

# Consciousness-Body-Time: How Do People Think Lacking Their Body?

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**Abstract** War captivity is an extreme traumatic experience typically involving exposure to repeated stressors, including torture, isolation, and humiliation. Captives are flung from their previous known world into an unfamiliar reality in which their state of consciousness may undergo significant change. In the present study extensive interviews were conducted with fifteen Israeli former prisoners of war who fell captive during the 1973 Yom Kippur war with the goal of examining the architecture of human thought in subjects lacking a sense of body (disembodiment) as a result of confinement and isolation. Analysis of the interviews revealed that threats to a normal sense of body often lead to a loss of the sense of time as an objective dimension. Evidence suggests that the loss of the sense of body and the loss of the sense of time are in fact connected; that is, they collapse together. This breakdown in turn results in a collapse of the sense of self.

**Keywords** Altered states of consciousness · Sense of self · Phenomenal body · Time · Disembodiment · Prisoner of war (POW)

## Introduction

### Background

In altered states of consciousness (ASC) the manner in which we are Being-in-the-World is likely to change (Ludwig 1966; Tart 1969; Vaitl et al. 2005); perceptions

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of the world become distorted, accompanied by frequent alterations to the sense of body (Tart 1969), time, (Hartocollis 1983; Shanon 2002), and self (Ludwig 1966; Tart 1969; Vaitl et al. 2005).

One possible outcome of extended periods of solitary confinement is the loss of the sense of body, which may lead to the disintegration of the sense of self<sup>1</sup> and, as a result, the structure of thought may break down into its most basic elements. By analyzing accounts of former prisoners of war (POWs) who were held in isolation for extended periods this article seeks to achieve a clearer understanding of the structure of human thought, enabling the researcher to identify these basic factors. It would appear that the sense of time plays a fundamental role in the structure of human thought and for this reason the article focuses on its function in the structure of human thought, in addition to the relationships between the sense of time, the sense of body, the sense of self, and rational thought. Considering that the sense of time, the sense of body, and the sense of self are all central concepts in phenomenological discourse, it is only natural that this study will apply a phenomenological approach.

### Altered States of Consciousness

Daydreams, nighttime dreams, and “being half asleep” are all examples of ASC during which the characteristics of human thought may be dramatically altered (Ludwig 1966; Tart 1969; Vaitl et al. 2005). Many studies have demonstrated that when experiencing ASC humans may be exposed to a whole new type of knowledge (Becker 1994; James 1974; Rouget 1985; Shanon 2002) and, as was noted above, perception of the world may be reconstructed and reshaped. ASC can occur naturally, may be achieved through meditation, hypnosis, psychedelic drug use, or can result from extreme traumatic experiences such as isolation, hunger, and near-death experience (Herman 1992; Ludwig 1966; Tart 1969; Vaitl et al. 2005). An ASC can cause varying levels of alertness, reduced concentration, sharpened senses, the generation of unity among the senses, and hallucinations—whereas illusions are misperceptions of external things, hallucinations are entirely internal; indeed, “hallucinations are perceptual experiences in the absence of an appropriate external stimulus (Blackmore 2004: 306).

In ASC the close relations between subject and body may be altered and detachment from the body may occur (Herman 1992; Shanon 2002; Vaitl et al. 2005). One of the key elements of ASC is a change in the perception of time (Hartocollis 1983). The link between the physical/“objective” clock and the conscious/“subjective” clock may dissipate (Flaherty 1999; Shanon 2002, 2001a, b). Time may lose its “pace,” duration, direction, and its fundamental link to the causality system. The ability to estimate time may disappear (Glicksohn 2001) and, in certain cases, a sense of lack of time and a sense of existence outside of time can

<sup>1</sup> The sense of self is a broad, general term with many possible definitions (philosophical, psychological) and it is thus necessary to outline the borders of this term before progressing any further. Damásio (1999) sense of self is equivalent to the core consciousness. In the sense of self discussed in this article is close to Damásio (1999) autobiographical self (extended consciousness) or what Zahavi (2006) describes as personality. I don't think the last sentence has any place here, but correct me if I am wrong.

develop. Shanon (2001b) divides the experience of time into six salient parameters: (a) flow of time; (b) speed of time flow; (c) temporal sequence of events over time; (d) direction of time; (e) timing of events; and (f) the subjective sense of flow. It has been suggested (Shanon 2001b) that each of these parameters (and all of them together) may deviate from the norm when experiencing ASC.

### War Captivity

Altered states of consciousness may occur during or after traumatic events such as war captivity. War captivity is commonly characterized by a sharp transition from a familiar framework, being part of a state, a military unit, and a social network, to a state of extreme uncertainty and systematic infliction of torture and humiliation. Fear of death, extreme hunger, isolation, lack of movement, and sleep deprivation are likely to induce prolonged ASC. Previous research has suggested that POWs frequently experience detachment from reality (Herman 1992; Neria et al. 1998, 2000a, b, c), and may rapidly drift into dissociation, a sense of being disconnected from one's memories, one's thoughts and feelings, and ultimately one's sense of self (Herman 1992).

Dissociation appears to result from critical damage to the integrity of cognitive and emotional processes (Neria et al. 2000c). In the dissociative state, mutual relations between the inner world and outer reality radically change. Thus dissociation may lead to changes in the perceptions of time and body and to a deterioration of the sense of autonomous identity (Herman 1992; Neria et al. 2000a, b, c).

Because a POW is often held in isolation for long periods of time, an acute sense of helplessness and increased anxiety (Shabtai 2000; Solomon et al. 1995) may arise. Furthermore, other severe mental and physical health problems are to be expected (Grassian 2006), including loss of a sense of self (Herman 1992; Neria et al. 2000a, b, c; Solomon et al. 1995), and the occurrence of hallucinations that undermine the boundaries between the subject and the world, threatening the sanity of the captive (Grassian 2006). For some POWs, emotional breakdown may be inevitable, as reflected in their alienation, outbursts of rage, and the feeling of "going crazy" (Neria et al. 2000a).

