it by decomposing and dissecting it. But what do words do to experience? What does the investigation of the process of explicitation teach us about this question? One thing it teaches us is that the fact of expliciting indeed transforms experience: it does not consist in putting words on an experience that would pre-exist to them and would remain unaltered by them. But neither does it consist of dissecting experience. On the contrary, it has the effect of unfolding experience, while enriching it with new nuances. The word — whether it is 'this', or 'this strange thing' — is a sort of pointer or 'handle' that enables us to discriminate and intensify slight differences in experience. 'The snow that had just fallen had a very strange aspect, different from the usual appearance of snow. I decided to call it "micacé", and it seemed to me, as I chose this name, that this difference became more distinct and more fixed than it was before' (James, 1890/1983, p. 484). In a subsequent description, by relying on this new word ('micacé') the

subject will be able to refine his consciousness of this experience even more, to intensify his contact with it. In the same way in our study of the auditory experience (Petitmengin *et al*., this issue), the development of an appropriate vocabulary allowed us to progressively refine our consciousness of this experience.

However, the fact of relying on words, of describing on the basis of previous descriptions, without coming back to the experience, may end up in provoking a sort of absorption into words, and in becoming cut off from experience. The freshness of contact with experience gets lost, the words become disembodied. We may have the feeling of pronouncing empty words, 'to be only in the words'. But there are some internal criteria which can inform us about this loss of contact, allowing us to revive the evocation through specific micro-operations and to enable fresh, more precise words to emerge. And the search for these internal criteria can be promoted through specific guidance by the interviewer.

Words as such don't display experience, they only point at it. As Heidegger wrote, 'phenomenological concepts cannot communicate their full content, but only indicate it' (Zahavi, 2003, p. 173). Words have the power to help the speaker to amplify, to unfold his experience. They also have the power to trigger the unfolding of an experience in the reader or listener, thanks to a specific activity of understanding, recognition, appropriation, simulation, entering the situation to feel what the other feels.[25] But words are not experience, nor do they provide it. Their whole power resides in this capacity to refine, amplify, rigidify or conceal a dimension that does not belong to the same order. In themselves, words are empty, they only become meaningful through the gesture that relates them to experience.

In this perspective, the question of knowing if a verbal report corresponds to experience exactly, reflects it precisely, loses its meaning. The validity of a description cannot be assessed according to its ability to reproduce the described *content*, but according to the quality of its own production *process*.

More generally, we are witnessing the emergence of a new conception of the validity of a description, which cannot be measured in static terms of correspondence to experience, but in dynamic terms of authenticity of the process of becoming aware and describing. Whether they are objective or subjective, the criteria of validity we

[25] What does the experience of 'understanding the experience of somebody else' consist of? This experience has been little studied. On this topic the reader can refer to an interesting article by Spiegelberg (1975). See also the literature on 'simulation theory of other minds' (Goldman, 1992).

have do not inform us about the adequacy of the description content, but about the subject's level of contact with experience. The validity of a description is not evaluated by comparing it with its hypothetical 'object', but according to the authenticity of the process that generated it.

5. 'Verifying' introspective reports

In order to deal more extensively with the final question of the verifiability of introspective verbal reports, we still have to differentiate carefully between three levels of abstraction: the experience itself, the description of this experience and the type of experience which is described.

Singularity, privacy and reproducibility

First of all, a given *experience* (a token of experience) is singular and non reproducible either by others or even by the person who lives it. I will never relive the instant that I am living. I will never smell again the perfume of this rose. I will never relive the present experience of imagining this mountain waterfall.

A lived experience is not only singular but private, and inaccessible to others. I do not have access to the particular quality of your experience when you are imagining a mountain waterfall, to the 'what it is like' of your experience.

The experience of *describing* a particular experience of mine (a token of description) it also singular and non reproducible. On the other hand, the result of this description is potentially accessible to anyone.

Furthermore, whereas a *token* of experience is singular, I can live a given *type* of experience several times: the experience of smelling the perfume of a rose, the experience of imagining a mountain waterfall, correspond to types of experience which are reproducible. And the experience of describing a given type of experience also corresponds to a type of experience which is reproducible: if I know the operating mode, I can reproduce at will singular descriptions of singular experiences of imagining a mountain waterfall. And all these descriptions are accessible to anybody who wants to read or hear them.

Therefore the researcher who investigates lived experience does not have access to the experience of the subjects he interviews, but he

has access to the descriptions they produce.[26] And the descriptions of a given *type* of experience are reproducible (on the condition that one knows the operating mode).