Captivity may also provide a rare opportunity to regain cognitive and emotional control over a difficult experience. In the book "Seasons of Captivity: The Inner World of POWs" (Lieblich 1994) former POWs provided unique perspectives on how they looked "at things from (the) outside" (Lieblich 1994: 33, unless otherwise stated all translations are the authors' own), as if "in a state of disorientation" (Lieblich 1994: 77). Likewise, their accounts note the attempt to estimate the passing of time as a common activity in solitary confinement: "The room I was confined to was completely dark, but after a few days I discerned a thin ray of light penetrating the room, and it moved during the hours of the day.... I compared the state of the ray with the guard's watch and so I arranged a clock for myself in the dark room...the organization of time occupied me" (Lieblich 1994: 81). Time organization may be accomplished by creating a routine—"I allocated an hour a day to killing fleas" (Lieblich 1994: 85)—or I "made a schedule for myself...one hour a day I purposely

devoted to abstract thought...I tried to evoke memories of childhood.... After an hour of time which I allocated to myself, I would say: ‘Tomorrow I will continue from where I left off...I identified the time’” (Lieblich 1994: 88).

### Aims of Study and Rationale

The aim of the research is to examine the relationship between three main dimensions: (a) the bodily sense or the bodily dimension (what is defined as a sense of dissociation); (b) the sense of time—duration, continuity, temporality, past-present-future; and (c) the sense of self, the minimal and autobiographical self. This relationship is investigated with reference to the experience of isolation during captivity as radical ASC.

### Methods

Considerable research has suggested that an examination of extreme experiences can provide insight into key coping mechanisms including cognitive and emotional processes (Ludwig 1966; Tart 1969). To this end, the current study used extensive accounts provided by Israeli POWs who underwent extreme experiences during war captivity to examine ASC, and their impact on sense of body and time.

Fifteen Israeli ex-prisoners taken captive during the Yom Kippur 1973 war were interviewed face-to-face. Each interview lasted between one and 4 h, and all interviews were recorded and subsequently transcribed. The interviewees were male combatants in the war, their military roles varied from combat pilots to infantry soldiers. They were held in captivity in Syria, Egypt, and Lebanon and experienced periods of isolation ranging from 36 days to three and a half years. At the time of interview the subjects were aged between 59 and 71 years old. Apart from one subject, the native language of all the interviewees was Hebrew.

In order to examine the human experience from a first person perspective this study applies a method designed to reach the “lived experience” of the subjects (Petitmengin 2006, 2007; Petitmengin and Bitbol 2009; Varela and Shear 1999). To accomplish this aim, we follow the principle that one must stop asking “why” and start asking “how” (Maure 2009): “it is impossible for us to direct our attention at one and the same time onto the ‘what’ and the ‘how,’ onto the object of the process and the way in which we carry it out” (Petitmengin 2006: 238). In other words, it is necessary to focus attention on what reaches the consciousness (Depraz et al. 2003): not on looking for the “truth” but rather seeking out the authentic experience which can reveal the pre-reflective self-consciousness experience (Legrand 2006, 2007, 2011). By using iterative techniques demonstrated by various scholars, including Hurlburt (2009), Maure (2009), Petitmengin (2006), and Vermersch (2009), the method applied here seeks to reach to the lived experience, to uncover new details about traumatic experiences, and to “bring a person, who may not even have been trained, to become aware of his or her subjective experience, and describe it with great precision” (Petitmengin 2006: 229).

## Results

### The State of Consciousness in Captivity

The state of consciousness in captivity is often blurred: “there were periods when I was hallucinating a bit, that dreams were mixed up with being awake.... The transition between being asleep and being awake, it begins to blur, and even when you are still awake, you can dream dreams” (G.). The captive doubts his senses and is frequently unsure of whether he is asleep or awake: “I didn’t sleep much, but the state of being half awake and half asleep, I experienced it a lot” (A.). Some captives feel they did not get any sleep during their captivity: “I think I didn’t sleep much. I would sleep a few hours at night, and during the day I don’t think I would fall asleep” (B.). Other captives reported that they did nothing but sleep—“I slept for many hours” (N.)—and that sleep was the best way to disconnect from the pain of isolation, boredom, and humiliation—“I think those flights into sleep were positive” (D.); “You are trying to sleep as much as possible, to pass the time” (G.). In solitary confinement, with very little or no stimulation and interaction with the outside world, the internal world becomes the captive’s only possession. Under those conditions the boundaries between wakefulness and sleep may become vague: “You are crawling and you pass from being awake into dreams. In solitary confinement it’s not really clear to you when you are dreaming while you are sleeping and when you are hallucinating while you are awake” (G.); thus, “reality and dreaming are mixed up” (G.).

When people are sleeping the normal dimension of time usually disappears, and when awake time seems so obvious that it is taken for granted and becomes transparent (Zakay 1998). The accounts of the captives suggest that during extreme traumatic experiences, such as captivity, some subjects experience a decreased capacity to effectively distinguish between states of sleep, wakefulness, or hallucination: “I remember that it was a great big mix-up. It’s not really clear to you when you are asleep and when you are tired, in pain, and hallucinating” (G.).

Fundamentally, in order to be a part of this world one should be able to predict the future on the basis of the past—this stands at the heart of many cognitive models. Reality, therefore, is an expectation (in thoughts) that materializes in the external world. For the captive this is simply not the case. The sensation that “It is impossible to distinguish between hallucination and dream” (M.) demonstrates that for the captive reality is disintegrating; he can no longer predict the future on the basis of the past. In a situation in which fantasy and reality have become inseparable and indistinguishable—“Even when awake, there is a lot of fantasy” (B.)—the rules of daily life do not apply, including the arrow of time. Instead, the captives’ state of consciousness is deeply affected by the inability to accurately perceive time as an objective dimension.

### Sense of Body

The concept of Being-in-the-World (Heidegger 1996; Merleau-Ponty 2002) challenges the critical (unbridgeable) gap between the subject and the object,

“the metaphysical structure of my body, which is both an object for others and a subject for myself” (Merleau-Ponty 2002: 194). In order to bridge this fundamental gap, humans should be described as being part of the world; that is to say that the body always exists in a “double way...double status” (Thompson 2007: 251–252) or, using Merleau-Ponty’s terminology, the body is “mediator of a world” (Merleau-Ponty 2002: 167). Indeed, the subject is in the middle of the world: “The world is not what I think, but what I live through. I am open to the world, I have no doubt that I am in communication with it, but I do not possess it; it is inexhaustible. ‘There is a world’, or rather: ‘There is the world’” (Merleau-Ponty 2002: xvii–xix). As living subjects we are thrown, through our body, into the world, “The body is our general medium for having a world” (Merleau-Ponty 2002: 169).

Thus perception is acquired through the body (Gallagher 2003, 2002; Noë 2004); namely, we “are aware of perceptual objects by being aware of our own body” (Zahavi 2003: 105). According to Merleau-Ponty, the body is at once a subject and an object (both-and) and therefore can sense itself: “When I touch myself, I feel myself being touched” (Merleau-Ponty 2002: 80). Moreover, the body is not passive but, as Heidegger (1996) describes it, Being-in-the-World. Indeed, as Matthews notes, “it would be impossible to experience objects unless, for each of us, our own experience were not itself one of those objects” (2002: 48). Yet at the same time, the body is subjective (Merleau-Ponty 2002). The phenomenal body represents this double structure: it is connected to the world just as it is naturally linked to the subject. By defining the human body in this manner Merleau-Ponty (2002) designated the body as the link between subject and object.

This is especially significant to the discussion herein, since in captivity the captive’s body often occupies a central place: “You are very busy with caring for yourself, for your wounds, with your body” (N.). Yet paradoxically, in order to survive this extreme situation, the captive must “cut” himself off from his own body (see Herman 1992): “I put myself into a bubble” (L.) so that “It is the body which suffers and not the soul” (L.). This experience of separating the body and the mind is described by most captives: “From the moment that I was caught there was no body”. I was completely cut off from the body (D.), or “In captivity the body was as if it were not completely mine. It was a tool which they could use to hurt me, or a tool which produced pain and discomfort” (D.). Yet D. does not claim that he lived separately from his body—“There is the body which is concerned about having food”—“but that while his body belonged to captivity” (D.) his mind remained his own: “My head was mine, you couldn’t lose that. The battle was in your head” (D.).

Being disconnected from the body may result in a loss of control—“I...was going crazy” (M.)—which consequently inspires the captive to try to revive his sense of body in various ways: “I began to talk to myself—to my body; not in a loud voice, quietly” (E.). Moreover, in order to regain one’s sense of body, the captive may test his capacity to feel physical (“real”) pain: “I would begin to hurt myself in the area which was injured during the investigations”.

## The Nature of Thought in Captivity

In the absence of a sense of body, which is the rational object of consciousness (Bermúdez et al. 1995; Cassam 2011; Cosmelli and Thompson 2011; Damásio 2003; Spinoza 1677/2008; Varela et al.1991), it becomes increasingly difficult for the captive to effectively distinguish between reality, hallucination, and (controlled) imagination.

Some accounts by POWs reflect an inherent fear of “emptiness,” a fear of lacking conscious thoughts in their mind: “The most frightening thing is that a vacuum is created in your head; that suddenly the thoughts have run out” (S.). From the captive’s perspective this vacuum is a more fundamental threat to sanity than any kind of physical pain: “For me, I think, physical pain was the easiest. For me, clearly, the emptiness, that was the most difficult thing” (S.).

In a world with no stimulation—“You lack stimuli and you are constantly seeking them” (S)—imagination takes on an essential role in conjunction with the emptiness of thought. Thoughts are the key dimension in which the captive exists. He is no longer Being-in-the-World but rather becomes, in a way, disembodied and disconnected. Imagination, as a purely mental process, functions significantly in the captive’s attempts to avoid sliding into mental illness: “Imagination begins to play a very important part in maintaining sanity” (H.). However, as opposed to normal states of consciousness in daily life, the captive has an existential need to distinguish between dream and imagination since he is unable to comprehend reality as something to be taken for granted; because he becomes, in some respects, disembodied, the feedback from the world/body is fundamentally missing. In order to remain sane the captive wants to (and must) discern whether he is sleeping and dreaming reality, or awake and experiencing hallucination: “You are suddenly deep into some dream though not asleep. You are awake but you are not awake” (E.). Since by losing his sanity he is losing his body as both a subject and an object, as an integral part of the world, geared into the world, this loss has immense implications in many areas, one of which is the sense of time.

## The Sense of Time in Captivity

Time plays a key role in captivity: “I learned that the most important thing was time... time is a dimension which is very significant” (P.). For POWs each and every hour is an endless struggle; every passing day draws the captive farther away from his previous life—“Each day that passes, you become farther away from life” (L.).— At the same time lengthens the captivity further: “I didn’t know how long it would continue” (L.).