Things are not different in experimental sciences. The type/token analysis apply as well. An event, whether it is astronomical, geological, or physiological, is singular and non reproducible. The measurements of a particular event are also singular and non reproducible. On the other hand, a given *type* of event is reproducible, as well as the corresponding measurements, *if the researcher knows the operating mode enabling him to make these measurements.*

Moreover, the researcher does not have access to events or processes 'in themselves', he only has access to the 'data' he can collect through the intermediary of his instruments of measurement and recording (Piccinini, 2007). The astronomer does not have access to astronomical events, but only to various ranges of (generally electromagnetic) radiations, to their spectrum, to their interferometric images, etc. The neurologist does not have access to the activity of the brain as such, but only to the neuroelectric or neurometabolic activity his tools enable him to record (to which cerebral activity cannot be reduced). Therefore the real criteria of validation of scientific descriptions cannot be their correspondence with the process 'in itself', but another criterion that a recent current of the philosophy of scientific experimentation has termed 'enlarged consistency' or 'performative consistency'.[27] Performative consistency consists of an agreement among (a) the theories, (b) the construction of devices and the understanding of their functioning, (c) the theoretical guidance of measurements, and (d) the results (Pickering, 1995). More simply, performative consistency may be limited to an agreement between the perceptive interpretation of an image and the result of actions guided by perception. Let's consider an example of this kind, discussed by Hacking (1983): the interpretation of images coming from a fluorescent microscope (or X rays). Does one need to ascertain 'correspondence' of these interpreted images with 'the real object itself' in order to consider them as valid? Not at all. On the one hand the comparison of the image with 'the object itself' is impossible (at the very most can

[26] But unlike Dennett, we do not think that one can access the other's experience by way of a purely theoretical and abstract reconstruction from verbal descriptions. Rather, the interviewer can only do that by relying on a process of resonance with his or her own experience (see below).

[27] Consistency is said to be 'enlarged' because it does not limit itself to a logical matching of the parts of a theory, but also concerns the active interventions of the experimenters and the answers given by their experimental devices. The fact that this system also includes experimental activity makes also qualifies it as 'performative'.

we compare several images coming from different types of microscopes). And on the other hand, the researcher can do completely without such a comparison in practice. Instead of comparing, he contents himself with *acting* under the supposition that the image is correct, and with insuring that the result of the action, controlled by a new image of the same microscope, is in conformity with what the initial image permitted him to foresee. In sum the criterion of validity of the image limits itself to an enlarged consistency between the image, the interventions that it makes possible to guide, and another image of the same type that highlights the consequences of these interventions. Validation relies on a form of consistency and not on 'correspondence' (Shanon, 1984). True, when performative coherence has been reached and stabilized in some given scientific field, it is tempting to believe that this reveals a *correspondence* between a theory and its external object. Such a shortcut may help, as a provisional incentive to use the said theory as a guide for action. But it should not be endowed with any ontological significance. Indeed, when a scientific revolution occurs and new broader cycles of performative coherence emerge, one often realizes retrospectively that former beliefs about the strict one-one correspondence between the older theory and its putative objects were unwarranted.

In the case of first person experience, two types of validation on the 'consistency' mode are possible: the validation of a singular description and the validation of a type of description.

Idiographic validation

The *public* character of a singular verbal report and of the behavioural clues that accompany it enable the researcher to evaluate its validity through a number of objective criteria. On the one hand, precise clues — linguistic clues as well as para-verbal and non verbal ones — enable the researcher to assess the level of contact of the subject with his own experience (Hendricks, this issue). These are indications of the *authenticity* of the description. On the other hand, the design of appropriate 'experiential protocols' enables the correlation of a description with objective measurements. For example, a task consisting in memorizing a matrix of numbers may be complemented by questions chosen in such a way that the response time varies according to the strategy adopted (visual or auditory). The answers to these questions bring elements of confirmation or invalidation to the description of the corresponding experieince (Vermersch, 2000). In the same vein, Hurlburt suggests creating tasks to enable correlating

the description of reading strategies to measurements of the reading time (Hurlburt & Schwitzgebel, 2007, p. 274). In this case the researcher obtains indications enabling him to evaluate the degree of coherent connection of the description to the described experience.

Intersubjective validation

The public *and reproducible* character of descriptions of a same type of experience also enables intersubjective validation. In fact our lived experience, far from being a simple 'draft', is structured. Analyzing and comparing a set of descriptions of experiences of the same type makes it possible to abstract from them a structure, that is 'a network of relationships between descriptive categories, independent of the experiential content' (Delattre, 1971). Comparing the structures which have been detected in different subjects, by different research groups, for a given type of experience, may then enable the detection of generic experiential categories,[28] that is generic structures, which brings a presumptive mark of validity to the initial descriptions.[29]

The objective of this process is close to that of Husserlian phenomenological psychology, which does not consist in collecting a set of descriptions of particular subjective experiences, 'a singular and facticial sequence of lived moments' (1993, p. 99), but to identify the invariant, essential, structures of psychic life. But the methods are different: in order to identify these invariants, we do not use the Husserlian method of eidetic variation, which consists in varying in one's imagination the adumbrations of an object, in order to detect the constant, essential features, of our experience of this object. But we proceed by progressive abstraction from the description of several real experiences.[30] The identified structures are qualified as 'synchronic' when they concern the configuration of experience at a given instant. They are qualified as 'diachronic' when they concern the evolution of experience in time.

Here are a few examples of generic structures.

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[28] Generic experiential categories are meta-knowledge. They must not be confused with the reflective consciousness (sometimes termed meta-awareness) of a singular experience, which does not require the recognition of this dimension as generic (a confusion that seems to have been made by Schooler, 2004).