POWs’ accounts suggest that sense of time and sense of body may be closely related: “I didn’t have any organization of time, only body time. My time was my body rhythm” (D.). The ability to “pass time” and to develop a daily routine and a “time framework” appears crucial to the captives’ survival: “I tried to build a kind of permanent daily routine for myself” (S.); “I tried to organize a daily routine” (Y.). Creating a daily routine plays an important role in maintaining sanity—“After some time, you organize a daily routine. Some activity so as to occupy yourself, so

as not to sink into thoughts which are not good” (E.)—and in introducing order into his thoughts—“After some time, you develop a daily routine for yourself, do a bit of physical exercise, organize your thoughts” (G.). Of course, this is not always successful: “You don’t have any control over time. I didn’t succeed in organizing the time and creating a daily routine” (R.).

Despite, or more accurately due to, the fact that the sense of time as an “objective”/“Newtonian” dimension is frequently lacking in captivity, captives often try to develop a general time framework, seeking to experience consciously the passage of time and to reduce the suffering resulting from isolation: “Every day a ritual, to mark a line on the wall, that another day has passed” (E.). James (1890), Zakay (1998) and Zakay and Block (1997) argue that it is crucial for humans to perceive the end of a process (e.g., boiling water). Hence it is obvious why the captives must create a conceptual ending (framework) to their time in captivity, although they are fully aware of the fact that this ending is only virtual: “You constantly give yourself a time target of...until then—in November I said to myself until December, no more than that. After that, until Chanukah” (E.). Once more it is clear that creating a time framework is essential for survival. Indeed, as will be discussed below, it is a precondition for generating a new and disconnected autobiographical self: “I postponed the date to the next month so as not to sink into deep depression. It was always far enough away that it wasn’t tomorrow morning and close enough that I wouldn’t sink into deep depression” (S.). R.’s articulation is very precise: “You create a mental state for yourself, each day it is again two more months” (R.). Thus in solitude the time framework is mental.

Captives’ accounts suggest that disintegration of the body, reduced ability to experience a perceived body (we are not suggesting that the body is something we perceive), and lack of capacity to experience the passage of time (or, more correctly, to exist in the dimension of time; not to sense it, but to exist in it as an objective dimension) are closely related and may represent some of the core components of consciousness resulting in the feeling of Being-in-the-World: “To be a consciousness or rather to be an experience is to hold inner communication with the world, the body and other people, to be with them instead of being beside them” (Merleau-Ponty 2002: 111). Thus losing the sense of body goes together with losing the sense of time: “It was after a week of standing, in fact I don’t know if it was really a week” (S.), or as E puts it, “Very slowly you lose the time. For example, I don’t remember how much time the week of standing took (What, it was a week? Someone told you a week...?)” (E.). The ability to recognize the length of any experience changes in a radical way: “I don’t remember how much time it was. I don’t know if it was a day or 2 or 10 days” (E.). According to E., this loss is directly connected to the body—“When you are in a difficult physical situation you lose the sense of time; listen, you reach a state in which there is no time” (E.).

Indeed, when pain reaches a certain threshold and becomes intolerable, the captive may abandon his body by giving up the sense of ownership (“the sense that I am the one who is undergoing an experience; for example, the sense that my body is moving regardless of whether the movement is voluntary or involuntary” [Gallagher 2000: 15]) and by doing so he loses track of time: “If you are being shaken, and if you get hit in a way which is untimed, and if you are constantly



thirsty and hungry and they don't let you sleep and you have to stand with your hands up and you are hungry all the time, there is a lot of pain, a lot of exhaustion, terrible thirst, and then there isn't any, there wasn't any time" (D).

By losing his body, the captive is not just losing the sense of time as a general framework but also losing the sense of duration. According to Merleau-Ponty (2002), for duration and the sense of *nowness* (on this, see for example, Varela 1999) to exist there must be activity by the subject; duration is not a natural attribute, but rather the quality of a subject who is thrust into life (for an experiential approach, see Poeppel 1997). However, in captivity the subject feels that his body is merely an object—"You are almost like a thing" (S.). This is clearly a dissociative mechanism suggesting that the bodily dimension is lacking: the body stops being "both-and" and ceases to produce naturally the sense of duration and the sense of *nowness*; this in turn has fundamental implications regarding the sense of self.

### Thought and Time

Often, struggling captives tend to examine the relations between time and thought through the quality of the experience: "How much time had passed? I think it was sometimes connected to the task that you had taken on yourself or in the story that you were experiencing...in its quality or its essence" (P.). When lacking outside stimuli, felt through the body, the sense of how much time has passed depends on internal mental processes, for example cognitive process, or what Husserl defined as internal time. It should, however, be noted that the structure of internal time cannot form the basis for objective time (Husserl 1964). Indeed, internal mental processes refer to a certain quality expressed in the cognitive and sensory overload. In a world lacking bodily dimension these constitute the basis for the creation of a sense of time: "I did serious work here" (P.), and this "gives you the sense of time" (P.). In short, when lacking the bodily dimension the sense of time is rooted (and formed) within internal mental processes.

Thus P. has difficulty describing his experience, yet the connection between the depth of thought and the mental processing (which may correspond to some cognitive models, such as information processing, [Glicksohn 2001]), as well as the sense of passing time, are clear to him. One example is the feeling that deep mental processes continue for longer than usual—which fits well with the principle of cognitive load presented by Zakay (1998), Zakay and Block (1997): P. does not know how much time has really passed (since he is lacking his sense of body) and therefore thinking becomes the point of reference for creating any measurable kind of time and for the sense of time. It seems that when the sense of body is lost the sense of time becomes anchored (and fixed) in one's thoughts. In fact, in the case of the captive's rhythm of thought, we find that its flow is on the edge of stagnation. This finding is critical in the search for the preliminary sense of time: "Thinking is remarkably slower, the pace is slower" (G.) or, in S.'s words, "everything is in 'slow motion'" (S.).

Thus captives' accounts suggest that the relationships between time and thought may be severely affected during captivity. First, thought begins to progress independently of the body and the arrow of time, which the body seemingly imports

from the outside. This may indicate that the dependence of thought on time is basically a habit rather than a necessity. Moreover, in isolation, the sense of time stems from thought, not only from the flow of changing thoughts but also, and especially, from the content of thought.<sup>2</sup>

### What (and Why) Does the Captive Try to Control?

The captive has little, if any, control over his life—“One of the things is that you don’t have control over your life. You are almost like an object” (S.); “Nothing was under my control” (Y.) The analogy of an inanimate object is not coincidental. An inanimate object is passive, a “thing” that is simply moved from place to place. If we accept the assumption that a person’s sense of control over his life is vital for human existence (Herman 1992), the reason that the captive tries obsessively to achieve control becomes clear. For some these efforts do not yield results: “You say to yourself: concentrate, think, and there isn’t any reaction. Everything happens without understanding...it simply happens to you...and it’s an awful feeling of helplessness, uncertainty, futility, of nothing” (Y.). For others, these efforts were more effective—“I was in control all of the time. It’s not a question of decision. That’s just the way it is” (A.). Captives use various strategies to increase control over their conditions: “I found things to keep me busy all the time. I only dealt with the world that I could influence” (B.). Lacking a sense of body, the struggle to control thoughts becomes the struggle to maintain the sense of sanity. This is reflected in the words of S., “There is a connection between control and mental clarity” (S.), and Y., “Keeping your brain sane, that’s the goal, the battle is in your head, to keep it clear. There are moments when you are on the brink”(Y.).

Captives find various ways to win the battle to maintain control and keep their sanity. Some communicate with their own selves—“I began to speak to myself, to my hands, to my feet” (E.)—while others focus on increasing their power over uncontrolled thoughts:

It was very important for me to apply discipline to my thoughts because the thing that most frightened me, apart from dying and being in pain, was losing my sanity. And so I applied strong discipline to my thoughts, I made sure that I would not go crazy (D.).

Some captives try to think practically—“...always very practical. I was very realistic” (N.); realistically—“I was very realistic” (L.); “They didn’t succeed in disrupting my realism” (A.); or logically—“Every logical thought is a kind of control and getting out of the situation you are in” (R.).

In order to deal with the continuing uncertainty and painful loss of control over the “real” world, the captive tries to create a framework, some space (dimension) in which there is a degree of certainty. This is often achieved by controlling one’s inner world, the world of thoughts: “You are in zero control, so what I did to cut

<sup>2</sup> The word “content” may seem vague, yet from a cognitive perspective we may simply say that “content” is information processing (Glicksohn 2001). Thus the sense of time is reduced to information processing, meaning that the sense of time can basically be deduced from the cognitive resource consumption necessary to process information.

myself off from this impossible reality was to start to delve into my thoughts” (L.). Thinking is an effective way to cut oneself off from the pain and uncertainty: “When there is darkness you don’t know what is in front of you and then you can’t be in control. In a situation like this the instinct is to close your eyes because you will feel better” (H.). In this way some captives are able to regain some of the lost control, making the situation somewhat bearable: “I think that all the time I was in a sort of control...that meditation, it did not take me to some kind of place, because I was also always aware of everything that was going on around me” (B.). The captive pressures his mind to keep “thinking”—“You have to be able to force your brain to think” (P.). Maintaining an active imagination reduces loneliness, minimizes the suffering associated with the full realization of the harsh reality in which he finds himself, preserves some degree of control and prevents the captive from slipping into insanity: “Imagination has an important role in keeping sane” (Y.); “Imagination begins to play a very important role in keeping your sanity” (H.). Yet at the same time, he struggles to maintain a logical and realistic outlook. In order to cope effectively with captivity he must distinguish between illusionary and real thoughts. This is increasingly challenging, since lacking a sense of body (bodily dimension) the gap between imagination and hallucination can become quite vague. In essence, the captives’ struggle concerns the ability to maintain realistic thought without a sense of body. Indeed, when captives become unable to distinguish between real (logical, or at least, controlled) thought and hallucination they may lose control over their own minds and drift towards insanity.

## Discussion

### The Embodied Mind and the Sense of Time

Although Descartes (1637/1996; 1641/2008) was mistaken when he tried to deduce substance from thought—“Je pense donc je suis”—his intuition was probably correct. As humans, we commonly feel that there is a mental entity that “controls” our bodies (sense of agency), a mental “I” separate from the body and, at the same time, causally related to it: “nearly everyone has had intensely at some time...the feeling that one’s body is just a vehicle or vessel for the mental thing that is what one really or most essentially is” (Strawson 1997: 407). The interviews conducted with a group of POWs suggest that during captivity this (sense of) union between mind and body often breaks down,<sup>3</sup> and the feeling of Being-in-the-World may be severely damaged. Moreover, the captives’ accounts suggest that the mind–body disintegration has far reaching implications for the relations between body, thought, and the world.

In order to survive exposure to tremendous physical (i.e., torture) and emotional (i.e., humiliation; confinement; loneliness) pressures, captives are forced to detach, if using dualistic terminology, their minds from their bodies. The interviews suggest that when this detachment continues for a long period of time it may result in

<sup>3</sup> It is important to emphasize that we are not claiming that there exists any kind of dualism.

instability of the links between thought-body-world, as well as a disruption of the sense of time (nowness, duration, etc.) and arrow of time. Moreover, our analysis suggests that there is no single phenomenon that is not influenced by the sense of time. In other words, the sense of time is a mirror reflecting the current state of relations between thought, body, and the world.