[29] An example of this work of abstraction of experiential categories from a set of descriptions (of the experience of emergence of an intuition) is given in (Petitmengin-Peugeot, 1999) and (Petitmengin, 2001, chapter 2).

[30] As Merleau-Ponty wrote, 'Eidetic psychology is a reading *of invariant structures* of our experience from imaginary cases, while scientific psychology, relying on induction, is a reading *from real cases*'. (Sorbonne lectures published in *Bulletin de psychologie*, 236, XVIII, 3-6, nov. 1964, p. 147)

- Let's consider again the example of mountain waterfall. The 'what it is like' of the scene you imagined is singular and private. The content of the scene may vary indefinitely. On the other hand, whatever its content is, an imaginary scene is always perceived from a given 'viewpoint', a given perceptual — egocentric or allocentric — position. Moreover, in the experience of imagining a scene, at a given moment each sensory modality is characterised by a specific perceptual position, which may differ from one modality to the other: for example I can be in 'self' position in the visual mode, and in 'other' position in the auditory mode (Andreas & Andreas, this issue). The perceptual position is therefore a complex experiential variable belonging to the generic synchronic structure of the experience of imagining a scene.
- From the analysis and comparison of the descriptions of auditory experiences that we have collected, emerges a threefold structure of this experience, depending on whether the attention of the subject is directed towards the event which is at the source of the sound, the sound itself, considered independently from its source, or the felt sound: in other words, a generic dynamic structure of the auditory experience, or at least a sketch of such a structure (Petitmengin *et al.*, this issue).
- How does a new idea, a new understanding, or a reflective consciousness emerge? Most testimonies focus on the instantaneous and unpredictable character of this emergence, which is therefore difficult to describe and to study. But the progress of first person methods has enabled the description of this process to begin to unfold in time. While keeping an unforeseeable and instantaneous character, the emergence of an idea or understanding seems to be encouraged by a particular inner disposition, which is notably characterized by an intensification of bodily awareness and a specific attentional mode. This favourable disposition may itself be prepared by a particular inner process, which is itself likely to be induced by precise techniques. The work of collection, analysis and comparison of this process is still in progress (Gendlin, 'Introduction to thinking at the edge', 'Making concepts from experience', his article in this issue; Petitmengin- Peugeot, 1999; Petitmengin, 2001; Depraz *et al*., 2002; Depraz, this issue; Mathison, this issue). But a succession of phases, displaying striking regularity from one experience to the other and from one subject to another, regardless of the content emerging to consciousness, is beginning to emerge from this work: in other words, a generic dynamic structure of the understanding process.

This meticulous work of detection of experiential structures from a set of descriptions is delicate and still little known, and little studied. But it is a very vast research field that is opening up.

To summarize, lived experience is private and singular. But this does not mean that the researcher is locked in his/her subjectivity. The analysis of a corpus of descriptions of a same type of experience enables the researcher to identify regularities of structure, that make an intersubjective validation possible.[31]

Does one proceed differently in experimental sciences? Under which conditions is the result of an experiment verifiable? Firstly, the type of experiment must be reproducible, which supposes that the operating mode is described with enough detail for the researcher or a colleague to be able to reiterate actions and use instruments of a same type (all other conditions being equal). Secondly, the results must be comparable either between themselves, or with a theoretical anticipation, which supposes that they are *generically* comparable. However a generic comparison cannot be made case by case but by comparing common *structures*. As the advocates of the 'structural' (or 'semantic') conception of scientific theories highlighted, what enables researchers to test theories is not their confrontation with 'raw observational data', with pure contents; it is their confrontation with structured 'data models' (Van Fraassen, 1989). The neurophysiologist for example, while interpreting electroencephalographic records, does not obtain a great deal of information from the raw, individual tracings. He is rather looking for generic signatures, typical 'waves' having a more or less constant structure. The technique of evoked potentials, which consists in accumulating records after a given stimulus, and coming to recognize typical structures (P300 wave associated with recognizing a specific stimulus, or N170 wave associated with seeing a face), or even better the time-frequency patterns (e.g., synchrony) in single-trial analysis, illustrates well the focusing of scientific method on structures.

However let's specify three methodological points.

First of all, the absence of convergence of the experiential structures detected in several individuals, several populations, or by several research teams, does not necessarily prove their invalidity. Before hastening to draw such a conclusion, it is important to look for the

[31] 'I suggest a distinction between, on the one hand, the particular contents of consciousness that one experiences at a given moment (i.e., specific sensations, perceptions, ideations and other mental states) and, on the other hand, the parameters that define consciousness as a cognitive system. The subject matter of a theory of consciousness is the latter, not the former.' (Shanon, 2008, p. 24) This conception is also developed in (Shanon, 1993/2008).

reasons that could explain this gap (exactly like in any meticulous experimental study).

A difference of structure may be only apparent, actually due to a divergence of interpretation. For example, a few recent authors (Monson & Hurlburt, 1993) showed that the disagreements between the Würzburg and Cornell laboratories about 'imageless thought' were due to a divergence of interpretation. The subjects of both laboratories agreed to describe 'vague and elusive processes, which carry as if in a nutshell the entire meaning of a situation' (Titchener, 1910/1980, pp. 505–506). But in the Würzburg school theoretical perspective, these 'vague and elusive processes' were imageless thoughts. In Titchener's theoretical perspective, they were not.