Indeed, the sense of time is firmly rooted in the body. Interestingly, this is consistent with Wittman: “body states as a whole could, nevertheless, form the building blocks of a timekeeping mechanism [...] the insular cortex, which integrates body signals, is the anatomical basis for the creation of emotions and the sense of time” (2009: 1962). When the sense of time no longer functions as an objective dimension linked to the natural body this can induce an (ASC) and (in a cyclical motion) the (lack of) sense of time becomes crucial during ASC. Indeed, on the macro level (past-present-future) the captive must create a time framework for himself—in order to know how much time has passed. Yet on the micro level (e.g., temporality, duration) the captive must find a way to revive the time dimension as something that exists once more as fixed and transparent (as a kind of “ether”).

Thus the challenge facing the captive is how to reestablish time in light of the “disconnection” from his body. Lacking a sense of body, the captive attempts to restore some sense of time based on the inner world, a world disconnected from his body and existing in a different kind of dimension in which thoughts are not embedded in the natural body anymore but, lacking their bodily dimension, have become disembodied.

It should be noted that thoughts are essentially for the sake of the body: “the mind exists because there is a body to furnish it with contents” and at the same time, “the mind ends up performing practical and useful tasks for the body” (Damásio 1999: 206). Thoughts are entrenched in one’s body (Gallagher 2005; Lakoff and Johnson 1999). The object of thought is the body and hence the sense of body makes consciousness meaningful and rational. In other words, the nature of thought is a direct outcome of the need to throw oneself into the world (through the body). Thus how one can think without a body (brain-in-a-vat) and what does it mean to think without a sense of body (Cosmelli and Thompson 2011)? The interviews conducted with POWs support the concept that the body is the rational basis of thought—when lacking a body, thoughts are irrational, and thus lacking a sense of the body (sense of ownership, weak sense of agency) the subject has difficulty in distinguishing between imagination, hallucination, and reality (Ornstein 1969; Zubek 1969). Thus a person becomes unable to distinguish between reality and hallucination when lacking a sense of time, since causality has nothing upon which to rely (namely, A comes before B and is the cause of B). Consequently, it appears that the sense of time is the best indicator (mirror) for identifying and classifying whether a person is dreaming, hallucinating, or perceiving reality. In fact, time lies at the heart of the structure of thought. Our experience of time depends on the intensity with which we are thrown into the world. The more the sense of time becomes subjective, the more the character of thought changes. Eventually, sense of time enables the subject to distinguish between hallucination, reality, and dream. Moreover, *the gap between hallucination and reality is qualitative; hallucination, illusion, and reality are not different in kind, but in degree.*

Time, as a dimension, is essential for experiencing perceptions as objective and real, and thus a sense of time is a precondition for perception (Zahavi 2003). The attempt to revive the sense of time as a dimension is no more than an attempt to dive (become absorbed) into the world (once again) and, by so doing, to extricate oneself from infinite subjectivity; namely, to discover the body once more as “both-and” (double status). Indeed when the objective layer vanishes, the subject drowns in subjectivity and, as we have seen, in the long term this becomes an existential threat. This is indeed the case in the absence of a sense of body, as a result of which the subject loses his/her ability to think rationally and maintain his/her sanity. Here we suggest that in such circumstances the basis for remaining sane lies in the creation of a disembodied phenomenal body.

### A New, Disembodied, Phenomenal Body

In normal states of consciousness the phenomenal body is essentially equivalent to the sense of the “natural”/actual body, what Heidegger (1996) and Merleau-Ponty (2002) define as Being-in-the-World. The various constraints faced by the captive—solitary confinement, changes in the perception of time, a weakening body, and complete dependence on the captors’ will and control—lead to a dramatic change in the natural pace and flow of life. Consequently, the phenomenal body loses its natural qualities; it ceases to be an object thrown into (and absorbing) the world in a pre-reflective way. In solitary confinement the minded body lacks its natural body (as its object); and thus the nature of thought changes, the structure that unites body-world-thought is damaged and becomes disembodied (rather than being-in-the-world). To use Merleau-Ponty’s terminology: “I am no longer concerned with my body, nor with time, nor with the world, as I experience them in antepredicative knowledge, in the inner communion that I have with them” (2002: 82), that is to say, “I now refer to my body only as an idea, to the universe as idea, to the idea of space and the idea of time” (2002: 82).

In normal circumstances the phenomenal body represents our body as it is present and active in the familiar world. In fact, the phenomenal body represents a certain phenomenal field. For example, when a person passes from one gravitational field (such as earth) to different gravitational field lacking any gravity (for example, the moon, space), the phenomenal body represents this physical change exactly, and in this respect it is clear that the phenomenal body represents the world in which the actual/natural body is absorbed. This same phenomenal body is represented in the neural mapping in the brain (Ramachandran and Blakeslee 1998; Solms and Turnbull 2002),<sup>4</sup> although this does not always represent the actual/natural body.

<sup>4</sup> Merleau-Ponty was one of the central thinkers to make an attempt at developing a theory not dependent on the representational framework—for a discussion see Dreyfus (2002). Noë (2004) continues in this manner, trying to generate a theory of perception which does not require representation. Although terminology of representation is used here, we do not claim that the world is represented perfectly in the brain; for more on this see Noë (2004). At the same time, Varela (e.g., Varela et al. 1991) and other central thinkers do not deny the importance of neurological activity or negate the possibility that exists neural activity rooted in the way that the body is present in the world. Rather, they oppose the approach of radical representationalism which claims that the brain is disconnected from the world. Indeed, we are convinced that there is no possibility of a brain in a vat, yet at the same time a discussion of neural maps

For example in the case of Out-of-Body-Experience (OBE) the sense of self passes to another body (Blanke and Metzinger 2008; Metzinger 2005) and in such a case the phenomenal body does not represent the actual body but the body resulting from a certain action of the subject; in this particular case (OBE), the phenomenal body is purely subjective. A further example arises from the world of computer games, in which the phenomenal body can be a kind of avatar (Lenggenhager et al. 2007; Slater et al. 2010). Moreover, when we imagine ourselves doing something we are imagining this in a certain body: this is the same phenomenal body that represents our limits and possibilities in the world. Therefore, the (virtual) phenomenal body serves us constantly, even when imagining or thinking.