A difference of experiential structure may also be due to a difference of expertise. A subject who has no disciplined practice of introspection, and a subject who has been practicing vipashyana meditation regularly for twenty years for example, do not have the same perception of their experience. A subject who has been practicing an hour of daily meditation for twenty years does not perceive his experience the same way as a monk who has spent twenty years in meditative retreat. Different descriptions, different structures, only show in this case different degrees of skill, different degrees of reflective consciousness. It would be the role of a science of consciousness to characterise these degrees of skill precisely, and the experiential structure associated with each of them.

Second, let us come back to the *reproducible* character of a type of description. The reproducibility of a result is the kingpin of any scientific validation: a result or an observation must be reproducible, at least potentially, by any researcher. But in order to be reproducible, a result or observation must be accompanied by a description of its own process of production. In the context of a rigorous investigation of lived experience, this requirement means that in order to be reproducible, and therefore verifiable or falsifiable, a type of description must be accompanied by a description of the process that enables one to obtain it, in other words by a description of the very process of becoming aware and describing. Actually, this description is possible: the process of description being itself an experience, it is possible to collect its description and to detect its generic structure. This point is crucial, because it is this generic dynamic structure of the process of becoming aware and describing that enables the reproducibility of descriptions of a given type. It is this generic structure that makes a description falsifiable. It is also this structure that enables a training of this process.

In other words, the researcher is not bound to use the subjects as instruments which he would not need to know the theory nor the functioning of.[32] The researcher must take an interest in the way his data, to wit descriptions of experiences, are produced.[33] Moreover, he should himself be an expert in the process of becoming aware and describing, in order to guide the subjects in the realization of this process and to evaluate its authenticity.

Finally let's come back to the 'public' character of verbal reports. Reports on lived experience are potentially accessible to anybody. But only potentially. In the same way an EEG is accessible to anybody, but readable only by an expert who has received the required theoretical and practical training, a verbal report is not interpretable by an untrained person. The suitable skill consists for example in knowing how to detect the objective — verbal and non verbal — clues making it possible to evaluate the subject's 'level of experiencing'. But this is not all. In the case of a verbal report of experience, interpreting cannot rely only on objective clues. Whether he is evaluating the authenticity of a description or identifying the structure of the described experience, the researcher must understand the experience. However, as we noticed earlier, words do not provide experience, they only point at it. They only become meaningful through a specific gesture the skilled interpreter has to achieve in order to relate with his/her own experience. In other words, researchers in the domain of lived experience cannot avoid making a detour by their own experience. Their expertise must not limit itself to the inventory of objective signs, but must extend to the exploration of their own subjectivity.

Neuro-phenomenological intervalidation

Finally, the fact that using a given experiential structure may guide neurological analysis and help to discover original structures in the electro-encephalographic (or fMRI) data, is a strong confirmation criteria of the validity of this experiential structure. Let's take as examples two projects inspired by the research program initiated by Francisco Varela (Varela, 1996; 1997), that have paid special attention to this neuro-phenomenological circulation.

[32] On this point we disagree with Piccinini: 'Just as other scientists need not have a definite understanding of the processes on which they rely in collecting data, we don't need to have an exact understanding of how introspective reports are generated in order to use them as sources of data; (…) we need not know the details of the introspective process for our use of introspective reports to be legitimate'. (Piccinini, 2003, p.149)

[33] 'I suppose that no reputable scientist would venture to publish any considerable alleged discovery in the physical sciences without a careful investigation of his instruments under the precise conditions under which they were used (Dodge, 1912).'

In Lutz's protocol (Lutz, 2002; Lutz *et al*., 2002), it is the distribution of the neuro-electric data in three classes or 'phenomenological clusters', according to the values of a generic experiential category, which made it possible to distinguish three distinct dynamic neuronal configurations or 'signatures'. In other words, it is the use of an experiential category as a criterion for neuro-electric analysis that enables the detection of an original structure on this level, which confirms in return the relevance of that category through its insertion into a coherent set of data.

In our study of epileptic seizure anticipation (Petitmengin *et al*., 2007), the discovery of a new neuro-dynamic structure (the preictal neuro-electric desynchronisation) first allowed a refinement of the consciousness of the corresponding experiential dynamics (preictal symptoms and therapeutic countermeasures). This refined consciousness of the experiential dynamics enabled in turn the detection of an original structure in the neuronal dynamics (neuronal desynchronisation at a distance of the seizures).

These two examples illustrate a process of codetermination and mutual validation of structures, since the validation of the experiential structure does not rely on its being matched with an independent neuronal structure, but on the process of refinement and mutual constitution of the experiential and neuronal structures. In other words, the question is not to correlate on the one hand neuronal structures as they would exist 'in themselves', regardless of the activity of recording and analysis that allowed their detection, and on the other hand structures of 'pure' experience, regardless of the acts of becoming aware, of description and analysis. But it is to start and to let unfold a process of co-determination and mutual co-validation of the two processes. This is an additional illustration of the process of putting several results and research process in mutual consistency, which enables the validation of first person descriptions.