In order to survive in captivity the captive creates a new and separate from the natural body. This idea may seem problematic, yet it is already well known that at times the brain creates unreliable and distorted bodily mapping (Damásio 2003). The reason for this may be evolutionary, for example in order to ignore pain during fear the bodily mapping in the brain does not represent pain. Yet a person's ability to perform simulations, to plan, to imagine, all these necessitate the creation of bodily maps disconnected from what is really happening in the body at any moment, a result of the fact that in daily life we constantly generate virtually bodily maps, cut off from the physical body. The embodied human mind is thus an expert at creating falsified bodily maps (Damásio 2003) and thus we are also experts at hallucinating: "The brain allows us to hallucinate certain body states by a variety of means" (Damásio 2003, 118). Indeed, the human mind is able to disconnect the neural map from bodily activity (for example through the disconnection of the bodily map from bodily signs). The phenomenal body created by the captive as a control bubble in captivity is none other than such a map, what Damasio defines as an "as-if-body-loop" (Damásio 2003: 115).

It has already been noted that in captivity the embodied phenomenal body becomes a threat to the subject. Therefore the subject must disconnect himself from the original/initial phenomenal body. However, this disconnection itself will result in emptiness and a loss of sanity. Therefore, in order to keep his sanity and survive the impossible reality, the captive creates a new phenomenal field, a non-bodily one. The basis of this is the new phenomenal body disconnected from reality (the

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Footnote 4 continued

is possible (even useful), as demonstrated by Damásio (2003, 1999). Moreover, representation—neural activity representing a certain situation of the body in the world—can also be applied in dynamic approaches to neuroscientific research using the phenomenological approach, yet the nervous system alone cannot provide us with information about the subjective experience (Cosmelli et al. 2007; Thompson 2007; Thompson and Varela 2001). In addition, the phenomenological approach rejects the concept of representation advocated by philosophy of mind (Zahavi and Parnas 1998; Thompson 2007). In fact, "The representative theory of perception claims that the rose affects my sensory apparatus, and that this causes a mental representation of the rose to arise in my consciousness. According to this theory, then, every perception implies (at least) two different entities, the extra-mental object and the intra-mental representation" (Gallagher and Zahavi 2008: 91). Indeed, this approach claims that the world is not represented neutrally and passively in one's mind (Noë 2009) but that, since consciousness is part of nature and the mind is embodied, the mind extends into the world (Clark and Chalmers 1998) while representations do not reflect the world perfectly (Varela, Thompson and Rosch 1991, (see also the special volume of *Review of Philosophy and Psychology* (2012): 1–13).

disembodied phenomenal body), which becomes the object of the consciousness and its rational foundation yet is disconnected from the real world outside. The “control bubble” is thus none other than the disembodied phenomenal body disconnected from the natural body—a result of the internal world of the captive. Moreover, this new, disembodied, phenomenal body is the basis for a sense of self that is disconnected from the experience of captivity—as will be discussed in more detail below.

In this case, the captive “maintains” two different phenomenal bodies, one the body in captivity and the other his own creation. However, the disembodied phenomenal body, a result of the subject’s activity, has difficulty creating the elements required by consciousness, those generated by the body immersed in the world: for example the arrow of time (the concept that A comes before B and is also the cause of B). It also has difficulty creating an objective sense of time; the same arrow of time that is vital for maintaining sanity.

In summary, the new disembodied phenomenal body is a control bubble and a place of refuge from an impossible reality and it cannot supply what is provided by the actual body. Since from the outset this phenomenal body created by the captive is closer in character to the body that we imagine or hallucinate, the more time that passes and the longer the separation from the actual body, the more difficult it becomes more for the captive to distinguish between reality and imagination.

### Sense of Time and the New (Disembodied) Phenomenal Body

The data resulting from the interviews indicate that thought requires a dimension in which it conducts itself; arguably this dimension is the phenomenal body, which is not just a body representation but rather a representation of the body within its environment (Legrand 2007; Ramachandran and Blakeslee 1998; Damásio 1999). In normal circumstances, the structure of the embodied mind, the basis of thoughts in our natural body, designs the features of our thought. As was noted, in the state of solitary confinement the phenomenal body ceases to be rooted in the world and is rather embedded inside one’s mental processes, in one’s thoughts. Accordingly, the character of time also changes significantly (losing its bodily dimension). In fact, when lacking the bodily dimension, time, exactly like the phenomenal body, is embedded in one’s mental processes (for that matter, the stream of consciousness). Explicitly, the sense of time is a direct result of cognitive, emotional and mental processes that take place in the subject’s consciousness (cut off from the bodily dimension). Significantly, at the moment that the subject begins to absorb information from the body undergoing the impossible experience, he will no longer be able to maintain the separation and therefore the subject must maintain the disembodiment. This disembodiment cannot be total since, among other reasons, the subject cannot entirely ignore basic physical processes (needs, hunger and so forth), and in this respect the body continues to signal to the subject. However these are not signs and signals that can create a coherent sense of time, since there is no continuity and no broad dimension of time encompassing past-present-future.

Thus it appears that the sense of time arising from this new disembodied phenomenal body indeed constitutes some kind of cognitive, mental, and emotional

activities, a result of the information processing (not only cognitive processes) that, among other things, creates the disembodied phenomenal body. In this situation time completely lacks the objective dimension and an attempt takes place to create it through the disembodied phenomenal body.

### The Sense of Self and the Phenomenological Body

When discussing the sense of self it is necessary to distinguish between the autobiographical self (not an entity but a certain dynamic process) and the minimal self. While the autobiographical self is based on past-present-future, it has plans and memories (Damásio 1999), the minimal self is attached to the primary experience of Being-in-the-World in the dimension of the bodily self. It is possible to define this minimal self according to the sense of a basic perspective on the world and a sense of mineness (Zahavi 2006). It is important to understand that at this level there is neither sense of time, nor *who*, nor consciousness; this is defined as pre-reflective self awareness (Gallagher and Zahavi 2010). Most significantly, the minimal self is the basis for the subjectivity of experience (Zahavi 2006). It is clear that the disembodied phenomenal body cannot produce the same primary sense of perspective (mineness) on the world since by its very definition it is cut off from the bodily dimension.

In captivity the phenomenal body is cut off from the concrete reality, from the actual/natural body, yet the same disembodied phenomenal body allows the creation of a framework of time wider than that of past-present-future, and thus enables an autobiographical sense of self that is not rooted in the actual/natural body but in the disembodied phenomenal body. By contrast, although the autobiographical sense of self is embodied (Cassam 2011), the autobiographical self can also be created under the conditions of the disembodied phenomenal body. In fact, the disembodied phenomenal body allows the development of a new autobiographical sense of self cut off from the impossible reality of captivity.<sup>5</sup> Significantly this new disembodied phenomenal body does not create the same sense of initial point of view of the world but allows the development of a narrative sense of self not dependent on the reality of captivity.

As was noted, the autobiographical self functions in a wide expanse of time including the past, present and future and thus it is clear that one of the elements that the disembodied phenomenal body must provide is a framework of time. Without this there will be no possibility of creating an autobiographical self disconnected from the reality of the current moment. Likewise, in order to enable the disconnection from the actual/natural body it appears that the disembodied phenomenal body does not allow temporality. Indeed, Heidegger emphasizes (1996, 2011) that temporality opens the world up to the subject, using Mulhall's words: "temporality is the meaning of care" (1996: 145). In this case it is clear that the same disembodied phenomenal body does not create a sense of temporality through which the subject is absorbed into the world (Heidegger 1996, 2011; Merleau-Ponty 2002), which is exactly what the captive is trying to avoid.

<sup>5</sup> At the same time, it is likely that if this process continues for a prolonged period it will result in depersonalization, Dissociative Identity Disorder, and so on.



## Sanity, Sense of Time, and the (Disembodied) Phenomenological Body

Thought takes place in a time dimension as though it were a natural objective dimension (even Newtonian in many senses) but, as we have seen, during ASC time ceases to be this seemingly objective dimension imported from the outside world via our body. In ASC the phenomenal body loses its immanent and inimitable connection to the natural body. As a result, time stops being a transparent dimension and, eventually, the sense of time (temporality, *nowness*, arrow of time, duration) collapses.

The captive's struggle with insanity depends upon his ability to create a new, disembodied, phenomenal body anchored in thought and detached from his existence in captivity. This disembodied phenomenal body can be an anchor for generating a sense of time—a time framework. In creating a time framework, even a virtual one, the captive creates a dimension in which he can reorganize and categorize his thoughts. Furthermore, this disembodied phenomenal body is the basis for a “self” outside the limits of solitary confinement, devoid of time and space, and existing in what can be termed a “control bubble,” the rational anchor of thought.

Moreover, it is important to remember that from the captives' standpoint all logical thought (e.g., remaining sane) is a kind of decampment from the impossible situation. Thought (and in a sense this is a radical argument) is nothing but a representation (although not in the sense of the representationalist approach) of the body. Accordingly, thought without body and without bodily time is thought without structure. The captive wishes to return to the stable structure of thought despite the absence of a sense of time. This stable structure necessitates mutual relations between thought and time, and demands the creation of a disembodied phenomenal body.

## Conclusion

The captives' experience is a radical one. During captivity, captives who suffer from extreme sensory deprivation frequently lose their sense of body. By losing the sense of body one loses the body as “both-and” (the phenomenal body). Since human thought is grounded in one's body, losing the sense of body reveals the primary structure of human thought. The loss of the sense of body results in the loss of one's sense of objectivity because the body is not only an object of consciousness but also its rational basis. This loss of objectivity is expressed in the collapse of one's sense of time as an objective dimension. The arrow of time, a primary condition for rational and logical thought, ceases to exist/function. Similarly, the sense of *nowness* and the sense of duration collapse. The arrow of time, the sense of *nowness*, and the sense of duration are all created by the subject under the threshold of consciousness. In other words, time as a Newtonian/objective dimension is merely an illusion.

Before concluding this article it is important to note a number of limitations: First, a relatively small number of interviews were conducted, limiting our capacity

to apply the findings and conclusions to the general experience of captivity. Second, the length of time elapsed between captivity and the interview may have resulted in forgetfulness, or biased memories (however on this issue see James' notion that trauma "leave[s] a scar upon the cerebral tissues" [1890: 670], that is to say that "people encode and remember traumatic experience all too well" (McNally 2003: 783; see also Janet 1973/1889; Peace & Porter 2004) Third, the retrospective perspective used in this study, is reflective to a certain extent; for a more detailed discussion of the problem of introspective research see Nisbett and Wilson (1977). Fourth, the interviewees were taken captive in the 1973 Yom Kippur War (and in some instances a number of months prior to this), thus the research group is relatively homogeneous and broad conclusions cannot be drawn. Lastly, we have not used a control group in this study to represent different types of trauma.

Despite these limitations the study offers a detailed understanding of important findings regarding the relationship between sense of body, sense of time and sense of self, which has yet to be sufficiently studied. The sense of time lies at the heart of the structure of the human subject as Being-in-the-World. Since the sense of time mirrors the current state of relations between thought, body, and the world it constitutes the first indicator of a disintegration of the relationship between the subject and the world. Lacking a sense of body come is intimately linked with the collapse of the sense of time, and in extreme situations this may result in a collapse of the sense of self.

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