But here again, this process of guidance and validation by mutual confrontation, is not anything exceptional. It is the foundation of the whole edifice of natural sciences (Bitbol, 1996; 1998). As Quine (1974) and Piaget (1967) underlined, natural sciences cannot take advantage of any external guarantee against scepticism, and therefore of any external guarantee to validate their contents of knowledge. They only rely on the reciprocal guarantee given by the consistency of the system they form as well as by their general efficiency. This process is then at the root of the most basic methods for refining experimental data. For example, how did one check the reliability and exactness of the thermometers made of a mercury column and a

calibrated glass beaker, during the first stages of the science of heat, at the end of the eighteenth century (Bachelard, 1938)? There was no absolutely reliable external standard for this, and moreover there were good reasons to suspect systematic distortions: if the glass expands with temperature in an unknown proportion in relation to mercury, indications of temperature become unreliable. But if one uses another thermometric device, which is also uncertain, to evaluate the dilation coefficient of the glass, one can correct (even imperfectly, because of the second device's uncertainty) the graduation of the first instrument. And so on.

The continuation of the process consists in converging, from mutual corrections to mutual corrections, toward one common interval of values of the temperature that is considered as 'exact'.

Nothing other than such a process of mutual validation is required to give consistency to the verbal first person reports. There is no 'correspondence' to look for with whatever else. We entirely agree on this point with Shanon's remarks (1984; 1993) about the necessity of substituting the theory of truth as consistency to the theory of truth as correspondence when evaluating the truth of first person descriptions. But we also specify at the same time the nature of the consistencies which are to be sought: consistency of descriptions and verbal/ non-verbal clues, consistency amongst the structures which have been extracted from the reports of experience, and finally broader neuro-experiential consistency.

A very basic objection may arise at this point: isn't this kind of circular procedure of validation tantamount to self-validation and unfalsifiability? Doesn't it fall prey to Popper's criticism of psychoanalysis, which was accused of being inaccessible to any possible challenge? To understand why this criticism is irrelevant, one must realize that the requirement of self-consistency is by no means a requirement of closure. For example, 'anomalies' challenging the possibility of describing experience by means of explicitation approaches may arise. But they are bound to be expressed *in terms* of these approaches, and to take the form of an *internal* discrepancy. Thus, it may be the case that several incompatible structures are extracted from reports of experience of the same type of task, and that no rationale can be found for this incompatibility by pushing the interviews further. This would trigger a process of revision of hypothesis and methods.

Here again, this does not depart from the methods of experimental research, which also accepts several levels of circularity in their very procedure of testing. One of them is that a theory is usually tested by

means of instruments described and interpreted by means of this very theory. Another level of circularity is that an 'anomaly' (threatening to falsify the theory) can only be expressed in terms of this theory. For instance, Michelson & Morley's celebrated result was initially interpreted in terms of partial dragging of the ether by the Earth, and not as a relativistic effect. In this case, as in the case of explicitation reports, it is clear that circularity means neither self-validation nor complete closure.

Conclusion

To sum up, becoming reflectively conscious of one's experience and describing it is a process which does not consist in observing or reflecting upon a pre-existing experience, but in an unfolding of experience elicited by precise acts. The validity of a first person report is a validity 'in action', which cannot be measured in static terms of correspondence between the report and the experience, but in dynamic terms of performative consistency of the acts which produce it. Considerable research has to be carried out in order to specify the description of these acts and their modes and criteria of consistency. This is a research program for the years to come, which can be only performed by researchers involved in the practice of these acts. That such a research program is not only possible but also indispensible can be seen in many developments within the neurocognitive sciences themselves. For example, questions such as 'Is the experience of using of Bach-y-Rita's TVSS visual, tactile, a mixture, or a new sensory modality?' imperatively require first-person inquiry (Froese & Spiers 2007).

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References

Andreas C. and Andreas T. (2009), 'Aligning perceptual positions: A new distinction in NLP', *Journal of Consciousness Studies*, this issue.

Bachelard, G. (1938), *La formation de l'esprit scientifique* (Paris: Vrin).

Bergson, H. (1934/1975), *La Pensée et le Mouvant* (Paris: Presses Universitaires de France).

Bitbol M. (1996), *Mécanique quantique, une introduction philosophique* (Paris: Flammarion).

Bitbol M. (1998), 'Some steps towards a transcendental deduction of quantum mechanics', *Philosophia naturalis,* **35**, pp. 253–80.

Bitbol M. (2008a), 'Is consciousness primary?', *NeuroQuantology,* **6**, pp. 53–71.

Bitbol M. (2008b), 'Consciousness, situations, and the measurement problem of quantum mechanics', *NeuroQuantology,* **6**, pp. 203–13.
Block, N. (1995), 'On a confusion about a function of consciousness', *Behavioral and Brain Sciences,* **18**, pp. 227–47.
Bode, B.H. (1913), 'The method of introspection', *The Journal of Philosophy, Psychology and Scientific Methods*, **10**, pp. 85–91.
Brentano F. (1874/1995), *Psychology from an Empirical Viewpoint* (London: Routledge).
Cohen G. (1989), *Memory in the Real World* (Psychology Press).
Comte, A. (1945), *Cours de philosophie positive. Leçons 1 à 45* (Paris: Hermann).
Courtier, M. (2007), *Le dictionnaire de la langue du vin* (Paris: CNRS éditions).
Depraz N. (2009), 'The failure of meaning', *Journal of Consciousness Studies*, this issue.
Depraz, N., Varela, F., Vermersch, P. (2003), *On Becoming Aware: The Pragmatics of Exepriencing* (Amsterdam: John Benjamins).
Delattre, P. (1971), *Système, structure, function, evolution* (Paris: Maloine).
Dennett, D.C. (1991), *Consciousness Explained* (Boston, MA: Little, Brown).
Dodge, R. (1912), 'The theory and limitations of introspection', *The American journal of Psychology*, **23**, pp. 214–29.
Dretske, F. (1995), *Naturalizing the Mind* (Cambridge, MA: MIT).
Findlay J. N. (1948), 'Recommendations regarding the language of introspection', *Philosophy and Phenomenological Research*, **9**, pp. 212–36.
Froese, T. (2009), 'Hume and the enactive approach to mind', *Phenomenology and the Cognitive Sciences,* **8**(1), pp. 95–133.
Froese, T. & Spiers, A. (2007), 'Toward a phenomenological pragmatics of enactive perception', *Proc. of the 4th Int. Conf. on Enactive Interfaces*, Grenoble, France: Association ACROE, pp. 105–108.
Fink, E. (1992), *Natur, Freiheit, Welt* (Würzburg: Königshausen & Neumann).
Gallagher, S. and Zahavi, D. (2008), *The Phenomenological Mind* (London: Routledge).
Gendlin E. (1962/1997), *Experiencing and the Creation of Meaning* (Evanston, IL: Northwestern University Press).
Gendlin E., 'Introduction to thinking at the edge', *http://www.focusing.org*
Gendlin E., 'Making concepts from experience', *http://www.focusing.org*
Genoud C. (2009), 'On the cultivation of presence in meditation', *Journal of Consciousness Studies*, this issue.
Goldman, A.I. (1992), 'In defense of the simulation theory', *Mind and Language,* **7**, pp. 104–19.
Grice, H.P. (2002), 'Some remarks about the senses', in A. Noë and E. Thompson (Ed.), *Vision and Mind*, pp. 35–54 (Cambridge, MA: MIT Press).
Gusdorf G. (1950/1993), *Mémoire et personne* (Paris: Presses Universitaires de France).
Hacking, I. (1983), *Representing and Intervening* (Cambridge: Cambridge University Press).
Hendricks, M. (2009), 'Experiencing Level: An instance of developing a variable from a first person process so it can be reliably measured and taught', *Journal of Consciousness Studies*, this issue.
Hugo, V. (1982), 'Fuite en Sologne', *Les chansons des rues et des bois* (Paris: Gallimard).
Hume D. (1739–40/1969), *A Treatise of Human Nature*, ed. E.C. Mossner (London: Penguin Books).
Hurlburt R.T. (2009), 'Iteratively apprehending pristine experience', *Journal of Consciousness Studies*, this issue

Hurlburt, R. and Schwitzgebel, E. (2007), *Describing Inner Experience? Proponent Meets Skeptic* (Cambridge, MA: MIT Press).
Husserl E. (1913/1950), *Idées directrices pour une phénoménologie* (Paris: Gallimard).
Husserl E., 'La Phénoménologie', article pour l'*Encyclopedia Britannica* traduit de l'allemand par J.F. Courtine et J.L. Fidel (1993), *Notes sur Heidegger* (Paris: Éditions de Minuit), version 2, pp. 93–114.
James W. (1890/1983), *Principles of Psychology* (Cambridge, MA: Harvard University Press).
Jaynes, J. (1976), *The Origin of Consciousness In the Breakdown of the Bicameral Mind* (Boston, MA: Houghton Mifflin).
Johansson, P., Hall, L., Sikström, S., Tärning, B., Lind A. (2006), 'How something can be said about telling more than we can know: On choice blindness and introspection', *Consciousness and Cognition*, **15**, pp. 673–92.
Levin, D.T. & Simons, D.J. (1997), 'Failure to detect changes to attended objects in motion pictures', *Psychonomic Bulletin and Review*, **4**, pp. 501-506.
Lutz, A. (2002), 'Toward a neurophenomenology of generative passages: a first empirical case study', *Phenomenology and the Cognitive Sciences*, **1**, pp. 133–67.
Lutz, A., Lachaux, J.P., Martinerie, J., Varela, J. (2002), 'Guiding the study of brain dynamics using first person data: synchrony patterns correlate with on-going conscious states during a simple visual task', *Proceedings of the National Academy of Sciences* (USA), **99**, pp. 1586–91.
Mack, A. & Rock, I. (1998), *Inattentional Blindness* (Cambridge, MA: Harvard University Press).
Marcel, A.J. (2003), 'Introspective report', *Journal of Consciousness Studies*, **10** (9–10), pp. 167–86.
Mathison J. and Tosey P. (2009), 'Exploring moments of knowing; neuro-linguistic programming and enquiry into inner landscapes', *Journal of Consciousness Studies*, this issue
Merleau-Ponty, M. (1943), *Éloge de la Philosophie* (Paris: Gallimard).
Merleau-Ponty, M. (1945), *Phénoménologie de la Perception* (Paris: Gallimard).
Monson, C.K. and Hurlburt, R.T. (1993), 'A comment to suspend the introspection controversy: Introspecting subjects did agree', in R.T. Hurburt (ed.), *Sampling Inner Experience in Disturbed Affect*, pp. 15–26 (Plenum Press).
Mill, J. S. (1882/1961), *Auguste Comte and Positivism* (Ann Arbor, MI: University of Michigan).
Moore, G.E. (1903), 'The refutation of idealism', *Mind*, **12**, pp. 433–53.
Natorp, P. (1912), *Allgemeine Psychologie nach kritischer Methode* (Tübingen: J.C.B. Mohr), French translation by E. Dufour & J. Servois (2007), *Psychologie générale selon la méthode critique* (Paris: Vrin).
Neisser, U. (1982/1999), *Memory Observed, Second Edition. Remembering in Natural Contexts* (Worth Publishers).
Nigro, G. and Neisser, U. (1983), 'Point of view in personal memories', *Cognitive Psychology*, **15**, pp. 467–82.
Nisbett, R.E & Wilson T.D. (1977), 'Telling more than we know: Verbal reports on mental processes', *Psychological Review*, **84**, pp. 231–59.
Overgaard, M. & Sorensen, T.A. (2004), 'Introspection distinct from first order experiences', *Journal of Consciousness Studies*, **11** (7–8), pp. 76–95.
Petitmengin C. (2001), *L'expérience intuitive* (Paris: L'Harmattan).
Petitmengin C. (2006), 'Describing one's subjective experience in the second person. An interview method for a science of consciousness', *Phenomenology and the Cognitive Sciences*, **5**, pp. 229–69.

Petitmengin, C. (2007), 'Towards the source of thoughts: The gestural and transmodal dimension of lived experience', *Journal of Consciousness Studies*, **14** (3), pp. 54–82.

Petitmengin, C., Navarro V., Le Van Quyen, M. (2007), 'Anticipating seizure: Pre-reflective experience at the center of neuro-phenomenology', *Consciousness and Cognition*, **16**, pp. 746–64 .

Petitmengin C., Bitbol M., Nissou J.M., Pachoud B., Curallucci H., Cermolacce M., Vion-Dury J.(2009), 'Listening from within', *Journal of Consciousness Studies*, this issue

Petitmengin-Peugeot C. (1999), 'The intuitive experience', in F. Varela and J. Shear (Eds), *The View from Within*, pp. 43–77 (Exeter: Imprint Academic).

Philippot P. and Segal Z. (2009), 'Mindfulness based psychological interventions: developing emotional awareness for better being', *Journal of Consciousness Studies*, this issue

Piaget J. (ed. 1967), *Logique et connaissance scientifique* (Paris: Gallimard).

Piaget J. (1974), *La prise de conscience* (Paris: Presses Universitaires de France).

Piccinini, G. (2003), 'Data from introspective reports', *Journal of Consciousness Studies*, **10**, (9–10), pp. 141–56.

Piccinini, G. (2007), 'First-person data, publicity, and self-measurement' <http://www.umsl.edu/~piccininig/First-person%20Data%20short%202.htm>

Pickering, A. (1995), *The Mangle of Practice* (Chicago: University of Chicago Press).

Prinz, J. (2004), 'The Fractionation of Introspection', *Journal of Consciousness Studies*, **11** (7-8), pp. 40–57.

Quine, W.V. (1974), *The Roots of Reference* (Chicago: Open Court).

Ribot T. (1881), *Les maladies de la mémoire* (Paris: Alcan).

Ricœur P. (1950), *Philosophie de la volonté* (Paris: Aubier).

Sartre J.P. (1934), *La transcendance de l'ego* (Paris: Vrin, 1978).

Sartre J.P. (1936), *L'imagination* (Paris: PUF).

Sartre J.P. (1938), *Esquisse d'une théorie des émotions* (Paris: Hermann).

Shanon, B. (1984), 'The case for introspection', *Cognition and Brain Theory*, **7**, pp. 167–80.

Shanon, B. (1993/2008), *The Representational and the Presentational: An Essay on Cognition and the Study of Mind* (London: Harvester-Wheatsheaf; second edition Exeter: ImprintAcademic, 2008).

Shanon, B. (2008), 'A psychological theory of consciousness', *Journal of Consciousness Studies*, **15** (5), pp. 5–47.

Schlanger, J. (2001), 'Introspection, rétrospection, prospection', *Revue de Métaphysique et de Morale* 2001/4, 32, pp. 527-541.

Schooler, J.W. (2002), 'Re-representing consciousness: dissociations between experience and meta-consciousness', *Trends in Cognitive Science*, **6** (8), pp. 339–44.

Schooler, J.W., Dougal, S. (1999), 'The symbiosis of subjective and experimental approaches to intuition', *Journal of Consciousness Studies*, **6** (2–3), pp. 280–87.

Schooler, J.W., Ohlsson, S., Brooks, K. (1993), 'Thoughts beyond words: When language overshadows insight', *Journal of Experimental Psychology: General*, **122**, pp. 166–83.

Schooler, J.W., Schreiber C.A. (2004), 'Experience, meta-consciousness, and the paradox of introspection', *Journal of Consciousness Studies*, **11**(7-8), pp. 17–39.

Schooler, J.W., Reichle, E.D. & Halpern, D.V. (2005), 'Zoning-out during reading; Evidence for dissociations between experience and meta-consciousness', in D.T. Levin (Ed), *Thinking and Seeing* (Cambridge, MA: MIT Press).

Schwitzgebel, E. (2004), 'Introspective training apprehensively defended: Reflections on Titchener's Lab Manual', *Journal of Consciousness Studies*, **11**(7–8), pp. 58–76.

Schwitzgebel, E. (2007a), 'Do you have constant tactile experience of your feet in your shoes? Or is experience limited to what's in attention?', *Journal of Consciousness Studies*, **14** (3), pp. 5–35.
Schwitzgebel, E. (2007b), 'No unchallengeable epistemic authority, of any sort, regarding our own conscious experience – Contra Dennett?', *Phenomenology and the Cognitive Science*, **6**, pp. 107–13.
Schwitzgebel, E. (2008), 'The unreliability of naïve introspection', *Philosophical Review*, **117** (2), pp. 245–73.
Searle, J.R. (1992), *The Rediscovery of the Mind* (Cambridge, MA: MIT Press).
Shusterman, R. (2008), *Body Consciousness: A Philosophy of Mindfulness and Somaesthetics* (Cambridge: Cambridge University Press).
Simons, D.J. & Levin, D.T. (1998), 'Failure to detect changes to people during a real-world interaction', *Psychonomic Bulletin and Review*, **5**, pp. 644–49.
Simons, D.J. & Chalbris, C.F. (1999), 'Gorillas in our midst: Sustained inattentional blindness for dynamic events', *Perception,* **28**, pp. 1059–74.
Spiegelberg, H. (1975), 'Phenomenology through vicarious experience', in *Doing Phenomenology. Essays on and in phenomenology*, pp. 35–56 (The Hague: Martinus Nijhoff).
Stern D.N. (2009), 'Pre-reflexive experience and its passage to reflexive experience: A developmental view', *Journal of Consciousness Studies*, this issue
Sully, J. (1881), 'Illusions of introspection', *Mind*, **6** (21), pp. 1–18.
Ten Hoor M., (1932), 'A critical analysis of the concept of introspection', *The Journal of Philosophy*, **29** (12), pp. 322–31.
Titchener, E.B. (1898/1914), *A Primer of Psychology* (New-York: Macmillan).
Titchener, E.B. (1910/1980), *A Textbook of Psychology* (New-York: Scholars' Facsimiles and Reprints).
Titchener E.B. (1912), 'The schema of introspection', *American Journal of Psychology*, **23**, pp. 485–508.
Thompson E. (2007), *Mind in Life. Biology, Phenomenology, and the Sciences of Mind* (Cambridge, MA: The Belknap Press of Harvard University Press).
Van Fraassen, B. (1989), *Laws and Symmetries* (Oxford: Oxford University Press).
Varela, F. (1996), 'Neurophenomenology: A methodological remedy for the hard problem', *Journal of Consciousness Studies*, **3** (4), pp. 330–35.
Varela, F. (1997), 'The naturalization of phenomenology as the transcendance of nature: Searching for generative mutual constraints', *Alter: Revue de Phénoménologie*, **5**, pp. 355–85.
Vermersch P. (1994/2003), *L'entretien d'explicitation* (Paris: Éditions ESF).
Vermersch P. (1997), 'Questions de méthode. La référence à l'expérience subjective', *Alter: Revue de Phénoménologie*, **5**, pp. 121–36.
Vermersch P. (2000), 'Conscience directe et conscience réfléchie', *Intellectica*, **31**, pp. 269–311.
Vermersch P. (2009), 'Describing the practice of introspection', *Journal of Consciousness Studies*, this issue
Wilson T. (2002), *Strangers to Ourselves: Discovering the Adaptative Unconscious* (Cambridge, MA: Harvard University Press).
Wittgenstein L. (1992), *Investigations philosophiques* (Paris: Gallimard).
Wundt W. (1897), *Outlines of Psychology* (Leipzig: Wilhelm Engelmann).
Zahavi, D. (2003), 'How to investigate subjectivity: Natorp and Heidegger on reflection', *Continental Philosophy Review*, **36** (2), pp. 155–76.
Zahavi, D. (2008), *Subjectivity and Selfhood: Investigating the First-Person Perspective* (Cambridge, MA: MIT Press).